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THE 3H STRATEGY: IMPROVING THE COMPREHENSION OF LEARNING DISABLED AND POOR READERS THROUGH A QUESTION-ANSWERING STRATEGY

by

Lorraine Graham

M.A. (Education), Simon Fraser University, 1987

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY in the Faculty of Education

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THE 3H STRATEGY: IMPROVING THE COMPREHENSION OF LEARNING DISABLED AND POOR READERS THROUGH A QUESTION-ANSWERING STRATEGY

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Abstract

This study investigated the efficacy of the 3H strategy in enhancing the comprehension of learning disabled (LD) and poor readers. The 3H strategy which is based on Raphael's question-answer relationship research (e.g., Raphael, 1982; Raphael & McKinney, 1983) uses the mnemonics Here, Hidden, and in my Head (the 3Hs) to indicate questions and answers that are text explicit, text implicit, and script implicit. In addition, 3H strategy training provides students with explicit instruction about how to answer questions and use text information appropriately, as well as activating and providing relevant background knowledge for these tasks. In this study, 10 LD students and 16 poor readers learned the 3H strategy by applying it to grade-appropriate social studies materials in small groups within their classrooms. To control for differences in decoding skill, all passages were first read aloud to students as they followed the text. Trained students' comprehension performance was compared to that of 10 average students not taught the strategy. Results indicate that the 3H strategy increased the comprehension of LD and poor readers to a level comparable with that of average untrained students. Students maintained this gain on delayed maintenance tests administered four months after training. Within the trained group, comprehension scores of LD students were consistently higher than those of poor readers. With regard to specific question types, the 3H strategy was effective in facilitating students' comprehension of text implicit and script implicit questions, particularly for LD students whose improved comprehension was largely due to correctly answering more script implicit questions. Analyses of responses to questionnaires and interviews administered before and after training reveal that students who learned the 3H strategy increased their metacognitive awareness of comprehension processes and their ability to describe the task demands of question-answering. Implications of these findings for research and practice are offered.
DEDICATION

This work is dedicated with love to two extraordinary people: Joy Graham who has been a wonderful mother for all of my life and Jim Harrop, my loving and supportive partner of three years, eight months—and husband of eleven days.

8 December, 1992.
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I. INTRODUCTION

Reading is like travelling. It enriches one's life, poses questions and challenges, and provides endless opportunities to learn. In this study, students learned the 3H strategy, through materials and instruction organized around the metaphor of Reading as Travelling. Students were reminded to use what they already know about the world, and about reading, to answer questions after a passage. They were also encouraged to become involved with their tasks and take information of personal interest or souvenirs from every passage they read.

The 3H approach to question-answering sought to sensitize students to the sources of information available to answer questions after a passage (i.e., Here, Hidden, or in my Head), activate their prior knowledge, and provide specific information about how to answer text explicit, text implicit, and script implicit questions. This strategy was taught to small groups of poor readers in grades 5 and 6 using passages relevant to their social studies curriculum.

Students with learning disabilities and poor readers were selected for this study because they have considerable difficulty answering comprehension questions, particularly questions which require text-based or script-based inferences. Teaching these students a question-answering strategy like the 3H strategy, then, is an educationally relevant and instructionally appropriate intervention. Prior research concerning question-answer relationship (QAR) strategies, inferencing, and the comprehension processes of learning disabled (LD) and poor readers informed the development of the 3H strategy, the design of this research, and the formulation of the research questions for this study.

Subject Selection

Subject selection is very important to the exploration of issues concerning LD students and poor readers (Gough & Tunmer, 1986; Rutter & Yule, 1975; Stanovich, 1991). For this study, the first step in subject selection was to locate students identified as learning disabled by school board criteria, and to select average and poor readers through
consultation with classroom teachers on the basis of standardized tests. Students were then given two decoding tests (Wide Range Achievement Test, Jastak & Wilkinson, 1984; Woodcock-Johnson Nonsense Word Reading Test, Woodcock & Johnson, 1977) which assisted in forming groups of students with average and poor decoding skills, and provided evidence that LD students' decoding scores were indeed lower than those of students classified as poor readers.

Next, in accordance with the suggestion by Spring and French (1990), students' comprehension skills were assessed using the modified Peabody Individual Achievement Test (PIAT; Dunn & Markwadt, 1970). The purpose of the PIAT tests was not so much subject selection but to replicate and extend Spring and French's (1990) work on distinguishing between LD and average readers on the basis of their listening and reading comprehension scores. Spring and French (1990) validated a method of distinguishing children with reading disabilities from average readers by focusing on the discrepancies between students' reading and listening comprehension scores. When the PIAT was modified so that even numbered sentences were read by the subjects, and odd-numbered sentences read by the test administrator, Spring and French found that students with learning disabilities scored significantly lower on reading than on listening comprehension while average readers did slightly better on reading comprehension than on listening comprehension. With regard to listening comprehension, the scores of LD and average readers did not differ detectably from one another.

It is important to investigate alternate methods of identifying LD students because of the increasing controversy about the use and validity of intelligence test scores for this purpose (Rispens, van Yperen & van Duijn, 1991; Seigel, 1989). This study provides an opportunity to replicate Spring and French's work with LD and average readers and extend it to cover the reading profiles of poor readers. Students' reading and listening comprehension scores on the modified PIAT are central to the first research question:
1. What differences in listening comprehension performance exist between LD students, poor readers, and average readers? Based on Spring and French's work, it was hypothesised that poor readers and average readers would have uniform profiles of achievement across listening and reading comprehension tests, with the average students outperforming the poor readers on both measures. Learning disabled students, however, are expected to have the lowest reading comprehension scores of the three groups but listening comprehension scores comparable to those of average readers, and considerably higher than those of poor readers.

3H Strategy: A Question-Answer Relationship Strategy

In a successful series of studies Raphael and her colleagues (e.g., Raphael, 1982; Raphael & McKinney, 1983; Raphael & Wonnacott, 1985) introduced students in grades 3, 4, 5, and 8 to three types of question-answer relationships (QARs): text explicit, text implicit, and script implicit. Students who were taught about QARs learned to match comprehension questions with the location of information necessary to answer them. As a result of training, students improved their comprehension and increased their metacognitive awareness of both the general sources of information available to answer questions and the process of question-answering.

One QAR category—text explicit—refers to questions whose answers are present in one sentence in the text. A correct response to a comprehension task of this type requires selecting relevant information and applying simple comprehension processes. The two remaining QAR categories address more complex inferencing skills. These are text implicit QARs, which result when questions require integrating two or more pieces of information, and script implicit QARs which require answers based on students' background knowledge.

Raphael et al's. question-answer relationship training and other similar studies, like Graham (1986), have consistently increased overall comprehension scores for average and poor readers. With regard to question types, poor readers answered more text explicit
QARs correctly after training than text implicit or script implicit QARs. Script implicit question-answer relationships have proved to be most difficult for poor readers to understand and answer (Raphael & McKinney, 1983).

To date QAR strategy training has focused on average and poor readers. No studies have explored LD students' knowledge of the relationships between a question and its answer, or compared the effects of QAR training on the reading comprehension and metacognitive awareness of LD students, poor readers, and average untrained students. The current study, however, was designed to address these issues.

The specific strategy to be taught to LD and poor readers in this study is based on previous QAR work as adapted by Graham (1986). The new version of the 3H strategy represents substantial enhancement and extension of Graham's original strategy which used a series of self-questions to teach average and poor readers to recognize sources of information available to answer questions as Here (text explicit), Hidden (text implicit), or in my Head (script implicit). The 3H strategy taught in this study has three main features: (a) it activates students' background knowledge before comprehension questions are asked; (b) it provides explicit information about how to select appropriate sources of information and answer comprehension questions; and (c) the materials used to learn and practise the strategy are integrated with the students' social studies curriculum. The 3H strategy is described in detail in Chapter 3.

The following additional research questions comparing the performance of trained LD and poor readers and untrained average students are the focus of this study:

2. Are there differences in comprehension performance between trained students and untrained students at baseline, during training, and after training?
3. Are the metacognitive awareness scores of trained students different from those of untrained students before and after training?
4. Do differences in comprehension performance exist between LD students and poor readers who learned the 3H strategy?
5. Does learning the 3H strategy improve LD students' ability to answer inference questions more than it improves the inference-making of poor readers?

Questions 2 and 3 contrast trained and average untrained students. The predictions made for these questions are based on the success of previous question-answer relationship research. In this study, it is hypothesised that LD and poor readers who have learned the 3H strategy will perform like untrained average students on measures of general comprehension performance and metacognitive awareness.

Research questions 4 and 5 contrast the overall comprehension and inference-making of trained LD and poor readers. These predictions concern the relative performance of LD and poor readers and are based on current theory, research on inference-making, and poor readers' comprehension processes. The reasoning supporting the predictions and the predictions themselves are presented below.

Inference-Making

Inference-making is a part of a child's everyday life. Children make sense of the world around them by inferring differences and similarities between new situations and what they already understand and know how to do (Hansen & Pearson, 1983). However, both large scale assessments such as the National Assessment of Educational Progress (1984), and individual studies (e.g. Dewitz, Carr, & Patberg, 1987; Guszak, 1967; Hansen & Pearson, 1983; Phillips, 1988) report that students have considerable difficulty making inferences about what they read. In response, many researchers have turned their attention to improving students' knowledge of appropriate inferencing procedures (e.g. Holmes, 1987; Reitzel & Hollingworth, 1988).

Most research on inferencing has focused on schema-based inferences, classified as script implicit in the QAR scheme, which require manipulating knowledge about the content of the text (Hansen, 1981; Whitney, 1987). Text implicit inferences, which result when information from the text is joined with other information, are also an important type
of reading to consider, however, because they play an integral part in students' comprehension and application of concepts in the content areas.

Although many elementary school students have difficulty making inferences, poor readers have the most trouble (Crais & Chapman, 1987; Ellis Weismer, 1985; Raphael & Pearson, 1982). One reason for this may be that regular classroom instruction does not consistently require students to infer (Chou-Hare & Pulliam, 1979; Palmer, 1982). This is especially true of the reading instruction provided for poor readers (Allington, 1983). It is not uncommon for poor readers to receive reading lessons which emphasize decoding skills and word identification rather than reading practice and comprehension processes (Hansen & Pearson, 1983).

Because of their initial difficulties in comprehension, both LD and poor readers are expected to benefit from learning the 3H strategy. The choice of these students for training also allows a detailed examination of some of the differences and similarities between LD and poor readers' comprehension performance. It is important to gather this kind of information because, without it, research findings concerning poor readers' difficulties in reading comprehension may be "inappropriately generalized to learning disabled readers" (Snider, 1989, p. 89) and vice versa.

Indeed, one of the underlying assumptions implicit in the classification of LD readers is that they read in a way that is qualitatively different from other poor readers (Stanovich, 1991). At present, however, the results of studies which have matched LD and younger non-LD students on reading level, and those which have matched LD and poor readers of the same age and achievement level, are mixed (See Stanovich, 1991). This study was designed to contribute to the body of research which examines the relative skills of LD and garden-variety poor readers of approximately the same age.

The Comprehension Processes of LD and Poor Readers

The concept of garden variety poor readers comes from the simple view of reading put forward by Gough and Tunmer (1986). In their view, reading achievement (R) is
assumed to be the product of decoding (D) and comprehension (C), so that R = D x C. Good and average reading ability, therefore, can only result from an adequate level of skills in both decoding and comprehension. Reading problems, however, can occur from either an inability to decode, an inability to comprehend, or problems in both decoding and comprehension. Gough and Tunner suggest that the first of these profiles of poor reading is usually associated with dyslexia or reading disability, the second with hyperlexia or word-calling, and the third with garden variety poor readers.

Stanovich (1988) developed the phonological-core variable-difference (PCVD) model to explain the sort of cognitive processing differences that may exist between LD students and poor readers. In his PCVD model, Stanovich makes some predictions about the reading comprehension of LD and poor readers which have not been fully explored. He argues that because of an underlying phonological processing problem, LD students' decoding problems are more difficult to remediate than those of poor readers; and he goes on to speculate that: "Interestingly, however, if the decoding problem can be remediated, then the contingent prognosis for dyslexic (LD) children should be better—they have no additional cognitive problems that may inhibit reading comprehension growth" (Stanovich, 1988, p.602).

While this research could not arrange for the immediate remediation of students' decoding problems, the effects of this confounding variable were ameliorated during the teaching of the 3H strategy by using materials which were relevant to the students' classroom work, and by reading each passage aloud while the students followed along. As Sticht and James (1984) conclude a "common core of comprehension processes...underlie both listening and skilled reading." (p.302), the modified presentation of materials in an intervention concerned with comprehension is justified. Furthermore, this allows an examination of the relative effectiveness for LD and poor readers of the listening comprehension presentation of materials during strategy training.
With regard to research question 4, which asks whether the comprehension performance of LD students and poor readers would differ because of training, it is predicted that LD students would outperform poor readers on overall measures of comprehension. This prediction is based on Stanovich's PCVD model which suggests that the mode of presentation of the 3H strategy (i.e., in a way that minimizes decoding difficulties) should facilitate the comprehension of LD students. In addition, the features of the 3H strategy which serve to activate and provide background knowledge, should remove more restraints on LD students' comprehension due to lack of reading practice (Stanovich, 1986), limitations in their knowledge base (Ceci & Baker, 1989; Swanson, 1987), and failure to draw on their past experiences (Sachs, 1984). It is hypothesised that strategy training will have more impact on LD students' comprehension than on that of poor readers because students with learning disabilities have, by definition, average intelligence, and the deductions and inductions required by many comprehension questions may not pose the same problem for them as for poor readers.

Research question 5 asks if learning the 3H strategy improves students' answering of inference-questions. Based on the same reasoning which led to the conclusion that LD students would outperform poor readers on overall comprehension measures, it is also concluded that LD students will outperform poor readers on measures of inferential comprehension (i.e., text implicit and script implicit question-answer relationships).

Because the 3H strategy attends to students' decoding difficulties and pays particular attention to activating relevant background knowledge, it effectively removes two major obstacles to the process of making inferences from text. Further, this strategy also supplies students with explicit information about how to locate information to make text based inferences, and how to identify questions which require script implicit answers. It is predicted, then, that LD students will respond to the instructional conditions provided by the 3H strategy by making more correct inferences in answering questions after passages than poor readers will.
This prediction is based on the underlying premise of the phonological-core variable-difference model—that LD students have a relatively specific reading problem in the area of decoding, while poor readers have a generalized deficit in reading skills. Once students' difficulties in decoding, selecting relevant information, and accessing prior knowledge are attended to through the 3H strategy, it is suggested that LD readers will have greater success on inferencing tasks than poor readers will.

Research Questions

1. What differences in listening comprehension performance exist between LD students, poor readers, and average readers?

2. Are there differences in comprehension performance between trained students and untrained students at baseline, during training, and after training?

3. Are the metacognitive awareness scores of trained students different from those of untrained students before and after training?

4. Do differences in comprehension performance exist between LD students and poor readers who learned the 3H strategy?

5. Does learning the 3H strategy improve LD students' ability to answer inference questions more than it improves the inference-making of poor readers?
II. REVIEW OF LITERATURE

In the first section of this chapter, the literature related to the research questions will be reviewed. First, the debate concerning methods of distinguishing learning disabled readers from other students will be discussed and the use of reading comprehension and listening comprehension discrepancy profiles for this purpose will be outlined. This work will be related to Stanovich's phonological-core variable-difference (PCVD) Model (1988) which makes predictions about the cognitive processing abilities of learning disabled (LD) and poor readers. Next, recent research regarding LD and poor readers' comprehension, particularly their inference-making, will be reviewed. Finally, specific strategy training programmes which have taught question-answer relationships (QARs) will be described. This is an important section of the literature review because the reading comprehension strategy developed for this study (the 3H strategy) is based on previous QAR training (e.g., Raphael, 1982; Raphael & Wonnacott, 1985). The second section of this chapter explains how 3H strategy training differs from previous question-answer relationship research.

Section 1: Literature Related to the Research Questions

This study builds on the success of previous comprehension strategy research. It is particularly interesting, however, because it investigates the comparative effectiveness of a question-answering strategy for LD and poor readers.

Identifying LD Students

Distinguishing LD students from other low-achieving students has been a controversial practice throughout the history of the learning disabilities field. The recent definition developed by the National Joint Committee on Learning Disabilities (1988) defines learning disabilities as:

a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the
individual, presumed to be due to central nervous system dysfunction, and may occur across the life span.

Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability.

Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance) or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences.

A feature of this and other currently accepted definitions of LD is the exclusionary criteria which indicate when learning problems are not considered learning disabilities. These exclusionary criteria highlight a key component of the concept of learning disabilities: that LD students' academic failure is unexpected in view of their general intellectual competence and socio-educational opportunities (Hammil, Leigh, McNutt, & Larsen, 1981; Stanovich, 1991). Most commonly, this unexpected failure has been operationalized as a severe discrepancy between students' ability and achievement. As Reynolds (1985) notes, "Severe discrepancy is easily measured relative to other components of the definition of learning disability" (p. 39), therefore, discrepancy criteria have been widely used to identify LD individuals due to the measurement difficulties inherent in diagnosing processing problems (Board of Trustees of the Council for Learning Disabilities, 1987; Wong, 1986).

While it is reasonable to propose a classification of students with a discrepancy between intellectual aptitude and actual achievement, problems have attended most attempts to operationalize the notion of "severe discrepancy" (Keogh, 1987). Researchers have documented many inconsistencies and problems with using intelligence tests, other assessment procedures, and with ability-achievement discrepancy formulas commonly
used to identify LD students (Cone & Wilson, 1981; Epps, Ysseldyke & McGue, 1984; Forness, Sinclair, & Guthrie, 1983; Ysseldyke, Algozzine, Richley, & Graden, 1982).

In fact, the Board of Trustees of the Council for Learning Disabilities (1987) has recommended that the use of discrepancy formulas for determining eligibility for learning disability services be phased out and replaced with comprehensive diagnostic evaluations conducted by multidisciplinary teams. While a pattern of scores showing a discrepancy between ability and achievement should never be the sole basis for identifying a child as learning disabled, the problem of how to address the unexpected nature of some students' school failure remains. Such definitional dilemmas are not unique to the field of learning disabilities. Similar problems also mire the study of mental retardation and mental disorders despite the longer history of these fields (Graham, 1991).

Perhaps part of the solution to these difficulties lies in accepting a flexible and practical definition of learning disabilities which may be operationalized differently according to its purpose (Wong, 1986). As Keogh (1983) suggests, the LD classification has at least three functions: (a) to focus attention and advocacy efforts in support of certain individuals, (b) to serve as a category for providing services for them, and (c) to delineate a condition that requires scientific study. Because parents, teachers, and researchers have different personal and professional investments in the LD field, the kinds of operational definitions that they support vary. For example, most often teachers and administrators categorize pupils as LD to facilitate appropriate educational services; they are not concerned with providing a homogeneous sample for research purposes.

Recognizing the utility of different operational definitions of LD may ameliorate some of the longstanding problems in identifying students' with learning disabilities. However, as unexpected failure is a fundamental component of the concept of learning disabilities, the assessment procedures used by multidisciplinary teams still will have to deal with operationalizing ability-achievement discrepancies in some way. To this end, it has been suggested that the discrepancy between students' reading comprehension and
listening comprehension scores be used to identify LD students with severe reading problems (Stanovich, 1991; Spring & French, 1990; Sticht & James, 1984).

**Reading Comprehension and Listening Comprehension Discrepancies**

Although learning disabilities may occur in several areas of academic functioning, a large proportion of LD individuals have difficulties in reading (Lyon, 1989). As LD students with reading problems are the focus of the strategy research described in this dissertation, further discussion of issues of identification will relate specifically to them, though many of the major points are also applicable to students with learning disabilities in other academic areas.

Despite repeated calls for multidimensional diagnosis procedures (Tindal & Marston, 1986), the defining feature of reading disabilities has been a discrepancy between reading achievement and aptitude as measured by an individual intelligence (IQ) test (Frankenberger & Harper, 1987). Initially, including a measure of intelligence in discrepancy formulas was probably prompted by the belief that IQ scores were valid measures of intellectual potential (Stanovich, 1991) which could help explain the reading failure of some students despite adequate instruction and no obvious handicapping conditions.

Recently, however, the validity of intelligence tests, in general, and their use in diagnosing learning problems, in particular, have been questioned (Sattler, 1988; Seigel, 1989). Rather than indicating true potential, most IQ test scores are now considered measures of current cognitive functioning (Detterman, 1982). As such, they may be culturally biased, inappropriate for children with language difficulties, and susceptible to interference from the same learning problems that they have been used to identify (Berninger, Hart, Abbott & Karovskv, 1992; Seigel, 1989; Stanovich, 1986). The use of psychometric discrepancies based on IQ tests have also been criticized as educationally irrelevant because they do not provide information about how students are likely to respond to instruction (Kavale, 1987). Opposition to the use of intelligence tests has grown to such
an extent that their administration to any child attending school in the large U.S. urban districts of Los Angeles and San Francisco has been prohibited (Spring & French, 1990).

The discrepancy between students' reading comprehension and listening comprehension abilities has been suggested as a more educationally relevant alternative to the usual ability-achievement formulas by a number of researchers (Royer, Sinatra & Schumer, 1990; Spring & French, 1990, Stanovich, 1989; Sticht & James, 1984). For example, Royer, Sinatra & Schumer (1990) point out that different profiles of reading comprehension and listening comprehension scores can suggest different instructional goals. The student who reads almost as well as s/he listens "may not make further progress in reading ability until general language comprehension skills improve. This might suggest an instructional approach designed to improve factors influencing general language comprehension" (p. 184). In contrast, the student who scores higher on listening comprehension tests than on reading tests would be expected to benefit from specific instruction in reading using instructional procedures that are different from those currently employed. Presumably, students who have poor reading comprehension due to inefficient word recognition processes are experiencing a drain on their cognitive resources; the resulting bottleneck impedes comprehension (Perfetti, 1985; Perfetti & Lesgold, 1979).

Although reading is much more than simply listening plus decoding (Perfetti, 1987), most researchers agree with Sticht and James' (1984) conclusion that a "common core of comprehension processes . . . underlie both listening and skilled reading" (p.302). The relation between the two, however, is complex, and has been characterized by Perfetti (1987) as an asymmetrical relationship which changes as the child develops. Perfetti (1987) argues that reading and listening comprehension are quite different in beginning readers, but the process of reading becomes similar to the process of listening once students master decoding. Students whose development does not follow this usual pattern are those with listening comprehension scores considerably higher than their reading
comprehension. LD students with poor decoding skills are most likely to have this profile of comprehension skills.

By focusing on reading comprehension and listening comprehension scores, Spring and French (1990) validated a method of distinguishing LD children with reading problems from average readers. As LD students tend to have difficulty with listening tasks which require the verbatim repetition of spoken sentences and tax their working memory (Shankweiler, Smith, & Mann, 1984; Torgesen, Greenstein, Houck, & Portes, 1985), Spring and French (1990) used the Peabody Individual Achievement Test (PIAT; Dunn & Markwardt, 1970) to assess comprehension. The PIAT asks students to choose one of four pictures that correctly illustrates the content of a sentence. Consequently, it does not place heavy demands on students' working memory as does the verbatim recall of sentences.

Spring and French (1990) modified the PIAT so that even numbered sentences were read by subjects and odd-numbered sentences read by the test administrator. Students with learning disabilities scored significantly higher on listening than on reading comprehension tests while average readers did slightly better on reading comprehension than on listening comprehension. The listening comprehension scores of the LD and average readers did not differ detectably.

The method of identifying LD readers described by Spring and French (1990) warrants further investigation. It has at least two advantages over discrepancy scores calculated between reading achievement and intelligence. First, reading-listening comprehension discrepancies are more educationally valid because they can directly suggest remedial strategies (see Royer, Sinatra, & Schumer, 1990). Second, Spring and French's (1990) method may be permitted in school districts that do not allow intelligence testing.

Spring and French's (1990) study, however, did not investigate reading and listening comprehension profiles which distinguish between LD and poor readers. This is a very important distinction because one of the underlying assumptions implicit in our
current conception of LD readers is that these students read in a way which is qualitatively different from other poor readers because of specific phonological deficits but otherwise intact comprehension processes (Stanovich, 1991). Stanovich's (1988) phonological-core variable-difference model (PCVD) which incorporates Gough and Tumner's (1986) simple view of reading is useful in understanding the hypothesised differences between LD and garden variety poor readers.

**Phonological-Core Variable-Difference (PCVD) Model**

Stanovich (1988) developed the phonological-core variable-difference (PCVD) model to explain the sort of cognitive processing differences that exist between learning disabled students with reading problems and garden variety poor readers. The model is based on the assumption that LD students have a cognitive processing deficit that is reasonably specific to the task of reading (Stanovich, 1986). Gough and Tumner (1986) and other researchers (e.g., Perfetti, 1985; Seigel, 1985) have located this deficit at the word recognition level of reading and labelled it a specific consequence of phonological processing problems.

Phonological processing problems cause difficulties in naming sound segments at the phoneme level and poor utilization of phonological codes in short-term memory (Mann, 1986). In short, phonological processing difficulties make the learning of sound to symbol correspondences difficult and, therefore, directly impede students' decoding competence. According to the phonological-core variable-difference model, then, LD students with reading problems have severe problems in decoding but adequate skills in other reading related areas such as comprehension, vocabulary, and real-world knowledge (Stanovich, 1988). In contrast, though poor readers also have phonological problems, their reading deficits extend into a variety of domains (e.g., vocabulary, language comprehension) and affect higher level reading skills like comprehension (Stanovich, 1986). Thus, on reading and listening comprehension tests like the modified PIAT (Spring & French, 1990), LD readers would be expected to have considerably higher listening comprehension scores
than reading comprehension scores, while poor readers' listening and reading comprehension would be uniformly low.

Stanovich (1988) uses the PCVD model to make some predictions about the reading comprehension of LD and poor readers. He argues that if LD students' severe decoding problems are dealt with, they may have better reading comprehension than poor readers and may respond more readily to comprehension strategy interventions. The current study investigates Stanovich's prediction. This research is important because it can help clarify some of the controversy surrounding the classification of students as learning disabled by indicating whether LD and poor readers respond differently to educational treatments. If their responses differ, the classification of a separate group of learning disabled students is supported. If not, it may be more appropriate to classify students as reading disabled by virtue of their poor decoding skills than by any reference to an achievement/ability discrepancy (Siegel, 1989; Stanovich, 1991).

**LD and Poor Readers' Inference-Making**

Written texts are not completely explicit; readers have to fill in missing information, connect ideas in the text, and generate interpretations of what they read from their existing cognitive skills, linguistic awareness, and background knowledge. Thus, the ability to draw appropriate inferences is central to comprehension (Anderson, 1978; Rips, 1988; Rumelhart, 1977). As such, it is an educationally relevant dimension of reading to target in an intervention designed to compare LD and poor readers' responses to reading comprehension instruction.

Although there are many different definitions of inferencing most agree that: (a) inferred information is related to available text, but not stated explicitly in it, and (b) inferences require readers to interpret the text in the context of their existing knowledge (c/f Allen, 1985; Winne, Graham, & Prock, in press). In general, an inference can be described as "the generation of new semantic information from old semantic information in a given context" (Rickheit, Schnottz, & Strohner, 1985, p. 8).
Research indicates that inference-making is difficult for many readers (National Assessment of Educational Progress, 1986; Phillips, 1988), especially LD and other poor readers (Dewitz, Carr, & Patberg, 1987; Holmes, 1987). A number of hypotheses have been offered to explain students' difficulty with inferential comprehension tasks. One explanation is that regular classroom instruction does not consistently require students to infer (Chou-Hare & Pulliam, 1979; Palmer, 1982). This seems especially true of the reading instruction provided for LD and poor readers which generally emphasizes decoding skills and word identification, not comprehension processes (Allington, 1980; Allington, 1983; Hansen & Pearson, 1983). Some studies of regular classroom interaction have also found that teachers ask LD and poor readers fewer inferential questions than they ask better readers (e.g., Sadker & Sadker, 1982).

Students may also have difficulty making inferences because of problems selecting the correct cues from questions (McCormick, 1992), and their failure to attend to relevant information in the text (Gamer, McCready, Wagoner, 1984; Winne, Graham, & Prock, in press). The nature of the text, itself, can also have an impact on inference-making. For example, Graesser, Golding, and Long (1991) found that students are more likely to make correct inferences about narrative texts than about expository texts.

Another important explanation of students' inferencing difficulties centres around their inappropriate use of sources of information available for answering questions. Spiro and Myers (1984) outline how LD and poor readers may overrely on text or on their background knowledge while making inferences. Overreliance on text usually occurs when readers use a visual-matching strategy (Davey, 1988) to answer questions, that is, locate key words from questions in the text, then write the sentences in which the keywords occur as their answers. While this sort of strategy may be effective for answering explicit questions, it is not successful for inference-making which, by definition, requires some joining together or accessing of information to generate a new understanding of text. Students may overrely on text information for a number of reasons.
They may lack appropriate background knowledge (Pearson, Hansen, & Gordon, 1979; Snider, 1989), or be uncertain about what background knowledge to use and when to use it (Spiro & Myers, 1984). Alternately, they may not know how to combine their existing background knowledge and text information to answer inference questions (Phillips, 1988).

In direct contrast to the inappropriate use of text information, Spiro and Myers (1984) suggest that an overreliance on background knowledge may be a particular problem for LD and poor readers. These students usually have limited access to text information because of decoding problems, and, as a result, may develop a strategy of guessing at possible responses to questions based solely on background knowledge of the topic. McCormick (1992) provides an example of this erroneous strategy in her analysis of disabled readers' inference-making. Some of the students participating in her study had just completed classroom lessons explaining how vitamin deficiencies can cause malformations in growing bodies. Therefore, "when asked why a pilot needs to be healthy when flying a plane, one boy wrote, 'Because if he's not healthy, he might get all humpy backed and fall out of he [sic] chair.' This was clearly not the answer implied by the selection, but rather . . . an attempt to force interpretation through a preexisting schema" (McCormick, 1992, p. 73).

Although LD and poor readers have difficulty with comprehension tasks for a number of reasons, research shows that they can be trained to (a) identify sources of information available to answer questions (e.g., Raphael, 1982; Raphael & McKinney, 1983); (b) select important parts of text for answering questions (Garner, Hare, Alexander, Haynes, & Winograd, 1984), (c) activate appropriate background knowledge (Hansen & Pearson, 1983), and (d) integrate background knowledge with text information (Carr, Dewitz, & Patberg, 1989; Dewitz, Carr, & Patberg, 1986). Studies which have taught students these strategies have been effective in improving their inferential comprehension (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989).
The successful studies by Garner, Hare, Alexander, Haynes, and Winograd (1984), Hansen and Pearson (1983), and Dewitz, Carr, and Patberg (1986) will be reviewed briefly before Raphael et al.'s work (e.g., Raphael, 1982; Raphael & McKinney, 1983) on teaching students question-answer relationships (QARs) is described in more detail.

**Comprehension Strategy Training**

Many poor readers do not look back in the text to find answers to comprehension questions. Instead, they may select one or two words from a question and free associate a response (Holmes, 1987). In contrast, skilled readers use a lookback strategy. They know when to look back in the text for answers and do so by focusing on important parts of the text, then integrating information to produce an appropriate answer (Garner, McCready, & Wagoner, 1984).

Twelve intermediate grade students with reading problems were trained to use text lookback strategies by Garner, Hare, Alexander, Haynes, and Winograd (1984). Students first learned to identify questions which would most likely have their answers in the text. Next, they practiced skimming the text to find sections which could contain particular answers. After three days, trained students looked back in the text more often than students in the control group, and consequently, answered more comprehension questions correctly. Although Garner et al. (1984) did not collect direct measures of strategy use, this study showed that poor readers can be taught to consult the text when necessary for answering inference questions.

Just as students can be taught to use text information more effectively, they can also be taught to use their background knowledge more appropriately. A number of successful reading interventions have included components designed to activate students' background knowledge. One of these was a study conducted by Hansen and Pearson (1983) in which grade 4 students compared situations in the text to occurrences in their own lives. Before reading, the students made predictions about the text based on their own previous
experience. In so doing, they activated background information and improved their knowledge of the text through listening to the experiences and predictions of other students. After reading, students were asked 10 inferential questions which required the integration of information from text and background knowledge. Students' answers and their reasons for answers were discussed in small groups.

After 10 weeks of training, students who participated in Hansen and Pearson's (1983) study were able to answer more comprehension questions correctly and recall more information from the training passages than control students who had continued in their usual reading program. From these results, it appears that strategies which encourage students to relate text to their own experiences are effective in improving the inferential comprehension of poor readers (Pressley, et al., 1989).

Dewitz, Carr, and Patberg (1986) also activated students' background knowledge in order to improve inferencing. In this study, 101 grade 5 students were taught a strategy for integrating background knowledge with text information. First, students completed cloze exercises based on familiar situations. They were shown how to use syntactic and semantic information as well as background knowledge to fill in the blanks. After this introduction, students went on to complete similar passages based on social studies material. As soon as students completed a cloze passage, they were given feedback about why their answers were right, before inferential questions were asked about the passage.

Gradually the cloze exercises were faded out and the strategy was transferred to unmodified social studies materials. After reading a text, students were encouraged to search it and to use background knowledge to answer inferential questions. Dewitz, Carr, and Patberg (1986) also provided students with a self-monitoring checklist which guided them through the strategy. This checklist directed students to check that their answers (a) made sense, and (b) utilized all the appropriate information available in the text and their background knowledge. After approximately 15 hours of training over six weeks, students in the cloze training condition had better literal and inferential comprehension than
students in other instructional conditions (structured overview and cloze exercises plus structured overview). This suggests that students' comprehension of text was facilitated by instruction which focused on integrating information from the text and from the students' background knowledge.

In general, these comprehension training studies indicate that students with reading problems benefit from strategies which activate background knowledge and teach the appropriate use of text information. The 3H strategy examined in this dissertation has been influenced by these research findings, as well as by a series of studies conducted by Raphael and her colleagues (e.g. Raphael & Pearson, 1980; Raphael & McKinney, 1983; Raphael & Pearson, 1985) which have successfully improved poor readers' comprehension by teaching them to be aware of the sources of information available for answering questions. In the next section, the major studies conducted by Raphael and others will be described in some detail to illustrate the scope and applicability of previous question-answer relationship training. It is important to place Raphael's work in context because the 3H strategy was developed from the question-answering training used in her research.

**Question-Answer Relationships**

Written comprehension questions are a routine part of the classroom environment. In reading instruction, these tasks are used frequently by teachers to promote comprehension of reading passages by focusing the student's attention on important concepts and details in the text (Durkin, 1978-79; Guzak, 1967). In addition to instructional uses, questions which relate to either formal tasks (e.g., standardized tests) or informal tasks (e.g., class tests; informal reading inventories) are the primary method of assessing students' reading comprehension ability (Raphael & Gavelek, 1984).

With so much emphasis on question-answering tasks in school, it is important to provide a planful way to approach this comprehension activity, particularly for less skilled readers who may lack an appropriate strategy for answering comprehension questions. To
this end, Raphael and her colleagues conducted a series of studies which provide a framework for teaching students how to answer comprehension questions after a passage. Their training program involves sensitizing students to the sources of information that are available for responding to most questions.

Raphael's training program is based on Pearson and Johnson's (1978) taxonomy of question-answer relationships. Questions are not classified in isolation under this taxonomy but in relation to the sources of information used to answer them. In broad terms, the sources are either (a) the text or (b) the reader's background knowledge. Within these locations, Pearson and Johnson divide question-answer relationships into three distinct categories—text explicit, text implicit and script implicit—which describe the interaction between the text, the question, and the reader's knowledge base.

Under Pearson and Johnson's scheme, text explicit QARs refer to questions and answers that are found directly in the text. These questions and answers are both derived from a single sentence. Text implicit QARs have questions and answers that are inferred from information found across different sentences, paragraphs or pages. All the necessary information is provided by the text but the reader has to integrate it appropriately. Script implicit QARs refer to questions which are responded to with information from the reader's knowledge base. The answer may be related to the topic of the passage but is not available in the text.

Raphael's program of question-answer relationship research was conducted in three parts: a demonstration study, training studies, and then, instructional studies (Raphael & Gavelek, 1984). The demonstration study (Raphael & Pearson, 1980) investigated the differences in the use of question-answering strategies among 4th, 6th and 8th grade students of above average, average and below average ability. Students were introduced to the three QAR categories in a brief ten minute session. They then read two passages and answered and identified QARs for eighteen comprehension questions. Results showed that
the ability to use QARs differentiated between skilled and less skilled readers, and between readers of different grade levels (Gavelek & Raphael, 1982).

Next, a training study (Raphael, 1982) investigated the effectiveness of a question-answering strategy based on QARs in improving students' comprehension. For training purposes, Pearson and Johnson's question-answer relationship categories were paraphrased to make the terms easier for students to remember. Text explicit QARs were called Right Here, text implicit QARs were termed Think and Search, and script implicit QARs were labelled On My Own. Initial lessons introduced the conceptual framework of QARs and provided practice on easy materials. QAR tasks became progressively more complex over the training sessions.

The subjects in Raphael's (1982) initial training study were 20 average and low ability students from grades 4, 6 and 8, and 20 average and high ability students from grade 6. Following training, students' comprehension performance was compared to a control group which had received a brief orientation to QARs. Results showed that, as predicted, high ability students outperformed low ability students, and older students performed at a slightly higher level than younger ones. However, the most interesting results were found when comparing treatment and control groups. The performance of trained students of low ability was comparable to that of control students of average ability, while the performance of trained average ability students was comparable to that of high ability students without training. The study concluded that QAR training was particularly successful in improving the reading comprehension of poor and average students, but did not significantly increase the performance of high ability students, probably because of their already appropriate strategy use.

Two instructional studies by Raphael and Wonnacott (1981) and Raphael and McKinney (1983) tested the feasibility of teachers' implementation of QAR programs in the classroom. Eleven teachers and 135 grade 4 students participated in Raphael and Wonnacott's (1981) study. This research was designed to examine the level of inservice
training necessary to facilitate teachers' use of QAR strategy training in their classrooms. One group of teachers was provided with inservice about QARs, supplied with materials, and given feedback at the end of each lesson. A second group of teachers received inservice, but no materials. Instead, an emphasis was placed on creating appropriate QAR materials from classroom resources. The third group of teachers was given all the materials provided to the first group but received no inservice. A fourth group of teachers received no question-answer relationship inservice or materials for use in their classrooms.

The results indicated that inservice sessions were effective whether the teachers used the materials provided or constructed their own. While the comprehension scores of high ability students were not affected by the use of QAR training in the classroom, there was an improvement for average students, and an even greater improvement for poor readers. Raphael and Wonnacott concluded from this study that brief inservice presentations can be productive, and that the effectiveness of QAR training varies as a function of students' reading ability.

In Raphael and McKinney's (1983) study, 217 students of low, average, and high ability in grades 5 and 8 took part in a ten week QAR training program. Teachers in the control condition received no QAR training. Teachers whose classes were allocated to the training condition, however, received a half day inservice program on QARs. After this orientation to question-answer relationships, teachers and their classes worked through three booklets of introductory, training, and maintenance QAR material during reading lessons. Students from training and control conditions then completed one test passage on each of two consecutive days. On the first day, all students read a passage and answered eighteen comprehension questions about it with no prompting to think of or use QARs. On the second day, the control students received an orientation to QARs before reading the passage and answering the comprehension questions.

Overall, Raphael and McKinney's (1983) training increased comprehension performance. Average and low ability students were most responsive, especially with
regard to the more difficult inferential comprehension questions. However, eighth grade
students in the control group who were given a brief orientation to question-answer
relationships performed just as well as those who had been fully trained. In general, high
ability and older students did not benefit as much from training possibly because of their
"already well developed skills in implementing various strategies" (Raphael & McKinney,
1983, p. 84).

In summary, Raphael and her colleagues' studies demonstrate that teaching
students to recognise text explicit, text implicit, and script implicit question-answer
relationships can improve the comprehension performance of average and poor readers.
These students do not appear to have their own successful strategies for answering
comprehension questions. Additionally, question-answer relationship training has been
used effectively in the classroom by teachers who received as little as half a day of
inservice.

Limitations of QAR research. As well as acknowledging the successes of previous
QAR research, it is important to address its general limitations. These include concerns
about the comprehensiveness of Pearson and Johnson's (1978) taxonomy, the usefulness
of training for students with poor background knowledge, and the place of paraphrases,
and questions answered in the absence of text, within the QAR classification system.

Although the text explicit, text implicit, and script implicit taxonomy of question
types is fairly comprehensive, it does not, as Pearson and Johnson (1978) recognise,
satisfactorily address the affective and evaluative aspects of comprehension. This is
important because, as Allington (1983) points out, "virtually all adult-like post-reading
questions fall into the scriptally implicit category" (p. 231). For example, teachers ask
questions like, "Do you think the character was justified in .....?", "What part did you like
best about....? Why?" and "Is ...... a statement of fact or opinion? Have a reason for
your answer." All these questions would be classified as script implicit under Pearson and
Johnson's (1978) taxonomy. However, this label seems inadequate because it is not clear
how much text and/or script knowledge is necessary for an adequate response to such questions (Allington, 1983; Pearson, 1983).

Further, script implicit questions seek to access students' background knowledge. This may be problematic for students who do not have appropriate information available. As one of Raphael's trained students exclaimed, "I went to my head but there's nothing there!" (Raphael & Pearson, 1985, p. 230). Training in question-answer relationships is not enough for students who lack prior knowledge. These students need additional instruction and more relevant information regarding the materials they are being asked to read before QAR training can be effective (Gavelek & Raphael, 1982).

Another point to note about the QAR taxonomy is that the whole system is only appropriate when text is available to students. If students cannot look back at a text, then it is very difficult for them to identify where questions and answers are located. In a sense, whatever is remembered by the student becomes script implicit or part of what is already known about the topic (Pearson, 1983). Further, without the text present or administering a knowledge pretest it can not be inferred unambiguously that the text was the source of a particular response because it is possible that students already possessed the information in their background knowledge.

A final criticism of question-answer relationship research has been illustrated by some of the limitations already mentioned, that is, that the QAR classification system is far from foolproof. Raters often disagree as to the appropriate category for question-answer relationships. Allington (1983) suggests that these disagreements stem from the fact that both the question and the desired response need to be considered in order to classify QARs. For example, although a researcher or teacher may intend a question to require a text explicit response, students may answer it more fully using text implicit or script implicit information, or both. This problem highlights the need for well written passages and questions to reduce confusion about question-answer relationship tasks.
Similarly, students' paraphrases of text information are difficult to classify. Because a paraphrase represents some integration of text information into the students' knowledge base, it is unclear whether the answer is actually text based or script based. Raphael (1980) found that students often provided paraphrases to questions that invited text explicit answers. In these cases, the scoring procedures used for previous QAR studies penalized students for writing a correct answer in their own words, rather than in the language of the text.

With regard to the problems of classifying text explicit, text implicit and script implicit question types, it should be remembered that QAR training, like any strategy training, is a means to an end. The students' comprehension as indicated by the content of their responses is what really matters.

Section 2: How the 3H Strategy Differs from Previous QAR Training

The 3H Strategy

In 1985, Raphael outlined a modified program which responded to teachers' concerns about using question-answer relationship training in their classrooms. Some of the features of this program were incorporated into the 3H strategy. Further alterations to original QAR training have been made in light of recent research findings, and the limitations of QAR research just discussed. The 3H strategy differs from previous question-answer relationship strategies because of (a) its revised classification scheme; and (b) the instructional emphasis it places on the activation of background knowledge and the appropriate use of text information to answer comprehension questions, particularly inference questions.

Classification

The keywords used to label text explicit, text implicit, and script implicit question-answer relationships —Here, Hidden and in my Head—give the 3H strategy its name. The 3Hs are preferred over Raphael's labels (Right Here, Think and Search, On My Own) because they make use of alliteration as a mnemonic device to help students remember the
QAR terms. The 3Hs also refer directly to the sources of information available to answer questions. Because the 3Hs are all places where answers may be found, the student can visualize the answer as Here in one sentence in the text, Hidden among two or more sentences or in the text and the students' background knowledge, or in the student's Head and not in the text at all. This type of visualization can enhance the learning of poor readers who often lack spontaneous generation of imagery to facilitate memory (Yuille & Marschark, 1984).

A specific difference in the classification of QARs lies in the definitions used for text explicit and text implicit categories in the 3H strategy. There was some confusion between these classifications in the original QAR training procedures, because of (a) anaphoric inferences and (b) inferences which require both text and script knowledge.

Anaphoric inferences. In the study conducted by Raphael and McKinney (1983), teachers had difficulty explaining to students that an answer which seemed to be in one sentence in the passage was really in two sentences linked by a pronoun. This problem is illustrated by the following passage and question from Raphael (1982):

Ralph sat in the old rocking chair. He rocked harder and harder.

Suddenly he found himself sitting on the floor!

Question: What did Ralph do while sitting in the chair?

Answer: He rocked harder and harder.

Under Raphael's original system, this QAR would be labelled text implicit because an inference is needed between the pronoun, he, in the second sentence and its subject, Ralph, in the first sentence. Also, as the words in the answer are not similar to the words used in the question, this does not fit the definition of text explicit from Pearson and Johnson (1978).

Raphael (1985) recommends that this type of QAR be termed text implicit to remain consistent with her definitions for question-answer relationships. When students begin to make comments like "This is an awfully easy Think and Search. It seems like it should be
Right There." (p 7), then, she suggests that this QAR can be introduced as an exception to the rule and treated as text explicit.

The 3H strategy does not have any exceptions to the rule, instead it defines a QAR as text explicit if an adequate answer to a question can be found in one sentence from the text. This eliminates the provision that both the answer and the question must be derived from the same sentence (Raphael, 1982), though this is often the case. The 3H definition still retains the central idea that text explicit QARs have answers which are easily located in one sentence in the text.

Inferences which require both text and script knowledge. Text implicit question-answer relationships are also defined differently in the 3H strategy. This modification was necessary to deal with questions which require combining text information and background knowledge to answer them. These questions have caused confusion among researchers and teachers (Allington, 1983) and were not acknowledged by previous QAR classifications, until Raphael (1985) labelled them Author and You relationships. An example of this sort of question is "What is one difference between the traditional kimono and western-style clothing?" In the 3H strategy training program, this question followed a passage about traditional clothing of Japan. To answer it correctly students need to combine what they already know about our own western-style clothing with specific information about traditional kimonos from the passage.

Under the 3H scheme, questions of this type are considered Hidden QARs. Thus, a Hidden question is one responded to by a text based inference generated by joining together information, from (a) two or more places in the text, or (b) from the text and students' knowledge base. As inferencing has been defined as "the generation of new semantic information from old semantic information in a given context" (Rickheit, Schnotz, & Strohner, 1985, p. 8), then, text based inferencing occurs when at least one of the sources of information used to generate an inference is the text.
This definition distinguishes Hidden QARs from text explicit QARs which do not require inferential processes. To answer text explicit questions, students simply locate the appropriate information in one sentence in the passage. The recasting of Hidden QARs as text based inferences also sets them apart from script implicit QARs. Under the 3H classification system script implicit questions are answered by information in the students' knowledge base only. Answers to these questions do not require the use of any specific information from the text, even though they may be asked about general passage content. For example, a script implicit question asked following the passage on Japanese clothing was, "Why do you think some older people still wear traditional clothing every day?". Although the passage directly states that some older people do wear traditional clothes every day, there is no information in the text which can explain why they do so. The answer to this script implicit question can only come from what the students already know.

General information about questions and answers. As part of the 3H strategy, students discuss reasons for their answers and QAR classifications within a small group. These dialogues provide many valuable opportunities for the provision of general information about questions and answers. Once students were introduced to the 3H strategy, the following points were brought to their attention: (a) some questions have no answers; (b) some questions have more than one correct answer; and (c) the answers to some questions change over time (see Gavelek & Raphael, 1985)

This information provided a framework for explaining some of the difficulties inherent in question-answering and QAR classification. For instance, when discussing a question for which students had two different, but reasonable answers, the researcher reminded students that some questions can have more than one correct answer.

Instruction

Raphael and her colleagues (e.g. Raphael, 1982; Raphael & McKinney, 1983; Raphael & Wonnacott, 1985) taught QARs through corrective feedback given in response to students' efforts to answer comprehension questions. Their corrective feedback
consisted of listening to students' answers then "identifying the best possible response and
discussing the QAR that represents this response" (Raphael, 1982, p. 10.)

In contrast to previous QAR training, the instructional methods used to teach the
3H strategy emphasize knowledge activation and the appropriate use of text information for
inferencing. These features of instruction were supported by the use of an instructional
metaphor to introduce the 3H strategy and by close links to the classroom setting.

Background knowledge. Many studies have found that activating poor readers' background knowledge before reading can improve their comprehension (e.g. Dewitz, Carr, & Patberg, 1986; Hansen & Pearson, 1983). Activating and providing relevant background knowledge is an important part of the 3H strategy. The Head First! steps of the 3H strategy (What do I know? What don't I understand? What do I need to find out?) assist students to use appropriate knowledge and ask questions about what they do not understand. Activating background knowledge in this way provides a means for students to relate new information to that already available. Sharing and discussing what they already know about a topic also helps students increase their store of relevant knowledge and identify important information in the text when it is presented.

Use of text. The 3H strategy guides students' use of text in question-answering in three ways. First, students predict whether answers are located in the text or their background knowledge by using clues in the questions. Students learn that (a) text explicit QARs have answers in one sentence which may contain many of the same words used in the question; (b) text implicit QARs always require the joining together information from the text or from the text and background knowledge, and are signalled by questions asking for two or more reasons or containing words like "describe"; and (c) script implicit QARs often contain phrases like "do you think?" which indicate that answers are found in the students' background knowledge only. Students' also learn to pay attention to important content words in the questions (e.g., kimono, Morse code). These words are used to
guide students' rereading of the text (Garner, Hare, Alexander, Haynes, & Winograd, 1984).

Second, it is stressed to students that they should always check the passage for answers to questions, even if they feel they could provide adequate answers without doing so. This emphasis on text information was included to avoid disabled readers' tendency to overrely on background knowledge (McCormick, 1992). Students verify their initial QAR predictions by noting that if there is no information to answer the question in the passage, the answer must be script implicit. Similarly, if the answer or part of the answer was found in the passage then some information from the passage can be underlined to demonstrate that the QAR is either text explicit or text implicit. The 3H strategy requires students to underline information relevant to answering questions as a way of encouraging them to use text information as fully as possible.

Third, students are cautioned during training to check with particular care the sources of information for QARs classified as either text explicit or text implicit. As text explicit question-answer relationships require the underlining of only one sentence or part of a sentence from the passage, while text implicit QARs necessitate the joining together of information from more than one part of the passage, or from the passage and the student's knowledge base, it is emphasised that the information underlined in a passage can help students distinguish between these types of QARs. Additionally, because the answers associated with the text implicit category are never simply located in the passage, students are reminded during training that joining together text information and integrating background knowledge with text information is an important part of question-answering (Dewitz, Carr, & Patberg, 1986).

**An instructional metaphor.** Good readers and travellers are both involved in complex activities that rely on the interplay of past knowledge and present experiences to construct meaning. In this study, the metaphor of Reading as Travelling was used to teach the 3H comprehension question-answering strategy. Metaphors are powerful comparisons
that can provide a cohesive instructional vocabulary about processes that are difficult to describe (Paris, 1984). The Reading as Travelling metaphor highlights the role of prior knowledge in answering questions from content area materials. In students' training booklets, the Reading as Travelling metaphor emphasizes that:

Reading travellers are on a life-long journey. They gather knowledge about reading. You are a reading traveller. You already have a suitcase full of knowledge about how to read, what you have already read, and what you know. Your suitcase contains --

1. Everything you know about the world.
2. Everything you know about reading.
3. Your souvenirs from what you have read. Everything you read leaves you with a souvenir. It can be how to do something, more knowledge about the world, or both.

Context. As students are unlikely to use strategies if they believe these strategies will not bring them any closer to achieving their learning goals (Garner, 1990), the 3H strategy combines reading and content area instruction. Such an integrated instructional approach is attractive because it maximizes the use of instructional time, and is interesting to most students (Snider, 1989).

The materials used in this study were developed from the students' social studies texts so that the content covered during strategy training was the same as that taught by the classroom teacher. This coordination of content between the intervention and the classroom made the training materials used to learn and practise the 3H strategy very relevant to students.

Another contextual factor which reinforced the relevance of the 3H strategy was the setting for instruction. Because students received instruction in small groups within their classrooms they had the opportunity to recognise that the 3H strategy was valued by teachers and useful on classroom materials (Garner, 1990). The classroom setting was also chosen because the site of the remediation of students' learning problems has begun to shift from the remedial centre to the regular classroom (Graham, Prock, Bell, & Koch,
1991). Within this model of service delivery, the 3H strategy may become a useful addition to remedial teachers' store of strategies for use with LD and poor readers in their classrooms.

Summary

Stanovich (1988) developed the phonological-core variable-difference model to explain some of the cognitive processing differences that exist between LD and garden-variety poor readers. Based on this model, he argues that if LD students' severe decoding problems are dealt with, they may have better reading comprehension than poor readers and may respond more readily to comprehension strategy interventions. This study investigates whether LD and poor readers respond differently to the 3H comprehension strategy.

The 3H strategy was developed to improve students' answering of written comprehension questions, particularly inferential questions. It is based on Raphael et al.'s (e.g., Raphael, 1982, Raphael & McKinney, 1983) question-answer relationship training which alerts students to the sources of information available to answer questions. Some changes have been made to Raphael's original methods in order to enhance the strategy instruction for LD and poor readers and to improve the consistency of the question-answer relationship classification scheme. The 3H strategy has also been influenced by other successful comprehension studies (e.g., Hansen & Pearson, 1983; Garner, Hare, Alexander, Haynes, & Winograd, 1984; Dewitz, Carr, & Patberg, 1986).

Three important features of the 3H strategy are (a) it uses the mnemonics Here, Hidden, and in my Head to teach students about question-answer relationships that are text explicit, text implicit, and script implicit; (b) it attends to the activation and provision of background knowledge important to answering questions; and (c) it emphasizes the appropriate use of text information by encouraging students to selectively reread the passage, and to integrate text information with background knowledge. Students were
taught the 3H strategy by applying it to grade-appropriate social studies materials in small groups within their classrooms.
III. METHOD

General

Three elementary schools in Coquitlam, British Columbia, provided the students for this study. All three schools are situated within ten kilometres of each other in a primarily middle class area of single family dwellings and medium to high density townhouse complexes.

Prior to beginning the research, meetings were held with the principal and resource teachers of each school to explain the purpose and procedures of the proposed strategy training study. The support of the senior administrators was necessary to obtaining final school district approval for the research and the help of the resource room specialists was sought because their knowledge of the learning problems of the students in their schools was important to subject selection. After approval was granted by the district, the research proposal was presented to selected intermediate class teachers in each school. Teachers of grade four were asked to cooperate with the researcher during a pilot study, and teachers of grades five and six were recruited to take part in the dissertation research. In all, eight teachers and their classes were involved in this research.

Pilot Study

A pilot study was conducted at one of the Coquitlam elementary schools during May and June, 1991. The goals of the pilot study were to (a) streamline procedures used for subject selection; (b) test the types of comprehension passages and questions to be used; and (c) refine the instructional sequence proposed to teach the 3H strategy.

Because the dissertation research originally targeted students beginning grade five in the fall of 1991, the subjects selected for the pilot study were students at the end of their grade four year. During the summer holidays, however, a number of the learning disabled students who were to take part in the research the following fall moved out of the school district. As a result, the sample for the dissertation research was extended to include both grade five and grade six students.
During the pilot study, ten grade four students, five girls and five boys, were taught the 3H strategy during the pilot study. The pilot study students were identified by their teachers and by a series of word recognition and comprehension tests as poor readers. Any grade four students who had been previously identified as learning disabled were also given the decoding and comprehension tests so that the researcher could practise subject selection procedures. LD students were not included in the pilot study, however, because their numbers were few and their participation was deemed more important to the dissertation research. Although all students in the pilot study were poor readers, there was considerable variation in the group. One student who suffers from Tourette's syndrome was included and two more students who have had severe difficulty in learning to read because of borderline retardation also participated.

Each school day for four weeks, the researcher met with two groups of five children in their own classrooms for thirty minute lessons. During each session, students listened and followed along as the researcher read a short social studies passage. After the passage had been discussed, students answered comprehension questions based on what had been read. After training, students' comprehension performance was assessed during maintenance and delayed maintenance sessions. Graphs showing students' reading comprehension gains are provided in Figure 1.

The general method used in the pilot study was repeated in the dissertation research. Modifications to the materials, instruments, and procedures which were informed by the experiences of the pilot study will be noted throughout the discussion of the procedures used in the dissertation research.

Dissertation Research

Design of the Study

This study employed a multiple-baseline design to explore the effect of comprehension strategy training on small groups of learning disabled and poor readers. Measures of comprehension and strategy use were taken during baseline, intervention,
Figure 1. Comprehension scores for the two trained groups in the pilot study.
maintenance, and delayed maintenance sessions. Students were taught in their own classrooms by the researcher, a teacher with five years elementary school experience and a background in special education. Average-achieving students provided a local comparison group for the trained students. All students completed the same passages when baseline, maintenance, and delayed maintenance measures were collected. However, LD and poor readers received strategy training four times a week for 15 sessions, while the average readers received no strategy training but intermittent comprehension probes instead. The passages and questions completed by the average students provided an appropriate estimate of the comprehension performance of most fifth and sixth graders while avoiding the problem of extended assessment without training (Kazdin, 1982).

Incorporated within the multiple baseline design of this study was a three-group comparison repeated measures design. This design facilitated the exploration of differential training effects on the groups of learning disabled students and poor readers compared to untrained average students. As students were taught the 3H strategy in mixed groups, the scores of LD and poor readers from all five groups had to be combined in order to make group comparisons.

Subject Selection.

Students were categorized into groups of learning disabled, poor, or average-achieving readers using school and teacher identification procedures, as well as patterns of scores on four decoding and comprehension measures. The initial step in selecting students for this study involved asking the resource teachers and grade five and six teachers in each of the three participating schools to recommend students with learning problems or poor comprehension skills who could benefit from comprehension strategy training. The resource teachers provided information about students in this group who had been formally identified as learning disabled according to the district criteria of severe discrepancy between intellectual ability and achievement that is not due to visual, hearing, or motor handicaps, or to cultural differences. At the same time as teachers were asked to
recommend poor comprehenders, they were also asked to identify average-achieving students in their classes.

After the teachers had made their recommendations, the Gates-MacGinitie vocabulary and comprehension reading tests (MacGinitie, 1980) were administered to all students in the six classes involved in the research. The Gates-MacGinitie tests were an addition to the instruments used in the pilot study. They were included to provide more data-based support for the teachers' selections of average and poor readers.

On the basis of the Gates-MacGinitie test scores, the researcher and the teachers revised the groups of students recommended for the research. Students were added to the poor comprehension skills group if they scored eighteen months or more below their grade placement on the Gates-MacGinitie tests. Those in the average-achieving group were required to score within six months of their current grade placement. LD students' scores on these tests were noted. In all cases their scores were two or more years below their grade placement on at least one of the Gates-MacGinitie tests.

After the first stage of subject selection was complete, 47 students remained. These students were given a word recognition test, a word attack test, and a reading and listening comprehension assessment to complete subject selection. The administration of the word recognition section of the Wide Range Achievement Test (WRAT-R, Jastak & Wilkinson, 1984) provided information about the decoding skills of students in the tentative groupings.

The Woodcock-Johnston subtest of word attack (W-J, Woodcock & Johnson, 1977) was added to the assessment battery used in the pilot study to provide more information about students' decoding skills. This test of non-word decoding is an important addition as low scores on it can indicate the presence of a reading disability stemming from phonological-core processing problems (Seigel, 1991).

Once students' decoding skill had been assessed, comprehension tests based on the modified Peabody Individual Achievement Test (PIAT; Dunn & Markwadt, 1970) were
administered. The purpose of the PIAT tests was not so much in aid of subject selection but to permit the replication and extension of Spring and French's (1990) work on distinguishing between LD and average readers on the basis of their scores on listening and reading comprehension measures.

The decoding and comprehension scores of the students identified as learning disabled were not used to exclude them from the study. LD students' scores were simply examined to see how well they fit the profile of decoding and comprehension skill found by Spring and French (1990). In contrast, the decoding scores of students in the other groups were used in the selection of subjects for the study. Students were not included in the poor readers group if their average standard score for decoding on the WRAT word recognition and the Woodcock-Johnson word attack test was more than 100, which is the standard score associated with the 50th percentile mark. This level was decided on simply because it represented a cut off point above which scores could not unambiguously be referred to as "poor".

Similarly, students were excluded from the average group if their mean standard scores on the decoding tests was less than 100. It should be noted that students were excluded on the basis of their decoding skills only, not because their profile of reading and listening comprehension scores did not fit the expected patterns. Students' listening and reading comprehension profiles are discussed in the results chapter.

Thirty-seven students remained in the sample after the screening assessments were completed. Of these, one student moved to another school shortly after the research began, leaving a total of thirty-six students in the three groups. The average age of these seventeen girls and nineteen boys was ten years five months. Their ages ranged from nine years ten months to eleven years eight months. Most of the students were of European-Canadian background, however, two were of Asian heritage, one was Indo-Canadian, and another African-Canadian.
Questionnaires and Consent Forms

Consent Forms

Once students were selected for the decoding and comprehension assessments, they met with the researcher and were informed in general terms about the study. The researcher emphasized that students' voluntary participation in the study was necessary. At the end of this meeting, students were given letters outlining the purpose and procedures of the research. These letters also contained a permission slip which was to be completed by the child's parents or guardians and returned to their classroom teacher (see Appendix B).

After these forms had been collected, students' decoding and comprehension skills were assessed, and the final subject selection made. The researcher then telephoned all parents/guardians who had granted permission for children to participate in the study. During this phone call, the researcher restated the purpose of the study and informed the parents or guardians whether their child would be participating in the research. She reminded the parents that their child's participation in the research was voluntary, then answered any questions about assessment results or the child's involvement in the study. The information night to be held after the completion of the study was also mentioned to parents during this phone call.

Metacognitive Questionnaires

Before training and after the first set of maintenance tests, all students completed the metacognitive questionnaire developed by Dewitz, Carr, and Patberg (1987) (see Appendix C). This metacognitive questionnaire consists of a series of probes asked after students have answered a question about a passage. Students illustrate their question-answering processes through their responses to questionnaire items like, "Do you think that is the right answer?", "How do you know that it is the right answer?", and "When you need to think of an answer to a question during reading, what do you do?"

Both metacognitive questionnaires, before and after training, were based on social studies passages and questions similar to those encountered in training sessions. These
passages were read to the students as they followed along. The metacognitive questionnaires were administered individually in a small room separate from the students' classrooms. All responses were tape recorded.

Opinion Questionnaire

A short oral questionnaire asking for students' opinions about the 3H strategy (e.g. Which part of the 3H strategy did you find most useful to know about? Why?) was administered individually to all students after the final maintenance test session, and again after the delayed maintenance tests. This questionnaire provided descriptive data regarding students' use of and attitude toward the 3H comprehension strategy (see Appendix C).

Training and Test Materials

Training and test passages used in this study were developed from the grade five and six social studies texts recommended by British Columbia's Ministry of Education: Canada: Building Our Nation (Bowers & Swanson, 1985); and Exploring Our World: Other People, Other Lands (Neering, Usukawa, & Wood, 1986). Using these texts and other supplementary sources from school and university libraries, passages of approximately 350-450 words were written about the evolution of communication systems in Canada, and aspects of life in Japan. These were the social studies topics being covered in the grade five and grade six classrooms, respectively, at the time of the research.

Each passage was illustrated with an appropriate picture, figure, or map. Seven questions were framed for each passage. Two of these questions were text explicit, three were text implicit, and two were script implicit. The training and test passages and their associated questions and marking sheets are provided in Appendix D.

Strategy Booklet

A metaphor of Reading as Travelling was used during training and made concrete in a strategy booklet (see Appendix E). The cover of this booklet was emblazoned with the school name, its logo, and the words Reading Passport. Inside the front cover, there was
space for each child to provide a photograph and personal information. The next page presented general information about using strategies in school. The following page provided the focus for a discussion of how reading can be like travelling (e.g., "You are a reading traveller. You already have a suitcase full of knowledge about how to read, what you have already read, and what you know.").

There followed a list of important points to note about questions and answers. This page was used as the focus of a discussion about the vagaries of questions and answers. For example, the fact that some questions have no answers while others have answers that change over time was discussed. The next double page (pages 6 and 7) displayed an outline of the 3H strategy to be used as a guide for students as they learned the steps of the strategy.

The next four pages of the strategy booklet were devoted to maps relevant to the social studies content being covered in the training passages and the students' classrooms. The booklets for all students contained a map of Canada showing the provinces and their capitals, and a map of the world marked with thirteen major cities. The other maps for students in grade five were of the earth stations owned by Telesat Canada, and the network of microwave towers across Canada. In the booklets for grade six students, there were two maps of Japan, one marked with the major cities, and the other showing the climatic regions of the country.

On the double middle pages of the strategy booklet the axes of two graphs were drawn. One set of axes was used for graphing comprehension performance, the other to record students' success in classifying questions and their answers. Towards the end of training, the second graph was also used to show how accurately students' underlined information from the passage.

The remaining pages of the strategy booklet were blank except for the heading, "SOUVENIR FROM READING AND LISTENING What did you learn from ________________?" These pages provided a place for students to record what they
remembered about the passages they had worked on. The students filled in the title of the passage and then wrote as much about it as they could recall. Students used these pages whenever they had any spare time during the training and testing sessions.

**Prompt Card**

During the fourth training session, a star-shaped prompt card which outlined the five parts of the 3H strategy was introduced (see Appendix F). The star card was 11cm from point to point, and made from green or yellow cardboard. On one side of the card, a brief description of the major parts of the 3H strategy was printed. On the other side, key words or phrases from these descriptions were repeated. Students were asked at least once every two sessions throughout the remainder of training if they could name the five main parts of the 3H strategy and state their meaning without looking at the prompt card. If students could do either part flawlessly they were rewarded with a small silver star which was glued to the centre of their prompt card. The use of the star card as a prompt was faded as training progressed.

**Student Folders**

Each student received a colourful 24 cm x 29 cm work folder. Students' training passages, strategy booklet, and prompt card were kept together inside the pockets of this folder. These folders of work were handed out at the beginning of each training session and collected at the end.

**Certificates**

After completing the training and maintenance passages, students received a certificate of achievement (see Appendix G). This certificate was glued on the left inside cover of the student's work folder. A number of gold stars were stamped on it, varying according to the total number of times students scored above 80%, for both comprehension and strategy use on the one passage. The goal line was set at 80% for the training materials to encourage students to be accurate and careful with their strategy use, underlining, and comprehension. Students had to work hard to meet this goal, as only scores of 7 out of 7
or 6 out of 7 were above the 80% mark. The criterion used to inspect individual and group graphs for evidence of improvement in comprehension was less stringent, however. Students were expected to have at least three consecutive comprehension scores above 70% on their training graphs to show that they had learned the 3H strategy (see Chapter 4).

After completing the maintenance passages, another certificate was offered to students. This certificate, a notary seal with a silver H inside it, was affixed to the inside cover of students' strategy booklets if they could name the five main parts of the 3H strategy and explain what each part means. All students in the training groups met these criteria. After the seal had been positioned in a student's strategy booklet, both the researcher and the student signed underneath it in a ceremony that formally acknowledged the effort students had made to learn the 3H strategy. In a way, this signing ceremony made each student's reading passport an official document.

**Timetables**

The major portion of this research was conducted during reading or social studies lessons in grade five and six classrooms. To try to accommodate the scheduling preferences of the six class teachers involved, the researcher met with each teacher and discussed times suitable for strategy training in their rooms. As far as possible, the teachers' preferences were incorporated into a research timetable (see Appendix H). This timetable scheduled four sessions a week for each of the five classes where strategy training took place.

All teachers and students involved in the study received a copy of the research timetable so that they knew when to expect the researcher in their rooms. Although the timetable is based on a school day divided into forty minute periods, actual lessons in the classrooms lasted a maximum of thirty minutes. The rest of the time was spent settling the students, setting up recording equipment, distributing work folders or comprehension probes, and travelling between schools. The physical demands of teaching five groups in
three different schools were substantial, only the proximity of the three schools made such an undertaking feasible.

Procedure

To ensure a clear description of the procedures used in teaching the 3H strategy, this section has been divided into two parts. First, an overview, in chronological order, of the steps appropriate to all students involved in the research will be provided. This is followed by a detailed account of the method used to teach students in the strategy training groups.

Procedure for All Students

Metacognitive Questionnaire: Before Training

To administer the metacognitive questionnaire, the researcher read a passage aloud while the student followed along. The first question about the passage was then read to the student. After the student answered the question, the metacognitive questionnaire items regarding it were asked. This process continued for each question associated with the passage. Two passages, each with seven postquestions, were used as the basis of the initial metacognitive questionnaire.

Baseline, Maintenance Test, and Delayed Maintenance Passages

Two maintenance test passages and two delayed maintenance passages were completed by all students in the study. Because of the multiple-baseline design, however, students in the training groups finished either four or five baseline passages, while average comparison students completed four passages.

The baseline measurements were curtailed after a maximum of five passages because students showed signs of frustration with the comprehension tasks. As the researcher had committed to plan an intervention that was as instructionally sound as possible, this decision was necessary so that the best possible use could be made of students' time. This point is particularly salient for LD students in this study who were
performing at least two years below their current grade placement in a number of subject areas.

Baseline measures were taken in the students' classrooms. Before working in the classrooms, however, the researcher met with each teacher and arranged a place for her group to work, and a procedure for students to follow when they joined the comprehension strategy lessons, and later rejoined the whole class. The five classroom settings for instruction were all similar. They consisted of a small collection of tables and chairs positioned either at the side or the back of the room.

In general, when students saw the researcher arrive at their work area, they finished the schoolwork they were doing and got ready to meet with the small comprehension group. Students waited for their regular class teacher to give permission for them to join the researcher. Similarly, students waited for permission from the researcher before they quietly rejoined their class. Both comparison and training group students joined the researcher while she was collecting baseline data. During training, however, comparison group students were not needed every day, so the researcher made it clear to them that they should stay at their desks unless asked to join the comprehension group.

The procedure for working through the baseline passages was the same as that used for the maintenance test and delayed maintenance passages. Both trained and comparison groups listened and followed along as the researcher read a passage to them. The researcher was then available to answer any vocabulary questions that the students asked before they answered the questions about the passage.

During the initial training sessions, average comparison readers listened to the passages with the students in the training group before returning to their desks to complete the comprehension questions. After they left, the strategy training groups discussed the passage, and used the 3H strategy. Later in the training, the average readers were given a choice between hearing the passage read aloud, or reading the passage themselves.
Metacognitive and Opinion Questionnaires: After Training

After maintenance testing was complete, the metacognitive questionnaire was readministered to all students. Another two passages and their fourteen postquestions were used for the metacognitive questionnaire. After they completed the metacognitive questionnaire, students answered a short oral questionnaire which probed their opinions of the 3H strategy.

Presentations

Immediately after the first set of maintenance data had been collected, students from each of the trained groups prepared a presentation for their classmates which highlighted the main points of the 3H strategy. In addition, because the learning disabled and poor readers who knew the 3H strategy were in the unfamiliar position of knowing something that their classmates did not, the presentations provided a meaningful opportunity for these students to acknowledge and celebrate their learning.

Each group was given one hour of school time as well as their lunch hour to prepare the presentation. They worked with the researcher during this time. The first step in preparing the presentation was to brainstorm ideas for the format of the presentation. The formats used varied from whole class presentations and small group tutoring experiences, to competitions, and talk shows.

The students in the comparison groups were invited to hear the presentation prepared by the trained students during the lunch hour. They were also invited to improve it with their constructive comments. In addition, the comparison students helped construct charts and example sheets if these were required by the presenters. Comparison group students were also responsible for operating the video camera and sound equipment used to record the class presentations.

Parent Night

One week after training finished, the parents and guardians of all students who had been involved in the research were invited to attend an information night. The parent night
was held from 7:00 p.m. until 8:30 p.m. in the library of one of the research schools. The purpose of the evening was to provide an opportunity for the parents to meet the researcher and to discuss her comprehension strategy training project. During the first part of the evening, the researcher outlined the aim of the research and the part the trained and comparison group students played in it. The 3H strategy was introduced and a video of one of the presentations by a grade six group was shown.

After a question period, the rest of the evening was spent examining the students' folders of work. If students from the training groups had accompanied their parents, then they were able to explain how the worksheets, the strategy booklet and graph, and the certificates in the work folder were used during the research. To help the students do so, a sheet of questions to guide discussion was placed in each folder (see Appendix I). The researcher explained the contents of the work folder to those parents/guardians who attended the evening without their children, and also to the parents/guardians of the students in the comparison group. In all, 19 parents and 11 students attended the information evening.

Follow-Up Visit to the Schools: Delayed Maintenance Tests

Sixteen weeks after the end of maintenance testing, the researcher administered delayed maintenance tests to the trained and comparison students. Two passages and their fourteen related questions were completed, as well as a short opinion questionnaire that probed what trained students remembered about the 3H strategy and whether they thought the strategy had been useful to them in their school work.

After this follow-up work was completed in each school, an edited video of the class presentations was shown during the lunch hour. These video presentations further acknowledged the learning of the students in the strategy group and served as a novel culminating activity for the 3H project. Students who starred in the videos were permitted to invite other students from their classes to view them. After the videos, the students who
had learned the strategy were on hand to answer any of the audience's questions about the 3H strategy.

Procedure Specific to the Strategy Training Groups

All students in the training groups completed fifteen strategy lessons within four and a half weeks. During the first few instructional sessions, students explored reading as travelling in the context of their reading passports. They were then introduced to the 3H strategy and used it to answer questions about two short comprehension passages before beginning work on longer, more difficult social studies materials. The lesson plans used to guide instruction are provided in Appendix J.

Almost from the beginning of training, the grade six students had little difficulty in completing one social studies passage and its questions per session. However, two groups of grade five students were slower to finish their work. As a result they were only able to complete eight passages in fifteen lessons. The number of training passages that students worked on also varied because of interruptions due to students' absences and special school-wide events. The number of training passages completed ranged from 8 to 10.

The fifteen strategy lessons can be broken into three phases of training: (a) an introduction to the strategy, (b) reinforcement of students' use of the 3H strategy, and (c) consolidation and celebration of strategy learning. Sections of dialogue from the pilot study representative of the interactions between teacher and students during these phases of instruction are supplied in Appendix K. These transcripts illustrate the type of instruction that occurred during this study. Sample dialogues and an outline of the major points covered in each phase of training are supplied below. To supplement these dialogues, examples of the teacher talk used in each instructional phase are appended in Appendix L. To complete the description of strategy instruction, a final summary of the general procedures used throughout training is provided.
Phase 1: Introduction to the Strategy

Because students began training immediately after completing baseline passages, they were already familiar with the sort of passages and questions to be used in the study. The researcher took advantage of this by introducing the 3H strategy during a discussion about the type of passages just completed. Students were asked to recall other situations in school when they were called upon to answer written comprehension questions, and to discuss the methods they used to deal with these sorts of tasks. The strategy work folders and reading passports were then distributed and described as materials which help convey the 3H strategy. The 3H strategy was represented as a strategy which is useful because it reminds students where the answers to questions are found.

Introduction of the reading passports. During the first few lessons of the orientation phase, students were given time to explore and discuss their strategy booklets or reading passports. These materials were designed so that students would personalize them. Students were all asked to bring a photograph to glue into their reading passports. Further, students were encouraged to take pride in writing their personal information on their work folders and passports. Later in training, these passports became even more importantly personalized through the students' graphs of comprehension, strategy use, and underlining proficiency.

Students' orientation to the strategy flowed naturally from their investigations of the reading passports. They discussed with the researcher the sense and usefulness of strategies for comprehension, and information about questions and answers (pages three and five). They also explored the notion of reading travellers.

Metaphor of Reading as Travelling. Reading as Travelling is an apt and interesting metaphor for reading in the content area of social studies because social studies is concerned with expanding students' knowledge of their own and other countries. This aspect of social studies is illustrated by the titles of the two text books recommended for grades five and six in British Columbia: Exploring Canada: Learning From the Past and
Looking to the Future (Bowers & Swanson, 1985), and Exploring Our World: Other People, Other Lands (Neering, Usukawa, & Wood, 1986).

In the introductory phase of training, students shared their own experiences as travellers and souvenir collectors. The students' observations, stories, and recollections were related to reading in a number of ways. For example, it was pointed out that travellers get ready for a trip by gathering everything they will need and packing it in a suitcase. Similarly, readers need to be well prepared for their reading "trips", and knowing when and how to use strategies is useful information to take on reading journeys. To extend the metaphor, readers, in fact, have quite a bit of information already at their disposal. Packed in their suitcases, they have all kinds of information that they already know about the world and all sorts of information that they know about reading. Reading travellers are students who remember to use this information as they read to help them understand, ask good questions, and answer questions about passages.

Furthermore, real travellers are not intent on merely arriving at their destinations, they make every effort to enjoy the journey there as well. They thrive on being involved with their new surroundings, ask many questions, and often scour marketplaces for just the right souvenirs. These personally valuable souvenirs are packed carefully in the traveller's suitcase and brought home. Students who are reading travellers do many of the same things that world travellers do. They focus on the story or passage they are reading and become involved with it. Because they have already thought about what they know about a topic, and are actively trying to understand what they are reading, reading travellers ask questions about what is new to them, or what they do not understand in a passage. Just like world travellers too, reading travellers take souvenirs. Sometimes the souvenirs are pieces of interesting information about the world, or sometimes interesting information about reading. All of the souvenirs collected by reading travellers are important in some way, so they are packed carefully away in their memories with all the other kinds of
information that reading travellers know about the world and the information that they know about reading.

The 3H strategy complements this idea of the reading traveller in a number of ways. One part of the strategy reminds students to use what they already know to make understanding a passage easier, and encourages them to take responsibility for their learning by asking questions about what is not understood. The 3H mnemonic—Here, Hidden, and in my Head—itslo provides a quick way to remember some useful information about reading, i.e. where the answers to questions are found. Additionally, when couched in the metaphor of reading as travelling, the 3H strategy promotes students' involvement with their reading, the careful checking of their answers, and the valuing of their experiences while reading.

**Terminology.** Figure 2 shows the 3H strategy as it appeared in the students' reading passports. Throughout the strategy orientation phase of training, students learned about the 3Hs by answering questions about short passages. During these activities they were guided through all the steps of the 3H strategy, but particular emphasis was placed on classifying questions and their answers. Specifically, students were encouraged to use what they already knew about the world and about reading to understand the short passages. They asked questions about a word or a piece of content that they did not understand, and then their attention was directed to the 3Hs—Here, Hidden, and in my Head.

The terminology used for this strategy is defined and illustrated by examples from the short training passages below.

A question-answer relationship was defined as text explicit or Here when the question involved could be answered completely using information from only one sentence in the passage. It was pointed out to the students that the type of answer often associated with this QAR may contain many of the same words used in the question. For example, the question, "What do plants need to grow?" can be answered by the sentence
Figure 2. The 3H strategy as it appeared in students' Reading Passports.

**The 3H Strategy**

1. **Head First!**

   Before reading
   During reading
   After reading

   Ask for help if you need to.
   Content?
   Vocabulary?
   How to?

   Use the 3Hs to remind you where the answers to questions are found:

2. **HERE** In one sentence from the passage.

3. **HIDDEN** Join together. The answer is in two or more parts of the passage. Or the answer comes from joining together information from the passage and information that you already know.

4. **In my HEAD** Use what you already know to answer the question. Just you or the passage and you.

5. **Check Your Answers.**

   Reread each question and your answer to see if they fit together. How confident are you of your answer? Circle the confidence scale. After you have finished all the questions, return to any answers you are not sure of. Go through the 3H strategy and check these answers again. You should have a reason for each of your answers. You do? Well done!
from the passage entitled "Plants" that states, "Plants need soil, sunshine and water to
grow."

A text implicit QAR was defined as consisting of a question which has at least part
of its response located in the passage. Information to answer this type of question was
described as being found in two or more sentences in the passage or, alternately, partly in
the passage and partly in what the student already knows. The mnemonic Hidden was
used to underline the extra effort that is often necessary to join together information to
form an answer for this type of question. Examples of Hidden question-answer
relationships are illustrated by the passage and questions below.

One kind of starfish is called the sunstar. It may have seven or more rays. The
rays look like the lines around the sun. This starfish grows to be over twenty
centimetres wide. Like the setting sun, it is also red.

1. What are two ways that this starfish looks like the sun?

Answer: Its rays look like the lines around the sun and it is also red like the
setting sun.

Information from two sentences in the passage was joined together to answer this
question.

2. What are the names of two types of starfish?

Answer: The sunstar and the crown-of-thorns starfish.

Information from the passage and information from background knowledge was needed
to answer this question, therefore this is a text implicit question-answer relationship.

A script implicit or in my Head QAR was identified when students could only
answer a given question by using their knowledge base. No explicit or implicit
information was available in the text to answer this type of question. Instead, the answer
was found in the students' heads, that is, they had to use what they already know about
the topic, or offer their own opinion, or an account of their experiences in response to the
question. An example of a script implicit question that refers to the previous passage about starfish is:

3. Where would you most likely find a sunstar starfish?

Answer: You would find the starfish in a rock pool at the beach, on the reef, or somewhere in the ocean.

The answer clearly shows that students must use their prior knowledge and not text based information.

The following dialogues, excerpted from Appendix K, illustrate the instruction that was typical of the first phase of training. Dialogue A exemplifies the way students were taught to use the 3Hs on a short training passage. Dialogue B shows how students were encouraged to "use their heads first" by sharing knowledge and asking questions about what they did not understand in a passage.

Dialogue A: Learning to use the 3H strategy on the first short training passages

Ms G.: (Explaining the answer to question 1 after the passage "Large Animals") Yes.

You need the 3H strategy but you also really need to remember to read carefully.

And a reading traveller reads carefully. Not just the passage, but the question too.

The question is not asking you for a specific animal like a turtle. It's asking you for what type of animals and the answer is, "Large animals often live the longest".

Cliff: The answer is right here. (pointing to the passage)

Ms G.: Exactly. And so is it Here, Hidden, or in my Head, Leilani?

Leilani: Here. Because the answer is right here in one sentence.

Ms G.: Super. It's Here. So if you got it completely right you would have two checks.

One for "Here" and one for "Large animals often live the longest". There is also a sentence in the passage to underline.

Number two now. Try it. "Which lives longest the turtle or the cat?" Now, I want you to remember to use the passage. Really use the passage first. If there is nothing about the answer in the passage, then you use your head, what you already
know. I know this is a simple question but the ones we do later on won't be so easy. So use the passage first.

David: Can we start now?

Ms G.: Yep.

So is it, Hidden, or in my Head? Look at number two. "What lives longer the turtle or the cat?" David?

David: The turtle lives longer than the cat.

Ms G.: And it's a perfectly, beautiful sentence that you wrote too. Thank you very much for that. Jennifer?

Jennifer: The turtle lives the longest, one hundred and fifty-two years, the cat lives twenty years.

Ms G.: That's a beautiful sentence too. Thank you, Jenny. That's great. Leilani?

Leilani: The turtle lives longer than the cat.

Ms G.: That is a very good sentence too. Well done. Remember a capital to begin with.

Now here comes the tricky bit. Is number two Here, Hidden, or in my Head?

Leilani?

Leilani: Here.

Ms G.: Show me the answer in one sentence. Remember if it is Here, the answer is in ONE sentence. Can you show me the answer in one sentence?

Leilani: It's right here. The giant turtle can live for 152 years or more.

Ms G.: That's about the turtle, yes, but what about the cat?

Cliff: In my Head.

Ms G.: No, there is information here in the passage to use. The answer is only totally in your Head if there is no information to answer the question in the passage.

David: A cat only lives twenty years.

Ms G.: That's about the cat. That's about the turtle.

Jennifer: Hidden.
Ms G.: Why, Jen?

Jennifer: Yes. The answer is in two places in the passage. You join them up.

Ms G.: Thank you, Jenny! Number two is Hidden. And it's Hidden because the question asks, "What lives longer, the turtle or the cat?" And in the passage you put a line under where it says about the giant turtle living 152 years. And you also need the information about the cat. (underlines) "The cat lives twenty years." You are using two sentences from the passage. You are joining together information. Point number 1 under Hidden on your prompt card. (points to each students prompt card.) So the answer to number two is very definitely. . .

Students: Hidden.

Ms G.: Do you get it?

Leilani: I know why it is Hidden, because they are not two sentences stuck together.

Ms G.: Yes it's important that the answer is in two sentences or more, or maybe partly in the passage and part in your head. These are two sentences that are separate, though. Otherwise they wouldn't be two sentences at all, they would be one sentence, wouldn't they?

Cliff: And it would be Here if they were in one sentence.

Ms G.: Exactly. You are all getting it. Does it make sense to you that this is Hidden? OK Number three is tricky again. Read it carefully. Try hard, use the strategy, then bring your answers and your folders to me. (Later) Where did you get your answer?

David: In my Head because the answer wasn't in the passage.

Ms G.: Perfect! You are a star.

(Individual help for students as they bring out their answers.)
Dialogue B: Teaching students to use the Head First! part of the 3H strategy

Ms G.: This is a passage about cedar trees and the first part of the 3H strategy asks you to "Use your Head First", so I want something you know about cedar trees. What do you know about cedar trees? What do you know about them? Karen?

Karen: The Squamish Indians use them.

Ms G.: How do they use them?

Karen: They use them in making clothes.

Justin: Longhouses and canoes.

Karen: Diapers

Paul: Canoe bailers?

Ms G.: Terrific. Anything else about the cedar tree that you know?

Grant: Cradles. They made cradles.

Ms G.: OK. Now listen. The next part of the strategy is to listen carefully. While I read the passage, you think of any questions that you have about this as we go. Right? Any questions that you have. So I am going to read it. You are going to listen. And you think of any questions that you have about it. Now look at the passage and make any marks you want near what you would like to ask a question about. Everyone please follow along, so I know you are watching, listening, and concentrating.

(Read passage)

Right. Questions? Do you have a question? I heard you say one. Paul?

Paul: Where's the Mediterranean?

Ms G.: Good question. Did others wonder too? Does anyone know? (pause) O.K. It's a part of the world. I will show you where on the map of the world in here in your reading passports. Mediterranean is around this part of the world. It is sort of like the land around the sea. This is the Mediterranean Sea.

Paul: The Himalayas?
Ms G.: Does anyone else know? (pause) The Himalayas are mountains at the very top of India. They're there on your maps. O.K.? Another use for your passport! Do you have another question? Karen?

Karen: Are cedar trees used to make tea?

Ms G.: Are cedar trees used to make tea? I don't know. They have very strong smelling leaves so they could have been used to make a medicine tea, perhaps. Maybe you can look in the library and find out for sure? Any other questions?

Justin: The Rocky Mountains.

Ms G.: What about the Rocky Mountains?

Justin: That's where the best skiing resorts are and you can ski up there.

Ms G.: And did you see cedar trees up there?

Justin: Yeah.

Ms G.: O.K. Turn over your sheet and I want you to write a question that you think a teacher would ask about this passage. Do you think you could do that? What would a teacher ask about this passage? Look at the passage and think what a teacher would ask.

Phase 2: Reinforcing Students' use of the 3H Strategy

In this phase of training, students practiced what they had learned about the 3H strategy on longer social studies passages. Instructional emphasis was on practice and reinforcing students' accurate comprehension performance and strategy use through the use of graphs and reward stamps.

Interpreting performance graphs. Students were taught to interpret the performance graphs drawn on the centre pages of their reading passports. In one session, the students and researcher spent considerable time examining the differences in the graphs for comprehension performance before the 3H strategy and after it. Such an examination focused the student on the relationship between strategy use and enhanced comprehension performance.
Instructional time was also spent ensuring that students knew the significance of the stars on their graphs and the stamps on their worksheets. If students received a score above the goal line of 80% on the comprehension, 3H classification, or underlining measures, a star was fixed to the appropriate graph in their reading passport. When this occurred, students were also given a stamp on their worksheet pages near the score which was above 80% (i.e. 6 out of 7 or 7 out of 7). A special gold super star was added to this stamp when students earned a score of 100% on any of the passage-based dependent measures. Appendix M contains an example of a completed graph from a student's reading passport, as well as worksheets which illustrate the use of stamps during the research.

Clues in the questions. During the second phase of training, students became more and more familiar with the 3H strategy. They were cued to common features of the different types of QARs and learned that: (a) Here QARs have answers that may contain many of the same words used in the questions; (b) Hidden QARs always require the joining together of information and may be signalled by questions asking for two or more reasons why something may have occurred, or containing words like "describe" or "compare"; and (c) in my Head QARs often have phrases like "Do you think?" in the question. It was stressed that students should always check the passage for answers to questions, even if they were sure they could answer them on their own. This emphasis on the passage encouraged students to verify their own growing comprehension competence and use of the 3H strategy by going back to the passage.

Students learned that if there is no information to answer the question in the passage, the answer must be in their Heads. They also learned that if the answer or part of the answer is found in the passage then the QAR is either Here or Hidden, and some relevant information from the passage can be underlined to support their answer. Underlining information was presented as an effective way of ensuring that the passage had been used appropriately.
Underlining information. Importantly, the researcher and students discussed how underlined information could highlight the differences between Here and Hidden QARs. For example, finding the answer to a Here question-answer relationship requires the underlining of only one sentence or part of a sentence in the passage: The answer to the question is simply contained in one sentence in the passage. In contrast, Hidden QARs require the joining together of information from more than one part of the passage, or from the passage and the student's knowledge base. As more than one part of the passage is often underlined to find an answer that is categorized as Hidden, extra effort is always needed to locate the answer to these QARs. In short, the students learned that the answer associated with a Hidden category is never simply found in the passage: Hidden questions and answers always require some extra thought and effort.

Reasons for responses. Throughout training students were encouraged to defend their categorization of questions and answers as Here, Hidden, or in my Head by referring back to their use of the passage. The final component of the 3H strategy (Is my answer correct?) reminds students to check their work in this way. It also urges students to take the time to congratulate themselves if they used the 3H strategy conscientiously. On several occasions, the researcher modelled the correct underlining and numbering of information from the passage in relation to the questions on enlarged photocopies of the social studies passages. Students then practiced the 3H strategy in small groups by categorizing their own questions about the passage, checking their answers, and taking turns to defend their decisions to the group. The questions that students wrote for this activity were questions they thought a teacher might ask about the passage they had just read.

Learning the 3H categories. Later in this phase of training, students were asked to highlight what they thought were the most important parts of the description of the 3H categories found on pages six and seven of their reading passports. Students decided on the following: (a) Here—one sentence; (b) Hidden—joining together; (c) Head—you
already know. Using this important information, students developed hand signals to indicate the intent of Here, Hidden, and in my Head. Here was shown as a finger pointing to one place on an imaginary passage and slowly drawing one straight line across to indicate that the answer is found in one sentence in the passage. Hidden was cued by the joining together of students' hands in two ways. In one signal, the fingers of both hands moved as if picking up information from an imaginary passage on the students' desks. The students' hands were then brought together to show how information from two or more parts of a passage may be necessary to answer a Hidden question. The other Hidden signal was demonstrated by the fingers of the students' left hands gathering imaginary information from their desks while the fingers of their right hands grasped information from their heads. The students' hands were then brought together to show how information from the passage and from what they already know may be necessary to answer Hidden questions. In my Head was acted out by students simply grabbing imaginary information from their heads.

Once students were familiar with the signals, they played a game of Hand Signal Hs. To begin, students would take turns acting out either Here, Hidden, or in my Head while the other students in the group would write down the H they saw signalled. Students would then discuss the right answer and correct their work. In later training sessions, the game became more complicated. Students used the passage and questions that they had just completed to play. Students took turns signalling a H. The other students then had to write down that H and the number of a question from the previous passage that was of that particular type. The value of this version of the game lies in the justifications for answers that students were called upon to make. Specifically, students had to state what signal H they interpreted the action to be and why, and also why a particular question and answer fit this pattern. A sample student response to this game was something like: "That was a Hidden signal. Shelley acted like she took information from two parts of the passage and joined them together. For Hidden you join together. In the
last passage, question 2 was like that. We had to find three ways of Japanese writing in the passage. The answer is in the passage, but some of it is in this sentence, some here, and some here. The answer is in these places where I underlined. Number 2 is a Hidden question and answer. That's why I put it down."

**Understanding the question.** During the last part of the second phase of training, students also spent time analyzing the obvious importance that understanding the question has in successful question-answering. Students talked about their strategies for reading the question carefully and understanding what is being asked for in a response. The researcher encouraged students to focus on each question, read it carefully, and underline or draw boxes around its key words or phrases (e.g., *three reasons, do you think, and describe*). In so doing, the students were reminded of the important features that a correct answer to this question would have. This analysis also focused students' attention on important content words in the question (e.g., *tsunami, satellite station*) which could guide their reinspection of the text. Students practised using spatial memory cues to skim the passage for these content words and, thereby, locate relevant information to be reread.

The following dialogue, excerpted from Appendix K, illustrates typical instruction from the second phase of training. Dialogue C shows how students gain more control of the dialogue as they practise the 3H strategy. Like Dialogue B, this excerpt concerns the initial introduction and reading of a passage.

**Dialogue C: Students' use of the Head First part of the 3H strategy during Phase 2 of training.**

Ms G.: . . . So now you all have to start thinking about the five parts of the 3H strategy and you will all be getting stars in your folders in the next few days.

Now, this passage is about how Indians catch salmon. So what do we do first?

Students: Talk about salmon. Talk about Indians.

Jennifer: They use canoes and nets.

Cliff: They kill them before they eat them.
Ms G: That's usually a good idea. A bit wiggly otherwise.

David: They use spears.

Sabrina: The spear is like a harpoon.

Leilani: I did this in social studies in my other school.

Jen: They use a net and scoop them out.

Cliff: They use big round sticks with a thing like that on it.

David: They use rocks and they spear them.

Ms G: You know lots already. So you will find this very sensible to listen to as I read.

So while I am reading, your job is to do what?

Cliff: Underline.

Ms G.: Underline or put a little "?" near anything that you don't understand and then ask a question about it.

David: This picture looks like a slingshot.

Cliff: It even has the strap.

Ms G: (reading) How the Indians of the Northwest Coast Caught Salmon.

And I should see all the pencils following along ready to put little question marks near if you don't understand anything. (Continues reading passage. When finished reading the students already have questions to ask.)

Students: Me? I have one!

Ms G: I am impressed!

Leilani: I have one. I don't understand this one here provided.

Sabrina: The Tlingit? What were the Tlingit?

**Phase 3: Consolidation and celebration of strategy learning**

During lessons eleven to fifteen, the students continued to consolidate their strategy learning while practising the 3H strategy on social studies passages. Students were also given opportunities to celebrate their successes with certificates and reward stickers. At the close of this phase of training, the researcher wrote a report for parents and teachers.
regarding each students' comprehension achievement. This report was attached to the students' November report cards. An example of a student's 3H report can be found in Appendix N.

Consolidation of strategy use. During this phase of training, students regularly modelled the thinking involved in question-answering to others in the small training groups. They were encouraged to use all the parts of the 3H strategy from the discussion of the passage topic to the checking of their answers. Students also continued to use other important features of instruction. For example, they read the questions carefully and discussed them before boxing important key words. They also underlined the information in the passage which was important to answering Here, or Hidden questions. In addition, students were given opportunities to recount experiences of strategy use in school. During several discussion sessions they were asked, "Has the 3H strategy been useful to you in your class? How?"

In the last phase of training, the students and the researcher also spent some time talking about the *souvenirs* that students had taken from previous passages. Together we looked at the students' work on the last pages of their reading passports, and discussed what had been remembered by individuals in each group. Students also completed some more of the souvenir pages of their reading passports during these final sessions.

As students worked through their passages, they were given several opportunities to recall the five parts of the 3H strategy written on their prompt cards: (1) Head First!; (2) Here; (3) Hidden; (4) in my Head; (5) Check your answers. Students were rewarded with silver or gold stars on their star card if they knew all the parts of the 3H strategy and could explain the meaning of each part. This part of the training program provided a check on students' strategy knowledge.

Celebration. Certificates were another important part the training package. They served to celebrate students' achievements and acknowledge the effort students had made to learn the 3H strategy. Students received two certificates at the end of the training.
lessons and maintenance tests. One was the certificate of achievement which had a number of stars stamped on it according to the total number of performances above 80% that a student scored for both comprehension performance and strategy use.

The other certificate, a notary seal with a silver H inside it, was fixed to the inside cover of the students' reading passports if they could again name the five main parts of the 3H strategy and explain what each part means. After this seal had been placed in each students' strategy booklets, both the researcher and the student signed underneath it. Thus the end of 3H strategy training was celebrated by a signing ceremony which made students' reading passport's "official." Dialogue D shows how certificates were explained to each student.

**Dialogue D: Presentation of 3H certificates**

Ms G: Let me show you.

Students: Ah! Look at that.

Ms G: Jenny has a certificate of achievement. She's got three stars on it. On three consecutive occasions, three times in a row, Jenny got above the goal line with both her strategy use and her comprehension. Now what I have done, is to make a certificate here that says, "Certificate of Achievement awarded to Jennifer F. for Learning the 3H Strategy". I have dated it today and signed it. The 3H strategy is here on the certificate, too. Head First, Here, Hidden, in my Head and Check your Answers.

David: How about Head First? Oh, it's there.

Leilani: How do you do those stars?

Ms G.: I have a special stamp that does it. So Jenny, Congratulations! Look at the stars you got for your work today. You got everything right. You used the strategy and tried. That was good thinking, my girl. How do you feel?

Jenny: Happy.

Ms G: Me too.
Summary of General Procedures used Throughout the Research.

1. Students learning the 3H strategy were taught to unpack what they already know about reading and use their Heads First!. To do so, they asked themselves questions which helped them to monitor their comprehension before, during, and after reading. Before reading, students thought about the topic of the passage and shared what they already knew about it.

2. The researcher would then read each passage aloud while the students followed along on their copies of the passage. Students noted any aspects of content or any vocabulary words that they did not understand. They underlined or put question marks near these sections of the passage. The students then asked questions about what they needed to find out about the passage.

3. Students wrote a question that they thought a teacher would ask about the passage on the bottom of their comprehension sheet.

4. The researcher’s sheet of seven comprehension questions was distributed. The students followed along as the researcher read each question. As training progressed, key words or phrases from the comprehension questions were underlined or otherwise highlighted.

5. Students answered the seven questions about the passage. They read each question and noted any clues such as the words *do you think?* which often indicate an In My Head QAR. Students then checked the passage for information that could answer each question. Any information that was useful was underlined and numbered to correspond with the question being answered. If a question was answered using information from just one sentence in the passage, the students categorized the QAR as Here and wrote the answer in the space provided. If the question could only be answered by joining together information from the passage, or from the passage and from what the students' already know, then the question and its answer was classified as Hidden and the answer written down. If no information appropriate to answering the question was found in the passage,
students wrote in my Head in the space provided for the QAR category and then wrote their answers. The students also rated their confidence in each of their answers on a three point scale (I got it! Maybe Didn't get it.).

6. After answering the comprehension questions, students checked their answers by rereading each question and answer to see if they fit together. They then returned to any answers they rated as Maybe or Didn't get it and checked these answers again by making sure that they had understood the question and used the passage to try and locate an answer. Students were reminded that they should always be able to state reasons for their answers and 3H classifications.

7. The students' comprehension papers were marked very soon after they were completed. Students were given a score for comprehension, the classification of QARs, and accuracy in underlining information appropriate for responding to Here and Hidden question-answer relationships. If students' received 6/7 or 7/7 correct for any of these scores they were rewarded with a stamp on their worksheets. A superstar gold stamp was added to the stamps for scores of 100%. Results were plotted on the students' graphs in their reading passports. A star was added to the students' graphs each time they scored above 80% for comprehension, QAR classification, or underlining information.

Dependent Measures

Data on dependent measures were collected before, during, and after training.

**Dependent Measures Before Training**

**Metacognitive Interview**

The metacognitive questionnaire was administered to all 36 students before some of them were trained. This interview provided data regarding students' metacognitive awareness of the correctness or incorrectness of their answers, their knowledge of sources of information to answer questions, and their general methods of answering questions after a passage.
Baseline Comprehension Passages

An important dependent measure for this study was students' responses to the baseline comprehension questions. All students completed either four of five baseline passages, each with seven questions. In each set of seven comprehension questions, two were text explicit, three were text implicit, and two were script implicit. Although students had not learned to categorize QARs at baseline, data were still available on whether a particular type of question-answer relationship was more difficult for students to answer correctly.

Dependent Measures Collected During Training

Comprehension Scores

Students' accuracy in completing comprehension questions after a passage was an important dependent measure. Students in the trained and comparison groups completed some of the same social studies passages and questions. Students' responses were either marked correct or incorrect according to the marking key in Appendix D.

3H Categorization

Whether students correctly categorized questions and their answers as text explicit, text implicit, or script explicit was of interest in this research. Students were marked correct or incorrect for each H classification they wrote on their question sheet. The marking key for the 3H categories is provided on the same sheets as the comprehension answers in Appendix D.

Underlining of Passage Information

Although students practised underlining information in their passages as soon as they learned about the 3H strategy, they were not given a score for this dependent variable until the fifth passage. This decision was made so that students would have time to concentrate on the other aspects of the 3H strategy, and begin to see how underlining information from the passage supports the categorization of QARs as Here, Hidden, or in my Head. Indications from the pilot study were that introducing scores for
comprehension, 3H categorization, and underlining at the same time led to some confusion among the students with regard to the interpretation of their achievement graphs. By practising the underlining, but not formally scoring and graphing students' performance until half way through training, students learned to interpret their graphs and had more time to understand the relatedness of their comprehension answer to both the QAR category chosen, and the information underlined in the passage.

**Students' Questions after Each Passage**

Throughout training, students were asked to "Write down a question you think a teacher may ask about this passage." Students wrote their responses on the bottom of their copy of the comprehension passage before the question sheets were distributed. These questions were analyzed according to whether they were (a) main idea questions, (b) detail questions, (c) made from words taken directly from the text, or (d) paraphrased from the text.

**Classroom Tests**

Three classroom tests were conducted during this study. One test/retest probe was completed by students in a grade five class not otherwise involved in the research. On two separate occasions, two months apart, the students in this class listened to a passage on the life and achievements of Alexander Graham Bell before answering seven comprehension questions based on the passage.

The students in this class were also involved in passage validation tests. They were each given a random selection of ten different question sheets developed for this study, and were instructed to answer as many of the questions as possible from what they already know about methods of communication and life in Japan. The findings from these classroom tests are reported in the Results chapter.

The third classroom test gathered information on students' strategy use in the classroom. All students in one grade five and one grade six class, including some trained students, were asked by their teachers to listen to a social studies passage and complete
comprehension questions about it. The researcher was not in the classes when students completed this test. Students worked on materials similar to those used during strategy training sessions. They were given twenty minutes to complete the comprehension questions after hearing the passage.

**Strategy Use**

At least twice a week, students were asked to write down everything they remembered about the 3H strategy. Their answers were collected by the researcher. She also kept track of the students' recall of the five parts of the 3H strategy and their knowledge of what each part means. Students were required to recall this information in order to earn a star for their prompt card and a certificate for their reading passport.

**Dependent Measures Collected After Training**

**Comprehension, 3H Classification, and Underlining**

Data were collected from a total of four passages after training. Two passages were completed immediately after training and two more were completed sixteen weeks later. Measures of comprehension, 3H categorization, and underlining were collected from the trained students' work. Comprehension performance was the only dependent measure available from the passages completed by comparison group students.

**Metacognitive Questionnaire**

All items from the initial metacognitive questionnaire were readministered after the maintenance tests. This questionnaire provided data regarding students' awareness of how to answer questions after a passage.

**Opinion Questionnaire**

Students from the training groups completed an oral interview after the maintenance tests and delayed maintenance tests. During these interviews, students were asked for their opinions on the usefulness of the 3H strategy, and for suggestions of ways to improve the 3H strategy.
Scoring Procedures

Students' performances on the comprehension, 3H categorization, and underlining dependent variables were given numerical values. Similarly, students' awareness of question-answering behaviour was measured through their responses to the metacognitive questionnaires before and after training. Data from other dependent measures collected during this study, however, were not scored but used to add qualitative rather than quantitative information to the study. Descriptive data about the types of questions students wrote after each passage, their strategy use during training, and their opinions of the 3H strategy all add to the final understanding of what happened during the teaching of the 3H strategy. How these data were grouped and summarized is described in the next chapter.

Comprehension, 3H Categorization, and Underlining

Students in the comparison group were given comprehension scores out of seven for each passage and its questions that they finished. Students who were part of the strategy training group received three separate scores out of seven; one each for comprehension, 3H categorization, and underlining relevant information. Students' papers were corrected according to the marking key developed for each passage used in the study (see Appendix D).

The marking keys were produced in the following way. After each passage was typed, two Here, three Hidden, and two in my Head questions were written about it. These questions followed the guidelines for distinguishing between QARs set down in the 3H strategy. The passage and its questions were reviewed a few days after they had been written. Any necessary changes were made to improve the clarity of the questions, then the researcher created a marking sheet by answering the questions, categorizing the Hs, and underlining the appropriate information in the passage to answer Here and Hidden QARs. The validity of this marking sheet was tested by giving a random sample of fifteen passages to another researcher and graduate student of education. After the 3H strategy was
explained to this person, she proceeded to answer, categorize, and underline. The amount of agreement between the two researchers was .92. Any disagreements were resolved through discussion.

**Metacognitive Questionnaires**

Following Dewitz, Carr, and Patberg (1987), responses to the metacognitive questionnaire were assigned 0, 1, or 2 points. If students gave a correct answer to a comprehension question and knew it was correct, or an incorrect answer and knew it is incorrect, they received two points because their responses reflected metacognitive awareness. If students' answers were incorrect and they had stated that they were not sure if their answers were right or wrong, they were assigned one point for partial metacognitive awareness. Students' answers earned 0 points if they indicated no metacognitive awareness of the correctness or incorrectness of their answers. That is, students' responses would be assigned a zero if they gave correct answers but stated that they thought the answer was wrong; or gave incorrect answers but stated that they thought the answer was right.
IV. RESULTS

Results pertaining to each of the five research questions posed at the end of Chapter 1 will now be presented.

**What differences in listening comprehension performance exist between LD students, poor readers, and average readers?**

This research question concerns whether students who were identified as learning disabled (LD), poor, or average readers for this study have the predicted pattern of reading and listening comprehension scores on the modified Peabody Individual Achievement Test (PIAT) suggested by Spring and French (1990). An inspection of the means shown in Table 1 indicates that they do. As predicted, the average scores of LD students are the lowest of all three groups on reading comprehension and considerably higher on listening comprehension.

To verify the statistical reliability of this observation, two planned comparisons were calculated on the reading comprehension scores, followed by two more on the listening comprehension scores. In both cases, the comparisons contrasted (a) the scores of LD students with those of the poor readers, and (b) the scores of the LD students with those of the average comparison students. On reading comprehension, results indicated that LD and poor readers' scores did not differ detectably ($t(33) = -1.47, MSE = 1.57, p = .15$, effect size $(d) = .55$). However, the LD students' scores were statistically lower than those of the average students ($t(33) = -2.70, MSE = 1.74, p = .011, d = 1.12$). On the listening comprehension test, the LD students performed significantly better than the poor readers ($t(33) = 3.51, MSE = 1.46, p = .001, d = 1.64$) and also better than the average students ($t(33) = 2.53, MSE = 1.62, p = .016, d = 1.31$).

Are there differences in comprehension performance between trained students and untrained students at baseline, during training, and after training?
Table 1

**Students' Means and Standard Deviations for the Initial Decoding and Comprehension Tests Administered as Part of Subject Selection Procedures**

<table>
<thead>
<tr>
<th>Group</th>
<th>WRAT&lt;sup&gt;a&lt;/sup&gt;</th>
<th>W-J&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Modified PIAT&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Modified PIAT&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Word recognition</td>
<td>Word attack</td>
<td>Raw Score</td>
<td>Raw Score</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>Standard Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M     SD</td>
<td>M     SD</td>
<td>M     SD</td>
<td>M     SD</td>
</tr>
<tr>
<td>Learning Disabled</td>
<td>85 (12.0)</td>
<td>80 (9.91)</td>
<td>10.70 (3.02)</td>
<td>19.10 (3.87)</td>
</tr>
<tr>
<td>Poor Readers</td>
<td>95 (7.23)</td>
<td>85 (6.38)</td>
<td>12.69 (4.24)</td>
<td>14.63 (4.06)</td>
</tr>
<tr>
<td>Average Readers</td>
<td>113 (3.23)</td>
<td>112 (11.77)</td>
<td>15.36 (4.01)</td>
<td>15.36 (2.98)</td>
</tr>
</tbody>
</table>

Note:  

- a Wide Range Achievement Test  
- b Woodcock-Johnson Non-Word Reading Test  
- c Peabody Individual Achievement Test  
- The maximum raw score for both the PIAT reading and listening comprehension tests is 33.
Do differences in comprehension performance exist between LD students and poor readers who learned the 3H strategy?

As the primary method of data evaluation for multiple-baseline research is visual inspection, the graphs for each individual and group in this study will now be presented and discussed. Following this, the statistical analyses conducted on students' comprehension scores will be described.

Trained Groups

Four mixed groups of LD and poor readers, and one group composed solely of poor readers learned the 3H strategy. In Figures 3, 4, 5, 6 and 7, LD students' graphs are presented above those of poor readers to facilitate identifying any differences between individual LD and poor readers in the small training groups.

Group 1 consisted of four LD students and one poor reader (Student 5) from grade six. These students' comprehension scores are plotted on Figure 3. At baseline, comprehension scores ranged from 31% to 65%, with all students' scores decreasing or stable at a fairly low level by the end of measurement. LD Student 2, who answered 5 out of 7 questions correctly on four of the five baseline passages, had the highest baseline score.

The effect of the intervention on Group 1 students' comprehension scores was evident immediately. Student 1 and Student 2 maintained their improvement to complete the strategy training with average comprehension scores of 80% and 93%, respectively. Student 3 experienced some difficulty with passages 4 and 5, but completed the three final training passages with scores above 80%. Student 4 had variable scores during training, mostly due to poor writing skills which interfered with writing precise answers to many comprehension questions. Despite this problem, his average achievement during training was 79% compared to 32% at baseline. This LD student was the only individual from all five groups who did not to attain three consecutive scores of over 70% during training. The only poor reader in this group, Student 5, averaged 77% on the training passages.
Figure 3. Percentage of comprehension questions answered accurately by students in group 1.
This student misunderstood two of the questions about passage eight, and as a consequence ended training with a score of 4 out of 7. The four other students in this group received scores of 100% on the last training passage.

The next two points marked on the graph stand for the maintenance tests administered a week after training was completed. Students answered the questions after the maintenance passages independently. Group 1's average comprehension performance was 8% lower on the maintenance tests (73%) than during training (81%). Two LD students' scores decreased considerably: Student 1 dropped from 80% to 57% and Student 4 from 79% to 65%. These results reflect the difficulty some students had working independently. Nevertheless, Student 1's and 4's maintenance results still show a sizeable improvement over their baseline scores of 35% and 31% respectively.

The last two points on the graph show students' scores on the delayed maintenance tests given four months after the completion of training. Only LD Student 4's comprehension score decreased between maintenance testing (65%) and delayed maintenance testing (50%). All other students' average scores either increased by 7 to 21% or remained the same. Notably, the only poor reader in this group obtained 100% on both delayed maintenance tests. Group averages for comprehension for students in group 1 were 48% correct at baseline, 81% correct during training, and 75% correct during maintenance.

Group 2 was also composed of grade six students. The comprehension scores of the three LD students in this group followed by the scores of three poor readers are plotted on Figure 4. Baseline measurement revealed comprehension scores ranging from 36% to 75%. As in group 1, the student (Student 9) who scored highest at baseline had been previously classified as learning disabled. Both Student 2 from group 1 and Student 9 had grade equivalent scores on the Gates-MacGinitie reading comprehension subtest of 3.7; therefore, it appears that their comprehension improvement may be partly attributed to simply removing some of the decoding restraints inherent in question and answer tasks.
Figure 4. Percentage of comprehension questions answered accurately by students in group 2.
Group 2 students' comprehension scores increased after the 3H strategy was introduced. Scores were consistently above 70% throughout training for all students, except Student 8. This poor reader experienced some difficulty organizing her answers and finishing her work in the allotted time during the first phase of training. Because Student 9's baseline performance was the highest of students in all five training groups, her scores show the least improvement due to a ceiling effect. Overall, students' comprehension ranged from 91% (Student 9) to 63% (Student 8) during intervention. All six students in group 2 achieved at least 70% accuracy on the last three training passages.

On the maintenance tests, students in group 2 continued the pattern of good comprehension performance they established during the final phase of training. The group comprehension average on these tests was 87%, 29% higher than their average at baseline. Four months later, students' average scores on the delayed maintenance tests indicated that they had retained much of their comprehension gain. However, all three LD students' comprehension scores decreased from maintenance to delayed maintenance (from 7% to 14%) while two of the three poor readers' performance actually increased. In contrast, the third poor reader's score (Student 8) fell by 29%. To summarize, the average scores for students in Group 2 were 56% at baseline, 80% during training, and 81% during testing.

In group 3, five poor readers from grade five were taught the 3H strategy (see Figure 5.). These students' comprehension scores at baseline were low, varying from 25% to 39%. During training these scores increased to an average of 77%. As the intervention progressed, students' performances resulted in graphs quite similar to one another. The only exception was Student 16 who took longer to successfully apply the 3H strategy to comprehension tasks than the other students in his group. By the end of training, however, all students had scored above 70% correct comprehension on at least three consecutive passages.

Although group 3's average comprehension on maintenance tests (73%) was only marginally lower than their average during training, Student 12 and Student 15 showed a
Figure 5. Percentage of comprehension questions answered accurately by students in group 3.
considerable drop. Student 12 scored 75% during training but only 64% on the maintenance tests, and Student 15 dropped from 80% to 57%. Both these poor readers worked well during training lessons but had some difficulty working independently on the maintenance test passages. Average scores for students in Group 3 remained about the same on maintenance (73%) and delayed maintenance tests (76%). Student 14 had trouble completing the delayed maintenance tests within the 55 minutes allocated for this purpose and his score for the second passage reflects this difficulty. The other poor readers all increased their scores on the delayed maintenance tests relative to the earlier test passages or remained at the same level. Students in Group 3 averaged 32% at baseline, 77% during training, and 74% during testing.

Two LD students and three poor readers worked together in group 4. The comprehension scores for these grade five students are plotted on Figure 6. At baseline, the highest overall comprehension score (50%) for this group was again attained by a learning disabled student. This student (Student 21) received a score below the first percentile on the WRAT word recognition test used for subject selection. The lowest baseline comprehension score for group 4 was 18% for Student 18, a poor reader who scored only 1 out of 7 on three of the four baseline passages.

The comprehension scores of students in group 4 improved after the 3H strategy was introduced. This improvement was immediately evident for Students 17, 18, 19 and 21. The poor reader, Student 20, however, had some difficulty completing all the questions for the first three training passages within the 30 minute lessons. The two LD students in this group had the highest overall percentages during training. Student 21 achieved 91% accuracy for comprehension, while Student 19 was extraordinarily consistent in her comprehension performance, scoring 6 out of 7 (86%) for every training passage. No other LD or poor reader in the study displayed such consistent performance.

All five students in group 4 obtained at least 70% on three consecutive passages during training. For Student 18 this occurred in the first part of training (passages 1 to 4),
Figure 6. Percentage of comprehension questions answered accurately by students in group 4.
whereas, for the other students it occurred during the last phase (passages 5 to 8). Unfortunately, Student 18 was hospitalized for a short time during the second phase of training. Although this poor reader completed all training lessons and passages when he returned to school, his poor health probably affected his performance, particularly on the maintenance and delayed maintenance tests.

Group 4's average for the maintenance tests was 74%, an increase of 36% over their baseline performance. Although students' individual comprehension scores decreased between training and maintenance testing, the LD students' scores decreased the least (7% and 5%). In general, scores on the maintenance tests continued the pattern of comprehension performance established during the final phase of training.

Students' achievement on the delayed maintenance tests was variable. Two students, one poor reader and one with learning disabilities, preserved their scores at the maintenance test level. The performance of another LD student (Student 21) and another poor reader (Student 18) fell considerably, while the remaining poor reader improved her score by 7%. Of the students in group 4, only a learning disabled student (Student 19) remained above the 70% mark on all the test passages. The average scores for students in Group 4 were 38% for baseline, 78% on training passages, and 62% during testing.

Group 5 consisted of one LD student and four poor readers from grade five. These students averaged 38% comprehension at baseline (see Figure 7). Both the highest (60%) and lowest (11%) scores were obtained by poor readers. The LD student in group 5 averaged 40% on the baseline passages.

Students' comprehension scores increased after the 3H strategy was introduced. The group average for training passages was 74%, with individual scores ranging from 70% to 79%. All students reached a level of 70% accuracy on three consecutive passages. However, this occurred during the first phase of training, rather than the last, for one poor reader (Student 25).
Figure 7. Percentage of comprehension questions answered accurately by students in group 5.
On the maintenance tests, students in group 5 averaged 62%. Although this percentage is lower than their average training scores, it still represents a 24% increase over baseline comprehension scores. Four months later, students' performance on delayed maintenance tests indicated general retention of comprehension gains. The LD student's comprehension score improved from 64% at maintenance to 86% on the delayed maintenance tests. The scores of two poor readers, Student 26 and Student 24, also improved by 22% and 14% respectively. The performances of the two remaining poor readers in group 5, however, decreased by 7%. The overall scores for students in group 5 were 38% at baseline, 74% during training, and 66% during testing.

Comparison Groups

The ten comparison students were divided into two equal groups of grade six (group 6) and grade five (group 7) students. Average-achieving students in the comparison group completed the same baseline and test passages as the trained groups. However, to avoid the problem of extended assessment without training, these students answered comprehension questions on only four of the eight passages used to train groups 1 through 5. Graphs depicting the comprehension performance of students in group 6 and group 7, as well as a combined graph for all ten comparison students, are shown in Figure 8.

Average baseline performances for students in Group 7, the grade 5 comparison group (60%), were somewhat lower than for average students in grade 6 (68%). However, both groups maintained a comprehension level of around 66% on the training passages. The students in group 6 tended to finish the comprehension tasks more quickly than the grade five comparison students, so it is possible that they were taking less care in answering the questions. Students' scores on the first set of tests given after training were 82% for group 6 and 62% for group 7. Four months later, scores for students in these same groups were 82% and 70%.
Figure 8. Percentage of comprehension questions answered accurately by comparison students in groups 6 and 7.
The summary graph of both groups' scores is important. It depicts the overall comprehension performance of the ten average students on most of the same passages completed by the trained students. As such, it provides a valid level of average achievement against which to gauge the improvement of trained students. This graph indicates that the comparison group scored an average of 65% at baseline, 66% on the four training passages, 70% on maintenance tests, and 76% on delayed maintenance tests.

Figure 9 presents a summary of the comprehension performance of each of the five trained groups in comparison to the mean scores of the average reader group. Because the comparison group completed four passages during training rather than eight as the trained students did, their graphs depict this difference. Trained and untrained students completed the same number of baseline and test passages.

The average students' scores vary little from 65% to 76%, while the scores for the trained groups range from a minimum of 32% for group 3 at baseline to a maximum of 81% for group 1 on the training passages. In summary, the average percentages for the twenty-six trained students changed from 42% at baseline to 74% during the first phase and 82% during the second phase of training. Students' scores stabilized at around 72% for both the maintenance and delayed maintenance tests.

Learning Disabled and Poor Readers

So far the discussion of students' comprehension performance has concentrated on the effects of the 3H strategy intervention on the five intact training groups. The results for the ten LD students and sixteen poor readers who made up the training groups will now be analyzed. Figure 10 shows the LD and poor readers' average results at baseline, during training, and after training. The training period was divided into two phases in order to distinguish between the performance of students during the introduction of the 3H strategy in phase 1 and students' work once the strategy was more familiar and their effort more independent in phase 2.
Figure 9. Average percentage of comprehension questions answered accurately by students in the trained groups.
Figure 10. Comparing the average comprehension performance of learning disabled and poor readers.
In terms of percentages, LD students averaged 47% at baseline compared to 39% for poor readers. During the first phase of training, LD students averaged 80% accuracy compared to 71% for poor readers. This trend continued into the second phase of training with learning disabled students averaging 88% and poor readers 79%. On the maintenance tests LD students outperformed poor readers 79% to 63%. The delayed maintenance tests saw LD and poor readers achieve comprehension accuracy of 76% and 68% respectively.

The boxplots (or box-and-whisker plots) in Figure 11 supplement this discussion of LD and poor readers' comprehension scores by providing information about group medians and the dispersion of scores. These plots also facilitate the comparison of trained and average students' performance at each phase of the study. In Figure 11, the median scores are marked with an asterisk, while a rectangular box joins hinges, which mark the first and third quartiles, to separate the interquartile range from the lowest and highest 25% of the distribution. The whiskers of the plot are drawn to points in the data which are closest to a value calculated as 1.5 times the interquartile range above or below the hinges (see Howell, 1989). Any data points which are more extreme than the whiskers are considered outliers and are denoted by a circle.

At baseline, LD and poor readers' scores have similar spread although the LD students' distribution is positively skewed and the poor readers' negatively skewed. The distribution of the comparison students' scores is closer to normal, with the box showing that 50% of students' scores lie between 4 and 5. The median score of the comparison average students is 4 compared to 3 for LD students, and 2.5 for poor readers.

During the first phase of training, the effect of the intervention on the trained groups is evidenced by both the higher median values for LD and poor readers and the compressed variance of scores. In contrast, the comparison students' plot for phase 1 remained similar to that drawn at baseline, although the spread seems compressed. The average students' median score was 4.5, while LD and poor readers learning the 3H strategy recorded higher medians of 5.5 and 5.0, respectively.
Figure 11. Boxplot of LD, poor, and comparison students' comprehension scores across all phases of the study.

Key
* Median
○ Outlier
The trend towards higher median scores and less variance in the spread of trained students' scores continued during the second phase of training. This is particularly noticeable for the ten LD students who all scored 5.5 or more out of 7 on the final four training passages. Fourteen of the poor readers' average scores were between five and six on the same tests, with one outlier recording a score of 7 and another outlier scoring 4. The comparison students had a median score of 4.75 compared to 5.75 for LD students, and 5.5 for poor readers.

On the maintenance tests administered one week after training, students worked independently to complete fourteen questions about two passages. Trained students' independent use of the 3H strategy contributed to a greater dispersion of scores. In general, the spread of scores for all three groups was approximately the same as at baseline. Both LD and average students recorded a median score of 5 on the maintenance tests, while poor readers' median score was 4. The medians of all groups on the maintenance tests were at least one full point higher than the medians recorded at baseline.

On the delayed maintenance tests completed four months after training, the interquartile ranges and median scores of the LD and average readers remained stable at the level of the previous maintenance tests. The median value of the poor readers' scores, however, rose by half a point relative to the maintenance test results, while the spread of their scores increased considerably. The boxplot for the poor readers also shows two low outlying scores and one high outlier on the delayed maintenance tests.

Differences in the shapes of the boxplots of trained students' scores between maintenance and delayed maintenance tests are notable. Both the LD and poor readers have positively skewed distributions and high outliers on the first set of maintenance tests. On the delayed maintenance tests, however, their distributions are somewhat negatively skewed and both groups have low outlying scores. In contrast, the boxplot for average students' delayed maintenance scores indicates a positive skew and identifies a high outlier.
The overall pattern of scores shown by the boxplots in Figure 11 summarizes much of the information contained in the individual and group graphs. When comparing the comprehension performance of trained students with that of average readers, it is clear that LD and poor readers change from being outperformed by the comparison group at baseline to outperforming their average peers during training. On the maintenance and delayed maintenance tests, the comprehension scores of trained students are similar to those of average comparison students. Of the two groups who learned the 3H strategy, the LD students scored consistently higher than the poor readers.

Statistical Analyses

To supplement the observations made by visual inspection of the data, a single factor multivariate analysis of variance (MANOVA) with repeated measures and a priori contrasts was conducted on the students' comprehension scores. In this analysis, the independent variable, group membership, had three levels: learning disabled, poor readers, and average-achieving. The repeated measures scores were averaged for five occasions: baseline, phase one of training, phase two of training, maintenance, and delayed maintenance testing.

A priori contrasts which compared trained (LD and poor readers combined) versus untrained students, and learning disabled with poor readers, were included as part of this analysis in order to specifically address the research questions: (a) Are there differences in comprehension performance between trained students and untrained comparison students at baseline, during training, and after training? and (b) Do differences in comprehension performance exist between LD students and poor readers who have learned the 3H strategy? These questions relate to two different aspects of the data. The first tests for an interaction effect between trained and untrained students' comprehension scores over time. In contrast, the second question concerns differences between the comprehension performances of LD and poor readers as a main effect for student category. The prediction made at the beginning of the study was that, although the 3H strategy would improve the
comprehension performance of all trained students relative to the untrained students, the overall comprehension scores of LD students would be higher than those of poor readers.

Before analyses could be conducted, inconsistencies in the number of passages completed by the instructional and comparison groups had to be remedied. A difference in the number of passages completed on maintenance tests (two) compared with phases of training (four) also necessitated the adjustment of total comprehension scores. As a result, individual students' mean scores per passage for each phase of the study were calculated. These mean scores were computed by dividing each student's total comprehension score for a particular phase (i.e., baseline, phase one, phase two, maintenance, and delayed maintenance) by the number of passages she completed during that phase of the study. These calculations yielded five comprehension mean scores per student, one for each of the five phases of the research. Mean scores and standard deviations for the learning disabled, poor readers, and average students are provided in Table 2.

The summary table for the 3 (student category) by 5 (occasion) repeated measures analysis with a priori contrasts computed on comprehension scores is provided in Table 3. Although the data fulfilled the homogeneity of variance requirements for this MANOVA, it violated the Mauchly sphericity test, indicating that the correlations among levels of the repeated variable were not constant. Therefore, the degrees of freedom for the analysis were adjusted using the Huynh-Feldt epsilon. The Huynh-Feldt epsilon was chosen over the Greenhouse-Geisser adjustment because the Greenhouse-Geisser epsilon tends to be overly conservative (Howell, 1987).

There was a significant interaction for trained versus untrained students by time \((F(4,120) = 13.52, p < .001)\). This confirms that trained and untrained students' scores differed in relation to one another across different phases of the study. The multivariate test of significance for this contrast by time was Pillai's \(F(4,30) = 13.69, p < .001, d = .65\). Pillai's multivariate test statistic was chosen because of its robustness which is an
Table 2

LD, Poor, and Average Readers' Comprehension Mean Scores and Standard Deviations (SD) Per Passage For Each Phase of the Study

<table>
<thead>
<tr>
<th>Group</th>
<th>Baseline M (SD)</th>
<th>Phase 1 M (SD)</th>
<th>Phase 2 M (SD)</th>
<th>Maintenance M (SD)</th>
<th>Delayed M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Disableda</td>
<td>3.40 (1.10)</td>
<td>5.60 (.65)</td>
<td>6.10 (.34)</td>
<td>5.50 (.94)</td>
<td>5.35 (1.03)</td>
</tr>
<tr>
<td>Poor Readersa</td>
<td>2.70 (1.03)</td>
<td>5.02 (.57)</td>
<td>5.50 (.63)</td>
<td>4.30 (1.03)</td>
<td>4.75 (1.64)</td>
</tr>
<tr>
<td>Average Comparisonb</td>
<td>4.58 (1.18)</td>
<td>4.63 (.92)</td>
<td>4.48 (.49)</td>
<td>5.00 (1.31)</td>
<td>5.30 (.98)</td>
</tr>
</tbody>
</table>

Note. Maximum score = 7.

aFor learning disabled and poor readers, mean scores for baseline and for phase 1 and phase 2 of training are each based on four passages. Mean scores for maintenance and delayed maintenance tests are each based on two passages.

bThe mean scores for average comparison students at baseline are based on four passages. Their mean scores for all other phases of training are based on two scores.
Table 3

Summary Table for MANOVA with Repeated Measures and A Priori Contrasts on Students' Comprehension Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td>82.48</td>
<td>33</td>
<td>2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast 1 (Trained vs Untrained)</td>
<td>.04</td>
<td>1</td>
<td>.04</td>
<td>.02</td>
<td>.90</td>
</tr>
<tr>
<td>Contrast 2 (LD vs Poor Readers)</td>
<td>16.01</td>
<td>1</td>
<td>16.01</td>
<td>6.40</td>
<td>.016*</td>
</tr>
<tr>
<td>Within Cells</td>
<td>79.90</td>
<td>120</td>
<td>.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>70.76</td>
<td>4</td>
<td>17.69</td>
<td>29.23</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Contrast 1 (Trained vs Untrained) by Time</td>
<td>32.73</td>
<td>4</td>
<td>8.18</td>
<td>13.52</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Contrast 2 (LD vs Poor Readers) by Time</td>
<td>1.30</td>
<td>4</td>
<td>.33</td>
<td>.54</td>
<td>.692</td>
</tr>
<tr>
<td>Total</td>
<td>283.22</td>
<td>167</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p< .05.
advantage under conditions of small and unequal sample size (Barker & Barker, 1984; Olson, 1979; Tabachnick & Fidell, 1983).

Inspection of the mean scores, graphed as boxplots on Figure 12 helps interpret the interaction effect for trained versus untrained students. This graph shows that the untrained average students' scores fluctuated little while the trained students' comprehension performance differed significantly between baseline and training, and training and maintenance testing. The most noticeable change occurred with the introduction of the 3H strategy. The onset of the intervention resulted in an increase of 2.26 points (32%) per passage in trained students' average performance, and a change in median score of 2 points. Relative to the LD and poor readers' combined baseline level this represents an increase of almost two standard deviations ($d = 1.92$). Learning disabled and poor readers' average scores continued to improve throughout training. From the second phase of training to maintenance testing, however, their comprehension performance decreased by an average of .9 marks per passage ($d = -.69$) to a level commensurate with that of the average students. The comprehension scores of both trained and untrained students changed little over the four months between maintenance testing and delayed maintenance testing. In fact, the trained and untrained students' boxplots of scores on these tests show identical interquartile ranges and median values.

The second contrast of interest concerning LD and poor readers was the significant between subjects main effect ($F(1,33) = 6.40, p = .016$). This means that students' membership in either the LD or poor reader group was important in determining their overall comprehension success using the 3H strategy. There was no interaction with time for this contrast, so the change in LD and poor readers' comprehension scores from one set of tests to the next was similar. This result supports previous observations made after inspecting students' graphs (refer to Figure 10).

As the MANOVA with planned comparisons results revealed significant effects, separate analyses of variance were conducted on students' comprehension scores for each
Figure 12. Boxplot of trained and comparison students' comprehension scores across all phases of the study.
phase of the study. This is necessary when using McNemar's (1969) approach to multiple comparisons in order to adjust for "the subjectivity inherent in the definition of a planned comparison" (Barker & Barker, 1984, p. 30). McNemar's procedure requires a significant omnibus $F$ before planned, orthogonal comparisons can be evaluated using the chosen alpha level. The ANOVA results and the $t$-values for the planned orthogonal comparisons are provided in Table 4.

The ANOVAs on comprehension performance were statistically significant for students' scores at baseline, during both phases of the intervention and on the maintenance tests administered a week after training. The results of the comparisons conducted at these times underscore the effectiveness of the 3H strategy, particularly for LD students. At baseline, the average comparison students clearly outperformed the LD and poor readers on the comprehension passages. During the first phase of strategy training, however, the relationship between the trained and untrained students' scores reversed: LD and poor readers who were learning the 3H strategy began to attain comprehension scores that were consistently higher than those of average students. This trend strengthened during the second phase of training. Within the trained group, differences in comprehension performance between LD and poor readers were also statistically detectable. During phase one and phase two of training, LD students' mean scores per passage were reliably higher than those of poor readers.

On the first set of maintenance tests, trained students' comprehension performance stabilized at around the same level as that of comparison students. The LD students' average raw score was the highest of all three groups, however, and remained statistically differentiable from that of poor readers. On the delayed maintenance tests, trained and untrained groups performed similarly. No comparisons between means on the delayed maintenance tests were investigated because McNemar's procedure (1969) was being followed and the prerequisite analysis of variance for planned comparisons on these data was non-significant.
Table 4.

**Analyses of Variance and A Priori Comparisons for Students' Comprehension Scores**

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>t-values for Planned Comparisons</th>
<th>Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>df</td>
<td>MSe</td>
</tr>
<tr>
<td>Baseline</td>
<td>9.08</td>
<td>2,33</td>
<td>1.19</td>
</tr>
<tr>
<td>Phase 1 of training</td>
<td>4.91</td>
<td>2,33</td>
<td>.49</td>
</tr>
<tr>
<td>Phase 2 of training</td>
<td>24.72</td>
<td>2,33</td>
<td>.28</td>
</tr>
<tr>
<td>Maintenance tests</td>
<td>3.39</td>
<td>2,33</td>
<td>1.19</td>
</tr>
<tr>
<td>Delayed maintenance</td>
<td>.83</td>
<td>2,33</td>
<td>1.78</td>
</tr>
</tbody>
</table>

Note:  *p< .05.

<sup>a</sup>Effect size (d) was calculated using the standard deviation of the comparison group as the denominator of each equation.

<sup>b</sup>Effect size (d) was calculated using the standard deviation of the poor readers' group as the denominator of each equation. The poor readers' standard deviation was consistently closer to the mean square error value available from the ANOVA results.
Does learning the 3H strategy improve LD students' ability to answer inference questions more than it improves the inference-making of poor readers?

Students' comprehension scores for each passage in this study were actually a composite of three scores. Of the seven questions asked after each passage, two questions were text explicit (Here), three were text implicit (Hidden), and two were script implicit (in my Head). To answer this research question an analysis of the question-answer relationship components of students' comprehension scores was conducted.

Table 5 shows the means and standard deviations of trained students' scores for each question type. Because the question type data is related to the original comprehension data, the same inconsistencies in the number of passages completed during baseline, training, and testing were present. To remedy this, once again individual students' mean scores for each phase of the study were calculated by dividing each student's total comprehension score per phase for a particular question type (i.e., text explicit, text implicit, script implicit) by the number of passages s/he completed during that phase of the study. In all, fifteen mean scores per student were calculated. Because three text implicit questions, but only two text explicit and two script implicit questions, were asked after each passage, students' scores for text implicit questions were adjusted so that all three question types had a maximum value per passage of two.

To investigate how learning the 3H strategy affected students' ability to answer inference questions, two separate MANOVAs with repeated measures were used to analyze LD and poor readers' comprehension scores for text implicit and script implicit QARs. Text explicit questions were excluded because, unlike text implicit and script implicit questions, they do not require that students use complex inferential processes, such as joining text together or relating text to background knowledge, to answer them. As discussed in the review of literature, inferencing can be defined as "the generation of new semantic information from old semantic information in a given context" (Rickheit, Schnottz,
Table 5.

Mean Scores and Standard Deviations (SD) for LD and Poor Readers' Correct Comprehension Responses to Three Question Types

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Phase of the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
</tr>
<tr>
<td>Text Explicit Learning Disabled</td>
<td>1.35 (.39)</td>
</tr>
<tr>
<td>Poor Readers</td>
<td>1.20 (.39)</td>
</tr>
<tr>
<td>Text Implicit Learning Disabled</td>
<td>.80 (.33)</td>
</tr>
<tr>
<td>Poor Readers</td>
<td>.66 (.35)</td>
</tr>
<tr>
<td>Script Implicit Learning Disabled</td>
<td>.85 (.52)</td>
</tr>
<tr>
<td>Poor Readers</td>
<td>.53 (.33)</td>
</tr>
</tbody>
</table>

Note: Maximum score for each question type = 2.
& Strohner, 1985, p. 8). Under this definition, text implicit and script implicit QARs qualify as examples of inferencing because both involve some joining together of information from the passage or the student's knowledge base to form an answer. Text explicit QARs are different, however. These questions target specific passage information and contain many of the same cue words as the sentence in the passage which provides the appropriate response. To answer such a text explicit question, students do not make inferences, they locate information which is already given in one sentence in the passage.

Summary tables for the MANOVAs are provided in Table 6 and Table 7. For text implicit questions there was no significant main effect of student category ($F(1,24) = 2.44$, $p = .131$) or interaction for student category by time ($F(4,96) = 1.29$, $p = .28$). However, the analysis on script implicit questions revealed a statistically reliable main effect for student category ($F(1,24) = 8.97$, $p = .006$). An examination of the group means indicates that it was the LD students' comprehension scores for script implicit questions that were higher than the poor readers' scores.

The boxplot of mean scores for script implicit question types provided in Figure 13 assists in interpreting the statistical analysis. The graph shows that LD students' mean and median scores for script implicit questions remained higher than those of poor readers throughout the study. Both groups' scores improved during training, but only the variance of the poor readers' scores was noticeably compressed. Once the direct support of the intervention was removed, poor readers' scored lower than the LD students on the first set of maintenance tests. Poor readers' ability to answer script implicit questions improved on the delayed maintenance tests, however, but their scores still remained below the average level of the LD students.

Following the significant MANOVA for script implicit question types, ANOVAs and planned contrasts were conducted on students' scores throughout the phases of the study. These results are provided in Table 8. A statistically detectable difference for LD and poor readers' comprehension performance on script implicit questions was found for
Table 6.

**MANOVA Summary Table for Text Implicit Question Type**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td>16.15</td>
<td>24</td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Category</td>
<td>1.65</td>
<td>1</td>
<td>1.65</td>
<td>2.44</td>
<td>.131</td>
</tr>
<tr>
<td><strong>Within Cells</strong></td>
<td>24.84</td>
<td>96</td>
<td>.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>25.34</td>
<td>4</td>
<td>6.34</td>
<td>24.48</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Student Category by Time</td>
<td>1.33</td>
<td>4</td>
<td>.33</td>
<td>1.29</td>
<td>.280</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>69.31</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p< .05.
Table 7.

**MANOVA Summary Table for Script Implicit Question Type**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td>8.17</td>
<td>24</td>
<td>.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Category</td>
<td>3.05</td>
<td>1</td>
<td>3.05</td>
<td>8.97</td>
<td>.006*</td>
</tr>
<tr>
<td>Within Cells</td>
<td>12.05</td>
<td>96</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>13.37</td>
<td>4</td>
<td>3.34</td>
<td>26.63</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Student Category by Time</td>
<td>1.00</td>
<td>4</td>
<td>.25</td>
<td>1.99</td>
<td>.103</td>
</tr>
<tr>
<td>Total</td>
<td>37.64</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:  *p< .05.
Figure 13. Boxplot of script implicit questions answered correctly by LD and poor readers.
Table 8.

**Analyses of Variance and Planned Comparisons for Script Implicit Question Types**

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>$t$-values for Planned Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$</td>
<td>$df$</td>
</tr>
<tr>
<td>Baseline</td>
<td>3.74</td>
<td>1,24</td>
</tr>
<tr>
<td>Phase 1 of training</td>
<td>4.36</td>
<td>1,24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2 of training</td>
<td>1.98</td>
<td>1,24</td>
</tr>
<tr>
<td>Maintenance tests</td>
<td>15.02</td>
<td>1,24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed maintenance</td>
<td>.86</td>
<td>1,24</td>
</tr>
</tbody>
</table>

Note:  *$p< .05.$

Effect size ($d$) was calculated using the standard deviation of the poor readers' group as the denominator of each equation. The poor readers' standard deviation was consistently larger than that of the LD students, therefore, a conservative estimate of effect size was computed.
the maintenance tests administered one week after training. In terms of effect size, the LD students' average score on the maintenance tests was 1.44 standard deviation units higher than that of the poor readers.

Analyses of Trace Scores

How students' trace scores (i.e., QAR classification and underlining of information relevant to answering the question) reflect their strategy use, as well, the probability that comprehension questions are answered correctly as a result of appropriate strategy use was examined (see Winne, Graham, & Prock, in press). Such analyses provide an additional perspective to complement the interpretation of data already presented through graphs and multivariate statistics.

Specifically, conditional probability analyses were used to examine the relationship between different parts of the 3H strategy and students' correct comprehension responses. The statistics address, for example, whether comprehension questions of all types were answered correctly more often when question-answer relationships were identified appropriately. So, too, was whether correct comprehension is associated with underlining relevant information from the passage.

Conditional probability statistics are ratios. In this study, the denominator was the number of items, aggregated over all trained students and over passages, where LD and poor readers left a particular trace of their strategy use. The numerator was the number of these occasions associated with correctly answered comprehension questions. Two separate trace scores, one for QAR categorization and one for the underlining of relevant information from the passage, were gathered for each comprehension question answered. The five different patterns of trace scores important to this study are displayed in Table 9.

The first row in Table 9, Pr[correct/trace = 0] which is read as "the probability that the comprehension question is answered correctly given that the trace score is zero", shows the conditional probabilities calculated across the phases of the study for students who correctly answered specific comprehension questions despite neither identifying the
Table 9.

Conditional Probability of Trained Students Answering Comprehension Questions
Correctly Given Trace Scores for Categorization of OARs and Underlining Information

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Maintenance</th>
<th>Delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr[correct</td>
<td>trace = 0]</td>
<td>.43</td>
<td>.42</td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>107 items(^a) (15%)</td>
<td>72 items (10%)</td>
<td>108 items (30%)</td>
<td>115 items (32%)</td>
</tr>
<tr>
<td></td>
<td>(max = 728)</td>
<td>(max = 728)</td>
<td>(max = 364)</td>
<td>(max = 364)</td>
</tr>
<tr>
<td>Pr[correct</td>
<td>trace = 2]</td>
<td>.85</td>
<td>.89</td>
<td>.92</td>
</tr>
<tr>
<td>Both categorization</td>
<td>414 items (57%)</td>
<td>541 items (74%)</td>
<td>226 items (62%)</td>
<td>162 items (45%)</td>
</tr>
<tr>
<td>and underlining correct</td>
<td>(max = 728)</td>
<td>(max = 728)</td>
<td>(max = 364)</td>
<td>(max = 364)</td>
</tr>
<tr>
<td>Pr[correct</td>
<td>H category only]</td>
<td>.68</td>
<td>.70</td>
<td>.27</td>
</tr>
<tr>
<td>Trace = 1</td>
<td>187 items (26%)</td>
<td>94 items (13%)</td>
<td>15 items (4%)</td>
<td>29 items (8%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
<tr>
<td>Pr[correct</td>
<td>underlining only]</td>
<td>.90</td>
<td>.86</td>
<td>1.00</td>
</tr>
<tr>
<td>Trace = 1</td>
<td>20 items (3%)</td>
<td>21 items (3%)</td>
<td>15 items (4%)</td>
<td>58 items (16%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
<tr>
<td>Pr[correct</td>
<td>trace = 1 or 2)]</td>
<td>.80</td>
<td>.86</td>
<td>.89</td>
</tr>
<tr>
<td></td>
<td>621 items (85%)</td>
<td>656 items (90%)</td>
<td>256 item (70%)</td>
<td>249 items (68%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
</tbody>
</table>

Note. \(n = 26\) As an example, \(Pr[\text{correct|trace }=0]\) is read as "the probability that the comprehension question is correct given that the trace score is 0."

\(^a\) The number of items is the denominator used to calculate the conditional probability. The maximum possible for each part of the analysis is provided in parentheses. The percentage given after the number of items refers to the percentage of the maximum each value represents.
appropriate QAR or underlining relevant information from the passage. The second row of probabilities were calculated for the reverse situation. These conditional probabilities Pr[correct/trace = 2] describe the likelihood that students accurately answer comprehension questions given that they receive a trace score of 2, which indicates that they have both identified the correct QAR for a certain question and underlined relevant information from the passage when appropriate.

The next two rows of Table 9 display the conditional probabilities associated with correct comprehension when students receive a trace score of 1. LD and poor readers were given a trace score of 1 because (a) they identified a question's QAR category correctly but did not underline appropriate information from the passage (Pr[correct/H category only]); or (b) they underlined appropriate information but failed to categorize a question according to the 3H strategy (Pr[correct/underlining only]). In the last row of Table 9, probabilities for students' accurate answering of questions were computed for trace scores which indicated at least some use of the 3H strategy (Pr[correct/trace = 1 or 2]). The denominator of the conditional probability ratios in this instance was the number of trace scores which indicated either correct categorization of QARs (trace = 1), or correct underlining (trace = 1), or both (trace = 2). As in all the other conditional probabilities, the numerator of the ratios was the total correct comprehension responses associated with this pattern of trace scores.

Table 10 summarizes the conditional probabilities for occasions when trained students accurately answered a comprehension question after categorizing it correctly (trace score = 1) or incorrectly (trace score = 0) according to the 3H strategy. Table 11 displays the same conditional probabilities for the underlining of relevant information (trace score = 1 or 0). Both Table 10 and Table 11 include an analysis of conditional probabilities calculated specifically for text explicit, text implicit, and script implicit question types.

Two points should be kept in mind when interpreting the conditional probabilities in these tables. First, although both 3H categorization and underlining trace scores were
Table 10.

**Conditional Probability of Trained Students Answering Comprehension Questions Correctly Given Trace Scores Reflecting Correct Categorization of Question-Answer Relationships**

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Maintenance</th>
<th>Delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr[correct</td>
<td>trace = 0]</td>
<td>.43</td>
<td>.42</td>
<td>.21</td>
</tr>
<tr>
<td>107 items (15%)</td>
<td>72 items (10%)</td>
<td>108 items (30%)</td>
<td>115 items (32%)</td>
<td></td>
</tr>
<tr>
<td>(max = 728)</td>
<td>(max = 728)</td>
<td>(max = 364)</td>
<td>(max = 364)</td>
<td></td>
</tr>
<tr>
<td>Pr[correct</td>
<td>trace = 1 or 2]a</td>
<td>.80</td>
<td>.86</td>
<td>.88</td>
</tr>
<tr>
<td>(for categorizing Hs)</td>
<td>601 items (83%)</td>
<td>635 items (87%)</td>
<td>241 items (66%)</td>
<td>191 items (53%)</td>
</tr>
<tr>
<td>(max = 728)</td>
<td>(max = 728)</td>
<td>(max = 364)</td>
<td>(max = 364)</td>
<td></td>
</tr>
<tr>
<td>Pr[correct</td>
<td>Here]</td>
<td>.91</td>
<td>.89</td>
<td>.94</td>
</tr>
<tr>
<td>(text explicit questions only)</td>
<td>187 items (90%)</td>
<td>186 items (89%)</td>
<td>77 items (74%)</td>
<td>64 items (62%)</td>
</tr>
<tr>
<td>(max = 208)</td>
<td>(max = 208)</td>
<td>(max = 104)</td>
<td>(max = 104)</td>
<td></td>
</tr>
<tr>
<td>Pr[correct</td>
<td>Hidden]</td>
<td>.73</td>
<td>.88</td>
<td>.87</td>
</tr>
<tr>
<td>(text implicit questions only)</td>
<td>233 items (75%)</td>
<td>251 items (80%)</td>
<td>93 items (60%)</td>
<td>73 items (47%)</td>
</tr>
<tr>
<td>(max = 312)</td>
<td>(max = 312)</td>
<td>(max = 156)</td>
<td>(max = 156)</td>
<td></td>
</tr>
<tr>
<td>Pr[correct</td>
<td>in my Head]</td>
<td>.77</td>
<td>.82</td>
<td>.83</td>
</tr>
<tr>
<td>(script implicit questions only)</td>
<td>181 items (87%)</td>
<td>198 items (95%)</td>
<td>71 item (68%)</td>
<td>54 items (52%)</td>
</tr>
<tr>
<td>(max = 208)</td>
<td>(max = 208)</td>
<td>(max = 104)</td>
<td>(max = 104)</td>
<td></td>
</tr>
<tr>
<td>Pr[correct</td>
<td>trace = 1]</td>
<td>.68</td>
<td>.70</td>
<td>.27</td>
</tr>
<tr>
<td>(categorizing Hs only)</td>
<td>187 items (26%)</td>
<td>94 items (13%)</td>
<td>15 items (4%)</td>
<td>29 items (8%)</td>
</tr>
<tr>
<td>(max = 728)</td>
<td>(max = 728)</td>
<td>(max = 364)</td>
<td>(max = 364)</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** n = 26 The number of items is the denominator used to calculate the conditional probability. The maximum possible for each part of the analysis is provided in parentheses. The percentage given after the number of items refers to the percentage of the maximum each value represents.

aThe denominator of this conditional probability ratio is the total number of students' responses where both traces of strategy use are correct (trace = 2) plus the number of responses where only the categorization of QAR is correct (trace =1).
Table 11

Conditional Probability of Trained Students Answering Comprehension Questions

Correctly Given Trace Scores Reflecting Correct Underlining of Relevant Information

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Maintenance</th>
<th>Delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Pr[\text{correct}</td>
<td>0] )</td>
<td>.43</td>
<td>.42</td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>107 items (15%)</td>
<td>72 items (10%)</td>
<td>108 items (30%)</td>
<td>115 items (32%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
<tr>
<td>( Pr[\text{correct}</td>
<td>1 \text{ or } 2] ) \text{a} &amp; .86 &amp; .89 &amp; .93 &amp; .92 \ (for underlining information) &amp; 434 items (60%)</td>
<td>562 items (77%)</td>
<td>241 items (66%)</td>
<td>220 items (60%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
<tr>
<td>( Pr[\text{correct}</td>
<td>\text{Here}] ) &amp; .91 &amp; .89 &amp; .97 &amp; .96 \ (text explicit questions only) &amp; 141 items (68%)</td>
<td>167 items (80%)</td>
<td>77 items (74%)</td>
<td>73 items (70%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 208)</td>
<td>(max. = 208)</td>
<td>(max. = 104)</td>
<td>(max. = 104)</td>
</tr>
<tr>
<td>( Pr[\text{correct}</td>
<td>\text{Hidden}] ) &amp; .87 &amp; .95 &amp; .94 &amp; .93 \ (text implicit questions only) &amp; 126 items (40%)</td>
<td>200 items (64%)</td>
<td>90 items (58%)</td>
<td>82 items (53%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 312)</td>
<td>(max. = 312)</td>
<td>(max. = 156)</td>
<td>(max. = 156)</td>
</tr>
<tr>
<td>( Pr[\text{correct}</td>
<td>\text{in my Head}] ) &amp; .80 &amp; .84 &amp; .85 &amp; .86 \ (script implicit questions only) &amp; 167 items (80%)</td>
<td>195 items (94%)</td>
<td>74 item (71%)</td>
<td>65 items (63%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 208)</td>
<td>(max. = 208)</td>
<td>(max. = 104)</td>
<td>(max. = 104)</td>
</tr>
<tr>
<td>( Pr[\text{correct}</td>
<td>1] ) &amp; .90 &amp; .86 &amp; 1.0 &amp; .91 \ (Underlining only) &amp; 20 items (3%)</td>
<td>21 items (3%)</td>
<td>15 items (4%)</td>
<td>58 items (16%)</td>
</tr>
<tr>
<td></td>
<td>(max. = 728)</td>
<td>(max. = 728)</td>
<td>(max. = 364)</td>
<td>(max. = 364)</td>
</tr>
</tbody>
</table>

**Note.** \( n = 26 \) The number of items is the denominator used to calculate the conditional probability. The maximum possible for each part of the analysis is provided in parentheses. The percentage given after the number of items refers to the percentage of the maximum each value represents.

\( \text{a} \)The denominator of this conditional probability ratio is the total number of students' responses where both traces of strategy use are correct (trace = 2) plus the number of responses where only the underlining of information is correct (trace = 1).
collected during the study, the emphasis placed on different parts of the 3H strategy varied throughout training. During phase one of training, students learned primarily about Here, Hidden, and in my Head question-answer relationships. Their use of the underlining trace was encouraged at this time, but was not routinely marked as correct or incorrect. Instead, a model of correct underlining was provided on their papers. Towards the end of phase one, however, instructional emphasis was shared between the underlining of relevant information and the categorization of question-answer relationships.

Second, as students were not directly prompted to use the 3H strategy on the maintenance and delayed maintenance tests, the number of "trace = 0" scores from these tests is of interest. During training, approximately 12% of all trace scores were incorrect or missing. This percentage rose to around 30% on the maintenance tests, indicating that a considerable number of students did not include correct traces of strategy use on their test papers. For some students this occurred because they found it difficult to finish all fourteen comprehension questions in the 55 minutes allotted for this purpose. Other students, however, simply chose not to leave trace scores. Unexpectedly, the amount of missing or incorrect trace data on the maintenance and delayed maintenance tests was very similar, despite the four months separating these tests.

The conditional probabilities in Table 9 provide general information about strategy use. Without providing evidence of strategy classification or underlining, students had an average .43 chance of answering a comprehension question correctly. With both parts of the strategy correct, however, students were consistently likely to answer a comprehension question appropriately (average p = .90). Although the largest number of students obtained trace scores of 2 at each phase of the study, the overall percentage of these scores declined as the study progressed. More students left either no correct trace or one correct strategy trace on the maintenance and delayed maintenance tests than at any time during training.
Overall, however, relatively few students left only one correct trace of strategy use. When this pattern did occur, students were more likely to answer comprehension questions correctly if they underlined information from the passage (average $p = .92$) rather than classified question types (average $p = .58$). It is evident from these probabilities that while categorizing QARs is an important step in applying the 3H strategy, it does not ensure comprehension. This point is made clear by students' trace scores on the maintenance and delayed maintenance tests.

Tables 10 and 11 provide conditional probabilities for each of the trace scores separately. Further, the trace scores have been analyzed so that information concerning the students' comprehension of Here, Hidden and in my Head questions is also available. On these tables the "trace = 1 or 2" score combines instances where a single trace of categorization or underlining is correct with instances where both traces have been identified correctly. For example, in Table 10, the 601 items in the denominator of the conditional probability ratio calculated for phase one is the sum of 187, which is the number of trace scores where only the categorization of QAR was correct (trace = 1: H category only), and 414 which is the number of instances where both categorization and underlining were correct (trace = 2).

A comparison of the conditional probabilities on Tables 10 and 11 indicates that underlining information from the passage was a particularly important part of the 3H strategy for answering inferential Hidden questions. While there was little difference between the probabilities calculated for categorization versus underlining for Here and in my Head question types, the difference for Hidden questions was consistently in favour of underlining. As well there was a notable increase in the overall number of trace scores for underlining on the delayed maintenance tests. Students underlined information without providing an appropriate QAR classification on 16% of the maintenance test items compared to 4% of occasions throughout the rest of the study. This pattern of scores on tests administered four months after training is likely to reflect what students remembered
and most found useful about the 3H strategy. It is also noteworthy that many students’
commented on the usefulness of learning to underline relevant passage information in the
final metacognitive interview.

Are the metacognitive awareness scores of trained students different
from those of untrained students before and after training?

The metacognitive questionnaire required students to work through two passages
each with seven questions before training, and two more passages after maintenance
testing. Once a student had listened to a passage while following the text, the first
comprehension question was asked. The student responded, then the researcher asked,
"Do you think that is the right answer?" Students' metacognitive awareness was rated as
2, 1, or 0 depending on their answer to this question (i.e., the student's evaluation of the
correctness of their own response) and the actual accuracy of the answer they gave to the
comprehension question.

Students' were given a score of 2 for metacognitive awareness if they (a) correctly
rated their answer as correct when it was indeed correct, or (b) evaluated their answer as
incorrect when that was the case. Accordingly, students received no points when their
responses to the comprehension question and the metacognitive probe did not match. This
occurred when students (a) rated their answers as incorrect when they were correct, (b)
stated that their answers were correct when they were wrong, and (c) responded with "I
don't know." when the comprehension question had been answered correctly. Students
received 1 point for metacognitive awareness if they showed they were not sure of their
answer (e.g., "I don't know."), when it was incorrect.

To summarize, the comprehension score for the metacognitive questionnaire is
simply the number of questions (out of 14) answered correctly as the students worked
through the two passages. The metacognitive awareness score (out of 28) is related to the
comprehension score. It is a measure of students' ability to recognize when they have
answered a comprehension question correctly or incorrectly, and as such taps into students' "knowing about knowing".

To investigate whether the metacognitive awareness scores of trained students are different from those of untrained students before and after training, a MANOVA with repeated measures and a priori contrasts was conducted on students' metacognitive questionnaire results. As described previously, these results consisted of two scores: one reflecting students' awareness of whether their answers to comprehension questions were correct, and the other a measure of comprehension accuracy based on the answers students gave to comprehension questions asked during the metacognitive interview.

A priori contrasts which compared trained versus untrained students and LD with poor readers were included as part of this analysis. It was predicted that learning the 3H strategy would improve metacognitive awareness of question-answering for all trained students, particularly learning disabled students.

The means and standard deviations of the metacognitive awareness and comprehension scores for LD, poor readers, and average students are provided in Table 12. A measure of the relationship between these scores was taken by correlating the metacognitive awareness scores with the comprehension scores. Before the intervention, the correlation between students' metacognitive and comprehension scores was .63. Students' scores on the final questionnaire were more highly correlated with each other. The correlation of metacognitive awareness and comprehension scores after training was .81.

The boxplots of students' scores for metacognitive awareness in Figure 14 and for the related comprehension scores in Figure 15 show the relatively large increase in median score and strong compression of variance which occurred for LD students after they had learned the 3H strategy. The effect of the intervention was also visible for poor readers, but not as dramatically. The greater dispersion of metacognitive awareness scores for comparison students on the final metacognitive awareness measure is noticeable. This may
Table 12

Trained Student's Mean Scores and Standard Deviations (SD) for Metacognitive Awareness and Associated Comprehension Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Before Training</th>
<th></th>
<th>After Training</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metacognitive</td>
<td>Comprehension</td>
<td>Metacognitive</td>
<td>Comprehension</td>
</tr>
<tr>
<td></td>
<td>Awareness</td>
<td></td>
<td>Awareness</td>
<td></td>
</tr>
<tr>
<td>Learning Disabled</td>
<td>15.40 (2.95)</td>
<td>6.70 (1.83)</td>
<td>24.20 (1.75)</td>
<td>12.60 (1.35)</td>
</tr>
<tr>
<td>Poor Readers</td>
<td>14.13 (2.90)</td>
<td>6.06 (2.24)</td>
<td>20.00 (3.50)</td>
<td>11.00 (1.27)</td>
</tr>
<tr>
<td>Average Comparison</td>
<td>17.00 (1.89)</td>
<td>9.70 (1.77)</td>
<td>20.40 (5.06)</td>
<td>10.00 (1.89)</td>
</tr>
</tbody>
</table>

Note: The maximum metacognitive awareness score is 28. The maximum score for the comprehension component of the questionnaire is 14.
**Figure 14.** Boxplot of LD students', poor readers', and comparison students' metacognitive questionnaire scores before and after training.
Figure 15. Boxplot of LD students', poor readers' and comparison students' comprehension scores on the metacognitive questionnaires before and after training.

Key
* Median
o Outlier
be explained in part by pretest sensitization, the diffusion of the strategy into the untrained students' classroom, and by the practice in answering questions that these average students had during the course of the study.

The MANOVA results revealed a significant interaction for the first contrast (trained versus untrained students) by time: Pillai's $F(2,32) = 22.35, p < .001, d = .58$. This statistically confirms that trained and untrained students' initial questionnaire scores differed in relation to their final questionnaire scores. The results of the ANOVAs and the planned orthogonal comparisons used to further analyze the metacognitive questionnaire data are provided in Table 13. The contrasts indicated that, on the initial questionnaire, comparison students' scores were statistically higher for both tests of metacognitive awareness and comprehension. On the final questionnaire, however, the trained students' scores were detectably higher on the comprehension measure, while the metacognitive awareness scores for the two groups did not differ reliably.

The MANOVA also indicated that the second a priori contrast of LD versus poor readers was significant as a between subjects main effect: Pillai's $F(2,32) = 4.59, p = .018, d = .22$. This analysis reinforces the visual inspection of the means and boxplots which show a sizeable improvement for both trained groups on the scores derived from the final metacognitive questionnaire. Planned contrasts (see Table 13) indicated a statistically detectable difference in favour of the LD students for the metacognitive awareness and comprehension scores gathered after training.

Students' Descriptions of Question-Answering and Strategy Use

There have been many issues brought to the attention of researchers regarding the design and reporting of metacognitive strategy interventions in recent years. The most pervasive call has been for researchers to pay more attention to individual differences (Garner, 1987; Pressley & Brainerd, 1985; Wong, 1987). In response, this study sought to maintain an individual focus and provide a representative description of students'
Table 13

Analyses of Variance and A Priori Comparisons for Scores on the Metacognitive Questionnaires

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>t-values for Planned Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$</td>
<td>$df$</td>
</tr>
<tr>
<td><strong>Before Training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Metacognitive</td>
<td>3.57</td>
<td>2,33</td>
</tr>
<tr>
<td>Awareness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Comprehension</td>
<td>11.11</td>
<td>2,33</td>
</tr>
<tr>
<td><strong>After Training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Metacognitive</td>
<td>4.45</td>
<td>2,33</td>
</tr>
<tr>
<td>Awareness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Comprehension</td>
<td>7.89</td>
<td>2,33</td>
</tr>
</tbody>
</table>

Note: *$p<.05$. 
responses to strategy training. This was accomplished by carefully analyzing students' answers to questions posed by the metacognitive questionnaires and opinion interview.

The metacognitive questionnaire administered before training prompted students to describe the way they usually answer questions after reading a passage. Students were asked to provide this description immediately after working through the two passages used as the basis for the questionnaire, so the process of question-answering was readily available to them. After maintenance testing was complete, the final metacognitive questionnaire was administered. At this time, students were again asked to describe their question-answering. In response to the opinion interview, students expressed their beliefs regarding the usefulness of the 3H strategy, and which components of it they found particularly important. These descriptive measures of strategy use and usefulness provide important information about students' developing metacognition.

**Metacognitive Questionnaires**

Students' descriptions of what they did to answer a question were analyzed for the mention of actions involved in question-answering (e.g., "I used the passage and I used my head." "Look in the paragraphs."). The actions students reported were counted to provide a general indication of the detail with which question-answering was described. The action count for the 26 trained students totalled 47 before training, and 124 after training.

On the first metacognitive questionnaire, LD and poor readers described their question-answering in general terms. They made many nonspecific allusions to "looking" at the passage and "using the passage" to answer the questions. While students clearly realized that they operated on information in the passage and "used their heads" to answer questions, they were not able to provide much detail about how they took advantage of these sources of information. The descriptions of question-answering provided below illustrate the students' level of metacognitive awareness before training. The headings used
are the categories which emerged from the analysis of students' descriptions of what they did to answer a question after a passage.

Before Training

"I just look". Fifteen responses mentioned looking at the passage or the question itself as a way of figuring out an answer. Very little detail was available from the students' responses which, on the whole, seemed to describe an almost passive way of looking for an answer. Typical statements came from student 3, "I look in the story. I just look in the story.", student 4, "I don't know. I just look.", student 17, "I don't understand this too much. You look at the question and find the answer."; and student 21, "I just look in the passage or I guess. Sometimes you have to do a few other things". Student 25 considered "looking" the best way to be sure of her answers as well, however, her strategy involved not the passage but "looking in a thing with answers in it".

"I used (what was) in the passage". Ten responses were clearly concerned with using the passage to answer questions. Again, though, almost no detail illuminated how students made use of the information from the reading passages. Student 1's response typifies these descriptions: "I used in the passage and I used in my head. I looked for the answer."

"You remember". Some students made allusions to the usefulness of information that they already had "in their heads". Sixteen such comments were made, of these, four specifically mentioned that "sometimes the stuff you know" (student 15) is appropriate for answering questions. For example, student 20 outlined her method of question-answering by saying, "Well, I look in the passage and if it isn't there I just think about it. I remember, and I think about it and try to do my best. Sometimes I put down what I know."

Student 20's description illustrates one use of "remember" evident from the metacognitive interviews. The most common usage of this word, however, indicated that students tried to commit to memory the content of the passage so they would not need to
look at the text again. Eleven responses made mention of answering questions by simply "remembering" the answers from the passage. Student 9's description illustrates this: "I see if I remember the answer and I try to find it in the passage", as does student 23's comment that, "You see if you remember and look in the passage". To student 26 inspecting the passage was a last resort; the course of action to be followed only if memory failed, "You remember. You use the passage if you don't remember. You have to remember."

"Think...". Six responses suggested that questions are best answered by simply thinking about them. These comments indicated students' lack of awareness of their own thought processes, particularly, what it is useful to think about in order to understand a question, and how to go about using sources of information to construct an answer. When asked to describe question-answering, both student 18 and student 24 replied with one word, "Think....". Student 22 struggled to describe her thinking but found it a difficult task, "Think about it and then...Well, think about it first. Remember and...You actually just think."

After Training

Students' descriptions of what they did to answer a question were considerably more detailed after training. This is to be expected since the 3H strategy not only provided a method for answering questions but also a way of communicating about the process involved. Many responses described specific ways that the passage (26 responses) or information that students' already knew about a topic could be used (22 responses). In fact, twenty-one responses made direct reference to the 3H strategy and how to distinguish between Here, Hidden, and in my Head questions. A further twenty responses mentioned the importance of understanding the passage, its questions, and the significance of asking about what is not understood. In all, eleven mentions were made of scanning the passage for answers, six mentions of the importance of joining together information were counted, and twelve responses detailed how underlining information from the passage could be
helpful in answering questions. Six students also described in some detail how to check their answers.

The changes in students' descriptions of question answering are best illustrated by relating the responses given after training to students' initial comments. In order to do this, one LD student's response and one poor reader's response were chosen as representative of each of the categories already discussed (i.e., "I just look", "Think...."). The initial metacognitive scores of the students were taken into consideration during selection. The two students selected as representative of each category were matched according to their position on the boxplots for LD and poor readers (see Figure 14). For example, a learning disabled student who scored at the median point of 16 on the initial questionnaire was selected along with a poor reader who also attained the median score for his/her group of 14. Similarly, the comments of an LD student who had an upper quartile metacognitive score of 17 was coupled with the response of a poor reader with an upper quartile score of 16. In the next section, these students' comments on the final metacognitive questionnaire are provided in full to facilitate a comparison of individual responses to strategy training.

From "I just look" to "So first, I look". Student 3 scored at the median level for the LD group on the initial metacognitive questionnaire. She provided much more detail in her account of question-answering after training. Student 3 described clearly how she worked out the answer to one of the questions asked on the metacognitive questionnaire by relating her actions back to the training sessions that took place in her classroom. It is also notable that student 3, who is learning disabled, made particular mention of the fact that the story was read to her. Only two other students, both LD, also mentioned the importance of the oral reading of the passage in describing how they answer questions.

Student 3: Well, you read to me the story and of course, you gave me the questions. And as we did in Mr. L.'s classroom we read the questions and I skimmed through looking for what three building materials are used to make Japanese homes. So I skimmed through and I saw, "They are built of wood, often
combined with plaster." And then I saw, "They have roofs made of clay and tiles, clay tiles, or sometimes a sheet of metal." So I read the paragraph and if it's not there then I have to use my head and think what I know. So first, I look for the answer in the passage. I underline it. I write it down. And then I write Here, Hidden, or in my Head.

Student 25's response was also chosen to illustrate how students' descriptions of question-answering changed after training. This poor reader's initial metacognitive score was also at the median level for her group. On the final metacognitive questionnaire, instead of answering that she looked "in a thing with answers in it," this student stated that.

Student 25: You look at the passage and look at the questions. You see if what you have to find is in there. I use the 3Hs. You look in the passage and see whether you can find the answer as Here or Hidden. If it's not, it's in my Head.

From "I used in the passage" to "It's Here when its right in the passage". In his answer on the initial questionnaire, Student 1 was clearly concerned with using the passage to answer questions. However, no detail was provided to show how he made use of the information from the passage. Student 1's response after training is very different. In it he provides a clear and complete description of the 3H strategy.

Student 1: OK. Head First! Always when someone is reading something and you don't get something you ask questions. That's Head First! Then it's Here, when its right in the passage. In one sentence in the passage. There's Hidden. That's when you already know something and you join together something from the passage. And then there's in my Head. That's when you already know something. And then there's check your answers when you go over and proof read your answers. You underline too. You scan through and put the number beside it.

Student 1 scored in the lower quartile range for LD students on the initial metacognitive questionnaire. His response was matched with that of Student 14 who scored in the lower quartile range for poor readers. Student 14 provides some mention of
the 3H strategy when responding to the final metacognitive questionnaire, but his response was not as detailed or comprehensive as that of Student 1. As on the initial questionnaire, Student 14 still states that he simply uses the passage to answer questions.

Student 14: I put Here, Hidden, or in my Head and I check over it. I look for answers where it says about it, about the question. I use the passage.

*From "You remember" to "I use my head for questions, particularly Head questions".* Several students gave responses before training indicating that they tried to commit to memory the content of the passage so they would not need to look at the text again. For Student 26, a poor reader who attained an upper quartile score on the initial metacognitive questionnaire, inspecting the passage was a last resort to be used only if his memory failed. After training, Student 26's description of question answering still emphasizes "using his head". However, his response is careful to stress *when* this is the most appropriate action.

Student 26: For Here and sometimes the Hidden questions you use the passage. And most of the time I use my Head for questions, particularly Head questions. Here is one sentence. Hidden ones—you use the passage and you can use your head and join the information. I just read it and read the question and then look through the passage and see what information to use the 3H strategy. If I find more than one sentence, I know it is Here. I underline it and if it's not in the passage I use my Head to find it.

Student 26's response to the final questionnaire is coupled with that of Student 9, a learning disabled student who also scored in the upper quartile of her group on the initial questionnaire. In commenting on her question-answering strategy for the initial questionnaire, Student 9 stressed trying to remember answers to questions. In contrast, her comments on the final questionnaire set out a step-by-step procedure for applying the 3H strategy.
Student 9: I first make sure I read and understand the passage. I ask someone if there is something I don't understand. Then I read the first question and think if it is Here, Hidden, or in my Head. Then I answer the question. I look in the passage and see if the answer is there. Then I use my Head too, and join together. I write down the H and I underline and answer the question. Then I go on to the next question.

From "Think..." to "You don't understand if you do... know". Before training, six students suggested that questions are best answered by simply thinking about them. In contrast, many students' comments after training outlined specific steps to follow in thinking through a question-answering task. Encouragingly, responses like that of Student 22 also indicate an ability to "think about thinking." This LD student's comment that "(y)ou don't understand if you don't know" displays considerable metacognitive sophistication and a developing awareness of when she does or does not understand important information about a passage or question.

Student 22: First we read the passage and I get the information to understand the questions and all. You don't understand if you don't know. And part of the answers, you know. First, you see the question. Look in the passage and see if it's there and see if it's Here, Hidden, or in my Head. If it's in one sentence, it's Here. And if it's in two different places, it's Hidden. If it's not in the passage, it's in your Head and you write down what you think it is.

Both Student 22 and Student 24 scored at the median for their groups on the first metacognitive interview. Student 24, a poor reader, initially described her question-answering with one word, "Think." After training, she was able to elaborate on how she located information appropriate to answering questions and how she checked her answer to know she "got it right."

Student 24: You read the question and then go back to the passage. Scan for whatever the question is asking you for. You underline if the answer is there and
you put the number right beside it. You put down your answer. I just answer the questions. I skimmed through the passage and put the number by it so I know I got it right.

**Opinion Questionnaire Administered After Training**

After the final metacognitive questionnaire had been administered, students were asked their opinion of the 3H strategy. Opinion questionnaire items probed the usefulness of the strategy to individual students and specifically asked which part of the 3H strategy each student considered most important. The results of this questionnaire are summarized below. Quotes from student interviews are used to support summary statements.

**Do you think learning the 3H strategy has been useful to you? Why?** All students responded that they thought learning the 3H strategy had been useful. Nineteen responses indicated that students found the strategy useful because it helped them understand questions and answers and, consequently, do better in school. Student 10's answer is an example of this kind of response:

Before the 3H strategy I read the sentence and I tried to look for it and then I would just write down the sentence. But then, once with the 3H strategy, I could understand the question more. And with the underlining whenever I answered I could check my answers. It's right there for some and I can see it clearly now. Yes, it made me understand it more. I go faster and I know if my answers are correct or wrong. And it helps with my marks mostly in reading comprehension.

This poor reader's quote also mentions other reasons for the usefulness of the 3H strategy. An important one was the impact the strategy had on classroom work. Eighteen students made some specific mention of success in reading, social studies, science, or math which they attributed to the 3H strategy. Another six students considered that strategy learning helped their schoolwork because it enabled them to work faster and more confidently. In his answer, an LD student (Student 11) seems surprised at his current success and colours it with memories of answering questions before training:
It's useful because now I get a bunch of questions right all the time. I didn't before. Before I couldn't answer very many questions. Only one like, "What's the title?" or something like that. I couldn't do any of the others. It was hard for me. I didn't know what the heck to do. I was scared of it. I know what to do now. I didn't know what to do. That's just basically it.

Likewise, it is heartening to hear Student 12, a poor reader, describe her question-answering with growing confidence: "I'm reading with the class and I have this tough question. And I found it by Hidden. I'm good at it. I don't go to Mrs. E. (the learning assistance teacher) any more."

It is evident from student 10's response (cited above) that some students answered this question from the opinion interview by detailing exactly what part of the 3H strategy they found most useful. Learning how to underline information was mentioned as particularly useful by eight students. In a typical response, Student 22 states that

(The 3H strategy )helped me by the underlining. It helps with the information. I used to find an answer and then, you know, I lost it, and I lost it again. Now I find the answers, and underline them, and I can go back and check. I mostly use it in socials. If the question is too hard, I look back in my reading and write it down. I look in the reading part now.

It is interesting to note that Student 22, who is a student with learning disabilities, states that she looks in the "reading part" to answer questions now. Three other LD students who learned the 3H strategy also made reference to understanding the text better when it is first read aloud. Student 1 said that the 3H strategy helped him "by reading over the passage." Similarly, student 4 emphasised that the strategy helped "in the passages." He specifically noted that "If you listen and underline, it's easier." The most descriptive example of this, however, is student 21's observation that,

I used to just try and remember instead of looking back. It (the 3H strategy) taught me to look thoroughly and to look back, and underline. Also it helped me by
reading it through, and I'm learning to ask questions about what I don't understand. I just used to skip the words.

If this LD student's strategy for answering questions used to be to "skip the words" then her poor performance on previous written comprehension tests is very understandable.

**Do you use the 3H strategy in your classroom? How? On what sort of work?**

Twenty-five of the twenty-six trained students answered that they used the 3H strategy in their classrooms. Student 17, a poor reader, said simply that he didn't use it because "It's for helping with passages". The other students saw a wider applicability for the strategy and stated that they used it on everything from social studies materials (20 responses) to math word problems (6 responses). Students also indicated that they thought the 3Hs were useful for many reading activities, reading tests, and formal comprehension exercises (16 responses). Student 10's answer gives a full explanation of the usefulness of the 3H strategy as he sees it:

I can use it for classroom comprehension and in socials studies if we are doing something and we have to answer questions. Or science if we are doing a test and they give you a paragraph and you have to answer these questions about it. It can almost help you on every subject. Because math... sometimes the problems give you questions too. And the underlining makes it clearer. If we have reading comprehension, I work through it with the 3Hs. The ones I do in class are like the ones here and I do them the same and I underline.

This poor reader's response also illustrates the links that many students made between the materials used during strategy training and their classroom work. Student 25, also a poor reader, further extends the transfer of learning from the training situation to the classroom when she recognizes that: "You can use it with different teachers. With different teachers and science. And when you answer questions in science and in socials, like with you."
What part of the 3H strategy have you found to be most important to know about and use? In response to this question, fifteen students indicated that knowing how to underline important information in the passage was most important to them. The reasons students gave suggested that they saw underlining as a pivotal part of the 3H strategy. To answer a Here or Hidden question many students said that they first of all scanned the passage for important words from the question. Then they reread the sentences that contained the words they were looking for and underlined the information that helped them answer the question. Once information was underlined, it was (a) used as a marker in the passage which helped students find other information, and (b) was returned to when students checked their answers to questions. As Student 12, a member of the poor readers' group, explains:

Well, the passages weren't easy. They wouldn't let you get the answer just like that. The underlining really helped because if you underline it you know where you are. You know just what number you did and you can always go back and check. You don't have to go "Is that number one? No, that's number one. Or is this number one?" And really search for it again and again.

In her comment, a learning disabled student (Student 9) makes the relationship between underlining and checking answers clearer: "When you underline you can go back and check your answers better. You feel more confident if you know where to look and you have checked it over".

Eleven students indicated that knowing how to answer Hidden questions was the most important part of the 3H strategy. Many of these responses revealed that students "hardly ever put stuff together to get the answers before" (Student 16, poor reader). An LD student (Student 3) sums it up for many when she says:

Well, I think the most important would be Hidden because you have to, like, look for it more. And you are looking for parts in your head and in the passage in two
sentences or more. Before I just used to use one part of the answer. Now I look through the whole thing.

Six of the students answered that they considered all of the parts of the 3H strategy important and used it as it had been taught to them. Two of these responses suggested that using the 3H strategy was becoming a regular part of how students answered questions. In one LD student's words (Student 9), she was "used to it and automatically use it" to answer questions. Similarly, a poor reader, Student 8 declared, "I have adapted to it and use it the way I learned it."

Other students, however, found that they had to adapt the 3H strategy to their classroom environment. Two examples of the sort of modifications made to the 3H strategy come from the responses of Student 21 and Student 22, both LD students.

Student 21: I can't write it down in school. If I answer questions like this I will try and remember them. I'm not sure I will be writing the (3H) words like I do with you but I will do them in my head though.

Student 22: If you know you have an answer, you check back and see if its right. We aren't allowed to underline in our textbooks but sometimes I take my ruler and lightly underline. If you forgot what the answer is you could always underline it.

Two students also mentioned the importance of knowing that they could use the information they already had. A poor reader, Student 14, stated that knowing how to identify and answer Head questions was most important to him, "Because I know a lot of things that my teacher talks about and I can use the things to answer questions." Three students also mentioned the significance to them of having their progress depicted on daily graphs, and an additional four students stressed that learning the 3H strategy was important because it taught them how to use passages and understand questions.

Other Dependent Measures

Information was gathered on four other aspects of the study. The first measure was related to the questions "like a teacher would ask" that students wrote after discussing
every passage. The second was a set of tests which examined students' strategy use in their own classrooms. The remaining two measures were concerned with passage validation: One examined the test-retest reliability of a selection of passages prepared for the study, and the other examined how necessary the text was to answering the questions posed about it. The data collected for each of these measures will be discussed briefly below.

"A question a teacher would ask". Throughout strategy training, maintenance, and delayed maintenance sessions trained students' responses to "What is a question a teacher may ask about this passage?" were gathered. Each question was rated according to whether it was a (a) main idea question; (b) a detail question; (c) used words taken directly from the text; or (d) was paraphrased from the text.

Analysis of students' questions indicated that they were most often detail questions (123 questions) which were based directly on the text (87 questions) that the students had just read. Only thirty-eight questions of the 161 collected were clearly main idea questions. While students did not ask more higher-order questions as a result of strategy training, informal observations indicate that they certainly improved in their ability to formulate reasonable questions about a passage.

Test-retest reliability. Twenty-seven grade five students who did not take part in the research were available for a trial of selected training passages. Students were given one grade six and one grade five training passage each with seven questions to answer at the beginning of the study, and the same two passages to complete eight weeks later. Students' mean score per passage on the first administration was 3.40 with a standard deviation of 1.64. Their mean score on the second administration was 3.22 with a standard deviation of 1.38. A two-group t-test revealed no statistically detectable difference between the test-retest scores ($p = .69$).

The necessity of having read the text. To investigate if students were able to answer the questions posed about passages without reading the text, the same class of
grade five students who assisted with the test-retest trials were given four sets of questions used in the research. These students did not have access to the passages on which the questions were based.

Very few students were able to answer the questions without the passage. In fact, only fourteen of the twenty-seven students were able to answer any of the questions at all. Of these only one student answered three questions correctly, three students answered two questions appropriately, and ten students answered one question correctly. In general, the students who were able to provide appropriate answers did so on script-implicit questions which asked them to give their preference or opinion, and a reason for it.

Classroom probes. Data concerning strategy use in the classroom were collected during the second phase of training. Specifically, two passages similar to the ones LD and poor readers had been working on were prepared for administration by teachers to their intact classes. One passage was presented to a grade five class and the other to a grade six class. The class teachers followed administration guidelines provided for them. After the passage was read and discussed, students were allowed twenty minutes to answer seven questions about it.

The mean score per passage for the intact class groups was 3.04 with a standard deviation of 1.33. The students who were learning the 3H strategy had a slightly higher mean score of 3.60 and a standard deviation of 1.52 ($t(48) = 2.63, p = .05$). Therefore, it appears that the students were using the 3H strategy in their classroom.

An examination of the students' papers confirmed this. Eight of the ten trained students who completed the passages with their class teacher left traces of strategy use. In five cases, they left both underlining and question categorization traces, however, overall more underlining traces were evident.
V. DISCUSSION

In the first part of this chapter, findings regarding the comprehension performance and metacognitive awareness of LD students and poor readers will be summarized and discussed. Next, the important results related to the discrepancy scores between students' reading comprehension and listening comprehension will be discussed. Finally, the limitations of the study and its educational and research implications will be offered.

Comprehension Performance

Three of the research questions posed in Chapter 1 relate to students' comprehension scores. These questions become progressively more focused as they examine the scores of trained versus untrained students, compare LD and poor readers' comprehension, and finally, contrast LD and poor readers' answering of inference questions:

(a) Are there differences in comprehension performance between trained students and untrained students at baseline, during training, and after training?
(b) Do differences in comprehension performance exist between LD students and poor readers who learned the 3H strategy?
(c) Does learning the 3H strategy improve LD students' ability to answer inference questions more than it improves the inference-making of poor readers?

The results of the study confirm that the 3H strategy substantially improved the comprehension performance of those students who learned it, particularly the LD students, who answered more script implicit questions correctly than poor readers.

General

The 3H strategy was effective in increasing the accuracy of students' comprehension performance. Students' comprehension improvement was maintained four months after training. This result replicates the findings of previous QAR research (e.g., Graham, 1986; Graham & Wong, in press; Raphael, 1980; Raphael & McKinney, 1983;
Raphael & Pearson, 1985), and verifies the usefulness of this metacognitive strategy for improving the comprehension of learning disabled students.

It is also evident from the strong positive results of this study that recent work on strategy training provides a useful set of guidelines for the design of successful interventions. Specifically, the 3H strategy incorporated recommendations from the literature in learning disabilities and reading strategies regarding the explicit teaching of comprehension processes (Garner, Hare, Alexander, Haynes, and Winograd, 1984); activation of students' background knowledge (Hansen & Pearson, 1983; Snider, 1989); and question-answer relationship strategies (Raphael, 1982; Raphael & Pearson, 1985). Most importantly, however, this study combined an emphasis on background knowledge and content area materials with direct comprehension instruction in the context of the classroom (Dewitz, Carr, & Patberg, 1986; Garner, 1990).

It is this combination of research-based training procedures with classroom content knowledge that may explain the success of the 3H strategy. Students learned about the 3Hs by using training materials which were linked to their current social studies curriculum. This coordination of content and strategy information ensured a great deal of cumulative reference to the same social studies knowledge within students' class lessons and during strategy sessions. Thus, students' attempts to construct a coherent knowledge base were supported by the 3H strategy, particularly the Head First! section of the strategy that encouraged students to share information about the topic of a passage before reading, then ask for further clarification after the passage had been read. Attention to the development of students' background knowledge coupled with direct QAR instruction, already validated by Graham (1986), no doubt enhanced the comprehension performance of trained students. From a theoretical perspective, if, as Carr, Brown, Vavrus, & Evans (1990) suggest, adequate knowledge can free cognitive space for strategic thinking, the 3H strategy worked by first removing some of the restraints of students' limited background
knowledge, then, by guiding students to think and act strategically when answering comprehension questions.

**Comprehension Performance of LD and Poor Readers**

While all students benefited from learning the 3H strategy, LD students' comprehension scores were consistently higher than the scores of the garden variety (Gough & Tuner, 1986) poor readers. This result addresses one of the underlying assumptions implicit in the current conception of learning disabled readers: that LD students read in a way which is qualitatively different from other poor readers because of their specific phonological deficit, but otherwise fairly intact comprehension processes (Stanovich, 1991). Therefore, this study adds to the empirical data which have accumulated in support of the separate classification of learning disabilities and differential educational treatment for these students (e.g., Jorm, Share, McLean, & Mathews, 1986; Silva, McGee, & Williams, 1985). It indicates that LD and garden-variety poor readers can have different responses to educational interventions. In this case, the 3H strategy training was more effective for LD students than for poor readers. Studies which compare LD readers with their garden variety peers are important because, as Fredman and Stevenson (1988) point out, if "there is no clear distinction between the groups in terms of how they read, then the practice of identifying a special group of poor readers for special attention may no longer be necessary" (p. 105).

The superior listening comprehension performance of the LD students evident in this study also provides some support for Stanovich's (1988) phonological-core variable-difference model. The predictions made concerning trained students' comprehension performance, particularly their inference-making, were based on this model which suggests that once LD students' decoding problems are attended to, their reading comprehension performance should be adequate. Students' comprehension results buttress Stanovich's (1986) conceptualization of disabled readers as readers who have a severe phonological processing deficit but few additional cognitive problems that inhibit their reading
processes—other than difficulties due to lack of practice in reading. Instead, as Stanovich (1988) suggests these readers may have compensatory processes, such as relatively well-developed vocabularies, listening skills, and real-world knowledge, which can assist their comprehension performance.

**Inference-Making of LD and Poor Readers**

The phonological-core variable-difference model also undergirds the prediction made for students' performance on inferential comprehension questions. The instructional conditions provided by the 3H strategy (i.e., attention to decoding difficulties, activation of relevant background knowledge, and provision of explicit information about how to make inferences) effectively remove many of the major obstacles to inference-making. Consequently, it was hypothesized that LD readers would have greater success in reasoning through inferences than poor readers. Data analyses confirmed that, though both groups of trained students improved their inference-making, LD students' answering of script implicit inference questions was detectably better than that of poor readers. This finding is of interest because prior research has found script implicit QARs to be most difficult for low-achieving readers to understand and answer appropriately (Raphael & McKinney, 1983; Raphael & Pearson, 1985).

**Text explicit QARs.** The usual result for QAR research has been an increase in students' comprehension attributable mostly to their more accurate answering of text explicit questions (Gavelek & Raphael, 1982). LD students and poor readers who learned the 3H strategy, however, already had relatively high baseline scores for text explicit QARs. This may have occurred as a consequence of the oral presentation of materials which removed some of the constraints on comprehension usually associated with poor readers' decoding skills and also because students are most familiar with text explicit questions and answers (Guszak, 1967; Chou-Hare & Pulliam, 1980). In any case, as only two explicit questions were asked after each passage, students had limited opportunity to
improve their scores for this question type. As a result, trained students' comprehension performance for text explicit QARs improved only marginally.

**Script implicit QARs.** The 3H strategy, however, was very effective in increasing students' inference-making, particularly LD students' comprehension of script-implicit questions. As mentioned above, this kind of result has eluded previous QAR research. In fact, concern about poor readers' answering of script implicit questions prompted Gavelek and Raphael (1982) to stress that students who lack background knowledge must receive additional instruction and specific topic information before QAR training can be expected to prove truly effective.

The 3H strategy activates students' knowledge base by sharing and clarifying topic information, and using training materials which reinforce classroom content. It also teaches students to recognize when it is appropriate to use background knowledge to answer questions. The 3H strategy's attention to the development of students' background knowledge has been rewarded by improved comprehension results. As Bjorklund, Muir-Broaddus, and Schneider (1990) explain, "Knowledge, then, clearly makes reading more accurate and meaningful. It also makes reading less effortful, in that knowledge provides 'ready made' inferences and interpretations to the reader" (p. 101). In this study, the LD students were most able to recognize opportunities available for using these "ready made" inferences to answer script implicit questions. This is interesting in light of McCormick's (1992) analysis of learning disabled students' inferencing which concluded that their main problem was an overreliance on background knowledge and opinion, probably because of their difficulty in accessing information from text.

**Text implicit QARs.** Compared to baseline levels, students' comprehension of text implicit questions improved as a result of strategy training. While there were no reliable differences between the scores of LD and poor readers, conditional probability analyses of strategy traces indicate that students were almost certain to answer text implicit comprehension questions correctly if they were able to underline the appropriate
information from the passage. Distinguishing relevant from irrelevant passage information, then, is a very important part of text-based inferencing (see also Winne, Graham, & Prock, in press). This is an important finding which provides specific instructional information: Teaching students to return to the text, locate, and underline information which is relevant to answering text implicit questions can improve their comprehension accuracy. It is also noteworthy that many students commented on the usefulness of underlining during the final metacognitive interview, and then used it on the delayed maintenance tests administered four months after the completion of training.

Under the 3H strategy scheme, there are two types of text implicit QARs. Both require joining together information (a) from two or more sentences in the passage, or (b) from the passage and the students' knowledge base. When the task demands of answering text implicit questions are considered, it is not surprising that these are difficult QARs to answer and to teach (Dewitz, Carr, & Patberg, 1987; Hansen & Pearson, 1983; Phillips, 1988). Answering text implicit QARs requires not only that students know how to join together different pieces of information, but also that they have an awareness of the interplay between their knowledge base and the text, so that they can use their knowledge to integrate text information appropriately (Raphael & Pearson, 1985). This is a much more sophisticated set of skills than locating information in text (text explicit QARs) or in background knowledge (script implicit QARs).

Metacognitive Awareness

As a metacognitive strategy, the 3H strategy has twin foci, (a) to improve students' awareness of the sources of information available to answer questions, and (b) to provide them with ways of monitoring and regulating their comprehension processes. To assess these aspects of metacognition, the questionnaires administered before and after training gathered data concerning students' comprehension accuracy, recognition of when a comprehension question was answered correctly or incorrectly, and their descriptions of question-answering. The following research question was addressed:
(a) Are the metacognitive awareness scores of trained students different from those of untrained students before and after training?

Before training, average students' scores for metacognitive awareness and comprehension were higher than those of LD and poor readers. After learning the 3H strategy, however, trained students had better scores for comprehension, while differences in metacognitive awareness scores could not be detected statistically. Before training, LD and poor readers scored similarly on metacognitive awareness and comprehension tests. After training, however, LD students outperformed poor readers on both measures. All students were able to provide more detailed descriptions of the task demands of question-answering as a result of learning the 3H strategy.

Metacognitive questionnaires are prone to the difficulties inherent in all verbal self-report data. For example, students' responses are subject to (a) a failure to remember cognitive events, (b) glib discussions of processes that are not wholly understood, and (c) indications that the respondent has tried to tell the investigator what s/he wants to hear (Ericsson & Simon, 1980; Garner & Alexander, 1989). In order to circumvent some of these difficulties, the questionnaire used in this study, paired the cognitive task that students were asked to describe with questions about its execution (see also Dewitz, Carr, & Patberg, 1987).

Students' questionnaire scores and verbal responses clearly indicated that learning the 3H strategy improved metacognitive awareness. Specifically, students were more able to describe how to answer questions following a passage, and to readily recognize whether their answers were correct. Two steps of the 3H strategy which actively fostered this sort of comprehension awareness and monitoring were Head First! and Check your Answers.

Head First! was operationalized as a series of self-questions which students asked about their background knowledge and comprehension before (What do I know?), during (What don't I understand?), and after (What do I need to find out?) reading. Likewise, "Check your Answers" encouraged students to ask themselves whether they had a reason
for each answer they had written. If they were unsure of an answer they returned to the QAR identification steps of the 3H strategy. As metacognitive awareness is highly correlated with comprehension achievement (Raphael, Myers, Tirre, Freebody, & Fritz, 1980), improvement in students' metacognitive awareness was expected to be associated with improved comprehension. The results of the study substantiated this prediction, particularly for LD students.

The considerable improvement in LD readers' metacognitive awareness is especially heartening because these students have been described as the ones who say, "I don't know" and "I don't understand" most often during reading lessons (Holmes, 1987). The metacognitive steps of the 3H strategy prompted students to probe exactly what part of a comprehension task they didn't understand: Was it the content of the passage? A specific word, or phrase? The question? How to use the strategy? Teaching students to articulate the nature of their comprehension breakdowns has been suggested as a vital first step in strategy training (Wong, Harris & Graham, 1990). The results of the 3H strategy support this recommendation for both LD and poor readers.

In recent years, reviewers of intervention research have called for more studies which focus keenly on learners, tasks, background knowledge, and strategies (Garner, 1987; Pressley & Brainerd, 1985; Wong, 1987). This study attempted to concentrate on these individual factors. An important focus in the data collection was on students' dialogue with the researcher and their verbal responses to questionnaire and interview items. These data provide rich and voluminous information about individual responses to strategy training, only a fraction of which has been analyzed to date. The usefulness of this kind of data lies in the student-oriented perspective it brings to our understanding of intervention research. For example, no better testimony to the effectiveness of the 3H strategy can be found than the words of Student 11: "Before I couldn't answer very many questions. Only one like, "What's the title?" or something like that. I couldn't do any of
the others. It was hard for me. I didn't know what the heck to do. I was scared of it. I know what to do now!"

Effectiveness of the 3H Strategy

Summary: Comprehension Performance and Metacognitive Awareness

In this study, data from many sources were collected to investigate the effect of the 3H strategy on LD and poor readers' written question-answering. These diverse sources of data included: assessment of comprehension performance and metacognitive awareness, students' descriptions of the 3H strategy, and their opinions about its usefulness. The data converge on the effectiveness of the 3H strategy in improving students' comprehension.

It is important to consider exactly how the 3H strategy may have changed students' interaction with text and encouraged their strategic thinking. The data collected from this study suggest that strategy learning fostered students' comprehension in at least three ways. First, the discussion format and materials used during training encouraged the activation of relevant background knowledge. As well, students learned to recognize when it was appropriate to use this information to answer questions after a passage. The improvement in trained students' comprehension of script implicit questions attests to the effectiveness of these components of the 3H strategy.

Secondly, the 3H strategy directed students to look back at the text to find and underline information relevant for answering text explicit and text implicit comprehension questions. As research findings indicate that students who are successful comprehenders use effective text reinspection strategies (Garner, Hare, Alexander, Haynes, & Winograd, 1984; Garner, MaCready, & Wagoner, 1984), trained students' improvement in answering text-based questions can be partly attributed to these "look back and underline" steps of the 3H strategy. The analysis of students' trace scores also indicates that students who were able to underline relevant information from the passage were most likely to answer difficult text implicit inference questions correctly.
Finally, students' understanding of what it means to answer comprehension questions became more detailed and appropriate as a result of learning the 3H strategy. Responses to the metacognitive questionnaires administered before and after training show clearly that students' approach to question answering changed as they became more aware of the demands of written comprehension tasks.

From a theoretical perspective, no unitary theory of reading or cognitive processing can fully explain the success of the 3H strategy. However, several different theoretical explanations support components of the strategy training. By providing an opportunity for students to discuss relevant passage material before answering questions, the 3H strategy encouraged the activation of appropriate schemata for understanding text (Pearson, 1985; Rumelhart, 1977). Further, the oral presentation of passages reduced the drain on students' cognitive resources due to their poor decoding skills (Perfetti & Lesgold, 1979). As students who learned the 3H strategy were required to expend less of their cognitive capacity on decoding and were guided to activate relevant task information, more of their cognitive resources were available for allocation to the short-term storage of passage information and to the execution of the 3H strategy itself.

Bjorklund, Muir-Broaddus, and Schneider (1990) explain that the primary effect appropriate background knowledge has on cognitive processing is to "increase speed of processing for domain-specific information. Individual items can be accessed more quickly from the long-term store, as can relations among related items in the knowledge base" (p. 95). This efficient processing results in the greater availability of mental resources which can be used to further the students' learning goals.

Further, through learning the 3H strategy, students were encouraged to develop procedural (knowing that), declarative (knowing how) and conditional knowledge (knowing when) about question-answering (Anderson, 1976; Garner, 1987; Paris, Lipson, & Wixson, 1983). For example, they learned that reinspect- ing text for information to answer questions assists in formulating accurate answers. They learned
how to skim the text, using spatial memory and key words from the questions, to locate relevant information to answer text explicit and text implicit questions. They also learned to identify when questions cue access to text and when questions require answers from background knowledge (Garner, 1992). These forms of knowledge are intertwined with the metacognitive awareness about sources of information to answer questions and ways to monitor the success of question-answering also fostered by the 3H strategy (Raphael & Pearson, 1985).

In general, the presentation of materials and the knowledge taught as part of the 3H strategy freed students to attend closely to the meaning of the texts they were asked to answer questions about. In classifying a question and its answer as text explicit, text implicit, or script implicit, and underlining relevant text information when it was appropriate, students were required to make decisions about each passage in the strategy training program. This emphasis on the meaning of the texts and decision-making about them encouraged students who used the 3H strategy to process the passage information deeply and meaningfully in order to accurately answer written comprehension questions (Craik & Lockheart, 1972; Jacoby & Craik, 1979). That the 3H strategy helped students process the text more thoroughly is evidenced by the comments of Student 22:

(The 3H strategy ) helps with the information. I used to find an answer and then, you know, I lost it, and I lost it again. Now I find the answers, and underline them, and I can go back and check. ... If the question is too hard, I look back in my reading and write it down. I look in the reading part now [italics added].

Listening Comprehension

The selection of subjects for this study allowed a brief examination of some identification issues which impact directly on LD students. The research question investigated was:

1. What differences in listening comprehension performance exist between LD students, poor readers, and average readers?
Specifically, this research question is concerned with students' patterns of reading comprehension and listening comprehension scores on the modified Peabody Individual Achievement Test (PIAT: Dunn & Markwardt, 1970). It was found that LD and poor readers' scores did not differ reliably on reading comprehension. LD students' reading comprehension scores were statistically lower than those of average students, however. Unexpectedly, LD students performed significantly better than both poor readers and average students on the listening comprehension tests.

In practice, LD students with problems in reading are most often identified by a severe discrepancy between their reading achievement and aptitude, as measured by an individual intelligence test. Recently, however, the validity and usefulness of intelligence tests for diagnosing learning problems has been seriously questioned (e.g., Seigel, 1989). This has lead many researchers to suggest that a more educationally relevant alternative may be the discrepancy between students' reading comprehension and listening comprehension achievement (Royer, Sinatra & Schumer, 1990; Spring & French, 1990, Stanovich, 1989; Sticht & James, 1984).

The opportunity to administer PIAT reading comprehension and listening comprehension tests to students who had already been categorized as LD, poor readers, or average readers on the basis of school definitions, whole class comprehension measures, and decoding tests, arose during subject selection for this study. Therefore, Spring and French's (1990) method of using reading comprehension and listening comprehension discrepancy scores to distinguish between LD and average readers was replicated and extended to cover poor readers. Based on previous research findings and the phonological-core variable-difference model which characterizes "garden-variety" poor readers as having a broad-based developmental lag (Stanovich, 1988), it was hypothesized that poor readers and average readers would have uniform profiles of achievement across listening and reading comprehension tests. Conversely, LD students were expected to have the lowest reading comprehension scores of all three groups, but listening
comprehension scores similar to those of average readers, and detectably higher than those of poor readers.

As predicted there was little discrepancy between reading and listening comprehension scores for poor and average students, though the average students' scores were consistently higher than those of the poor readers. This suggests that the reading comprehension of average and poor students is almost at parity with their listening comprehension skills. Perfetti (1987; see also Chall, 1983) describes this to be the usual pattern of comprehension development. In contrast, the profile for LD readers featured a significant discrepancy between their listening comprehension scores and their reading comprehension scores. In fact, the listening scores of the LD students in this study were reliably higher than those of the poor readers and the average readers. This finding is important for identification purposes because it indicates that LD students' listening scores on the modified PIAT may distinguish them from other poor readers.

As well as holding promise for identifying students with learning disabilities, this finding has clear instructional implications. In the current study, the effect of students' decoding problems was ameliorated by having the researcher read aloud while the students followed along. Presenting materials in this way during strategy training may allow LD students to compensate for their inefficient decoding (Stanovich, 1988), and, thereby, decrease the drain on their cognitive resources (Perfetti, 1985).

Limitations

This study had a relatively small sample size. This limitation is tempered, however, by the fact that a pilot study was conducted before the research proper. The pilot study provided measures of the standard deviation of students' scores which enabled a power analysis to be calculated. Using the standard deviation value from the pilot study and the .05 level of statistical significance, the researcher computed that a sample size of 9.6 per group was needed to detect differences at the .80 level of statistical power. Ten LD, 16 poor readers, and 10 comparison students took part in the research.
In order to obtain the 10 LD readers, students in both grade 5 and grade 6 were included in the study. This allowed a grade effect to enter the data as, out of necessity, 7 of the 10 LD students were from grade 6, and 12 of the 16 poor readers were from grade 5. Therefore, while the statistical power of this study was adequate, research conducted within a single grade level with a larger sample size could be used to support the effectiveness of the 3H strategy.

Although delayed maintenance tests and in-class measures confirmed that students used the 3H strategy after training, more measures of this type would have been appropriate. It is very important that students do not weld their strategy use to specific learning situations or certain teachers (Leon & Pepe, 1983; Garner 1990). Unobtrusive classroom measures which do not directly cue students to use the learned strategy, however, are difficult to devise and require the continued cooperation of teachers to administer.

Ideally, instead of delayed maintenance tests administered four months after training, students' use of the 3H strategy in their classroom could have been probed periodically. This would have allowed a more thorough assessment of students' strategy maintenance and modifications. When students personalize a learned strategy, they modify it to suit their own learning purposes (Wong, Wong, Perry, & Sawatsky, 1986). Therefore, data on the students' strategy modifications could have provided information concerning the specific strategy components that were maintained.

Implications

The subject selection procedures for this study found that LD students could be distinguished from poor readers and average students by virtue of their high scores on the modified PIAT listening comprehension test. This finding needs to be explored more fully using larger samples of LD students and different measures to assess listening comprehension. If LD students can be separated from other poor readers by using a reading/listening discrepancy, then more adequate standardized measures of listening
comprehension need to be developed (Spring & French, 1990; Stanovich, 1991).
Likewise, if good listening comprehension skills are a characteristic of LD students with reading problems, then, there are important instructional implications. Allowing LD students to listen to text more often in school (e.g. through the use of taped passages, reading buddies, parent helpers) may provide them more opportunities to act strategically, learn, and succeed within the context of their daily classroom work.

The current research and Graham (1986) found the 3H strategy effective in improving the comprehension question-answering of poor readers. Both these studies were practically-oriented, theory-based interventions which addressed a skill relevant to both students and teachers. What remains to be explored about the 3H strategy is its efficacy as a class-wide intervention carried out by teachers. There are at least three different approaches to disseminating strategy information which could be pursued in future research.

The first approach is exemplified by Palincsar's reciprocal teaching strategy is the best example to date (Brown & Palincsar, 1987; Palincsar, 1982; Palincsar, 1987; Palincsar & Brown, 1984; Palincsar & Brown, 1987; Palincsar, Ransom, & Derber, 1989). Reciprocal reading is a technique designed to enhance students' comprehension through dialogue about shared text. Specifically, the teacher and students take turns leading the group through a discussion which is structured around the generation of questions about the passage, summarizing, paraphrasing, predicting upcoming content, and clarifying ambiguous information (Palincsar & David, 1992).

The initial classroom dissemination of reciprocal reading began with volunteer remedial teachers, then continued with non-volunteer remedial teachers, and teachers of grade one. These teachers attended inservice sessions with the researchers where they role-played reciprocal teaching procedures and viewed demonstration lessons. Afterwards, teachers' use of reciprocal teaching in classrooms and remedial centers was supported by coaching sessions, teacher/researcher meetings, and support groups. Participants in
classroom studies of reciprocal teaching, then, became the founders of a network of teachers using reciprocal teaching. This network provided experienced and enthusiastic teachers who were available to speak about reciprocal teaching at staff inservice sessions and to teach demonstration lessons for interested colleagues. As a result of these staff development procedures, upwards of 150 teachers participated in dissemination efforts in one year (Palincsar, Ransom, & Derber, 1989).

The implementation of similar procedures for the spread of information about the 3H strategy, as it is described in this study, would require a great deal of coordination and cooperation between researchers, school district personnel, principals, and teachers. In conducting such research and intensive inservice programs, it is important to consider the impact of classroom factors such as goal structure, the view of knowledge and intelligence held by teachers and students, and students' attributional patterns on strategy use (Borkowski, Estrada, & Hale, 1989; Garner, 1987). As Palincsar and David (1992) warn, successful classroom interventions must take into account "(1) the culture of the classroom; (2) the place of the intervention in the total curriculum; and (3) the match between the instructional goals of the research and the outcomes to which assessment systems hold teachers and children accountable" (p. 77).

Another approach to disseminating information about the 3H strategy would be to situate it in a model of whole-class strategy use like Ashman and Conway's (1989) Process-Based Instruction (PBI). PBI is an instructional model and set of procedures that fosters students' acquisition of metacognitive skills as they work through academic tasks with their class teacher. The model is operationalized in the classroom through four instructional phases: (a) an orientation to planning and the construction of plans for specific tasks; (b) introduction of plans which can solve curriculum tasks and their translation by students into a form that is most useful to them.; (c) establishment of the usefulness of the plan in relation to other methods and on similar tasks; and (d) incorporation of plans into students' personal repertoire of strategies (Ashman, van Kraayenoord, & Elkins, 1992).
The 3H strategy could be easily introduced as a PBI plan. It is particularly suited to classrooms where the PBI model is already in place because it contains the four essential elements of a "plan"; (a) cuing (Head First!); (b) acting (Use the 3H strategy to remind you where the answers to questions are found.); (c) monitoring (What don't I understand?; What do I need to find out?); and (d) verifying (Check your answer.).

Although research into the effectiveness of the 3H strategy has concentrated on LD and poor readers, this strategy would be suitable for use with students in a mixed-ability classroom. In fact, Graham (1986) has shown that learning the 3H strategy can enhance the comprehension of average, as well as poor readers. The only concern is that high-achieving students may find that the 3H strategy interferes with their own appropriate strategies for question-answering (Ryan, Weed and Short, 1985). The translation, and incorporation components of the PBI model, however, would encourage these students to shape the 3H strategy to their own learning needs. Similarly, some students in the regular class would benefit from the 3H strategy's listening-oriented presentation of the text more than others. Again, the PBI model would be expected to tailor strategy instruction according to the needs of these students.

The introduction of the 3H strategy to classrooms using Process-Based Instruction is a promising alternate for its dissemination. The success of such an intervention, however, depends on teachers' cooperation and their understanding of the PBI model and the 3H "plan". As such, the final outcome is subject to a myriad of classroom factors, and the cautions that Palincsar and David (1992) outlined above. A further concern is raised by Garner (1992), who points out that students' modifications to strategies do not always work in their favour. The alterations that students make to strategies need to be monitored as part of the PBI instructional procedures to ensure that students' plans remain effective.

A third approach to further classroom research with the 3H strategy would be to continue to refine the procedures used in this study, so that (a) they fit closely with current models of special education service delivery and (b) actively encourage student
involvement in the dissemination of strategy knowledge. For example, remedial teachers could teach the 3H strategy to small groups of students with reading problems. These students would then become "co-investigators" (Wong, 1987) or "informants" (Vaughn & La Greca, 1992), who have the responsibility of formally sharing the strategy with classmates and other significant school personnel. Under this approach inservice presentations for the dissemination of the 3H strategy would target remedial teachers, and again, the experiences of Palincsar and her colleagues would prove valuable (e.g., Palincsar & Brown, 1987; Palincsar, Ransom, & Derber, 1989).

Small group instruction by remedial teachers in the classroom is becoming an increasingly common form of service delivery for students with learning problems (see Hallahan, Kauffman, Lloyd, & McKinney, 1988; Graham, Prock, Bell, & Koch, 1991). Under this model, remedial teachers are in an ideal position to introduce low-achieving students and their classroom teachers to strategies and to support the classroom use of them. The 3H strategy could easily be included in remedial teachers' repertoire of useful strategies. Remedial teachers could teach the strategy to small groups of students using content area material relevant to the students' grade level and the teachers' curricula. Later, after trained students had presented the main points of the strategy to their classmates, the remedial teacher, and her small group of capable assistants, could follow-up with a whole class lesson utilizing the 3H strategy to answer questions after a passage.

In the current study, students were given the responsibility of explaining the main points of the strategy to their classmates, and later, to their parents. All of the in-class presentations were attended by the students' teacher, classmates, principal, and remedial teachers. These significant individuals had the opportunity to see the trainees as competent strategy users with knowledge to share. The students, themselves, may even have begun to think of themselves in these terms.

To illustrate, Student 14 has vision and coordination problems which make it difficult for him to write neatly and quickly. Although he complained bitterly at times
about having to do so much writing during training, Student 14 volunteered to help present a practical example of the 3H strategy to his classmates. This necessitated that he help construct a large chart with a short passage and questions written on it. He did his share of the writing on the chart without comment. During the presentation, while other trainees explained the reasoning behind their answers to some simple comprehension questions, Student 14 chose to write the answers for all his class and teachers to see. His efforts were slow, and not very neat; but they were public, and confident.

Another incident illustrating the positive outcomes of students' involvement in dissemination occurred when one group of trained grade 6 students was asked to repeat their presentation for another grade 6 class at their school. The first presentation was scheduled for Tuesday and the second for Thursday. The researcher and the students worked hard to prepare for the presentation on Tuesday which was very well received by the class and teachers. The researcher then went to work with groups at another school, and did not see the grade 6 group again until minutes before their second presentation. To their credit, the trained group had prepared all the materials, props, and handouts that were necessary. Two students had even reworked their parts of the presentation and written prompt cards to improve their delivery. All the preparation necessary for a successful presentation had been carefully coordinated by a group of students not usually credited with good organizational skills.

The effect of directly involving students in the dissemination of strategy information seems promising. More focused research needs to be done, however. Perhaps some of the dissemination techniques used by Vaughn and her colleagues for socials skills training (Vaughn & McIntosh, 1989; Vaughn & Lancelotta, 1990; Vaughn & La Greca, 1992) can be adapted for strategy training. For example, trained students could be given special informant status in the classroom and consulted on matters of "strategic importance," also opportunities for sharing strategies could be structured so that trained
students could work with untrained students from other classes who, in turn, could become strategy consultants.

On a final, and specifically practical, note, the 3H question-answer relationship strategy lends itself to a variety of uses in the regular classroom and the remedial center. 3H QARs can be used as a basis for including a variety of question types into comprehension and content lessons, thereby offering an alternative to the overuse of simple explicit questions (Durkin, 1978-79; Guzak, 1967; Shake 1986), particularly with poor readers (Allington, 1983; Fox, 1990; Sadker & Sadker, 1982). Students, as well as teachers, can use the 3H strategy to develop a variety of different questions about passages during reading, social studies, or science lessons. Additionally, once students have learned the strategy, the 3H labels (Here, Hidden, in my Head) can be used as simple cues to prompt students who are having difficulty answering questions. The steps of the 3H strategy can also be prominently displayed on charts in students' work areas and in personalized strategy booklets. This type of instructional support reduces the need for constant teacher interaction (Schunk, 1986) and can free teachers to concentrate on those students who need additional assistance. Further, the 3H strategy can serve as a prototype of the sort of strategies that teachers and students can develop to encourage a strategic approach to classroom tasks. Teachers and students may also find the metaphor of reading as travelling, used in teaching the 3H strategy, useful for illustrating other strategies and concepts important in reading. For example, travelling, like reading for pleasure, is much more than reaching a destination: Both enterprises are best enjoyed for the journey—its challenges, surprises, difficulties, and beauty.
REFERENCES


APPENDIX A

Reading profiles of LD students, poor readers, and average students

A-1. Reading profile of LD students

A-2. Reading profile of poor readers

A-3. Reading profile of average readers
A-1. Reading profile of students with learning disabilities

<table>
<thead>
<tr>
<th>LD Students</th>
<th>WRAT word recognition</th>
<th>W-J word attack</th>
<th>Modified PIAT reading comp</th>
<th>Modified PIAT listening comp</th>
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<tr>
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<td>%ile</td>
<td>SS</td>
<td>%ile</td>
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<td>74</td>
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<td>4</td>
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<td>74</td>
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<td>Student 22</td>
<td>89</td>
<td>23</td>
<td>89</td>
<td>23</td>
</tr>
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</table>

Note:  
(a) SS stands for standard score and %ile for percentile.  
(b) The maximum raw score for the reading and listening comprehension tests is 33.
## A-2. Reading profile of poor readers

<table>
<thead>
<tr>
<th>Poor Readers</th>
<th>WRAT word recognition</th>
<th>W-J word attack</th>
<th>Modified PIAT reading comp</th>
<th>Modified PIAT listening comp</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Raw Score</td>
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<td>83 1</td>
<td>11</td>
<td>9</td>
</tr>
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<td>Student 26</td>
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<td>89 23</td>
<td>17</td>
<td>20</td>
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</tbody>
</table>

Note: (a) SS stands for standard score and %ile for percentile.
(b) The maximum raw score for the reading and listening comprehension tests is 33.
A-3. Reading profile of average readers

<table>
<thead>
<tr>
<th>Poor Readers</th>
<th>WRAT word recognition</th>
<th>W-J word attack</th>
<th>Modified PIAT reading comp</th>
<th>Modified PIAT listening comp</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>SS %ile</td>
<td>SS %ile</td>
<td>Raw Score</td>
<td>Raw Score</td>
</tr>
<tr>
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<td>Student 28</td>
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<td>Student 29</td>
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<td>Student 30</td>
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<td>Student 32</td>
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<td>Student 33</td>
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<td>107 68</td>
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<td>Student 36</td>
<td>115 84</td>
<td>120 90</td>
<td>18</td>
<td>21</td>
</tr>
</tbody>
</table>

Note:  
(a) SS stands for standard score and %ile for percentile.  
(b) The maximum raw score for the reading and listening comprehension tests is 33.
APPENDIX B

Permission letter sent home to parents and guardians

Dear 

My name is Lorraine Graham. I am currently completing my Ph.D. in instructional psychology with Dr Bernice Wong of Simon Fraser University.

During the months of September, October, and November 1991, I will be conducting some research at Meadowbrook Elementary School. I will be studying the effectiveness of a teaching technique designed to improve comprehension performance in all subject areas, but particularly social studies. The first step in my research is to select students who would benefit from my strategy teaching. To do this, I would like to administer a series of short, individual tests of word recognition, listening comprehension, and reading comprehension to students in grade 5. The results of these test will be made available to the children's classroom teachers.

With your permission, I would like to include your son/daughter in this testing program, and possibly, in the later strategy training. Students who participate in the training will be taught a strategy useful for answering written comprehension questions. This strategy will be taught in small groups of about five children, each school day for thirty minutes. The program will last for eight weeks, and as far as possible, students will be taught in their own classrooms. My previous work with this strategy has shown it to be useful in helping students comprehend and complete their regular class work. As soon as the selection of students for this study is complete, I will contact parents by phone. At that time, I will be available to provide more specific information about my research.

To give permission for your child to participate in the preliminary assessment procedures and, if appropriate, the strategy training program, please sign the consent form and return it to your child's teacher as soon as possible. Voluntary participation is necessary for this project, so please ensure that your son/daughter understands the information contained in this note. S/he is free to leave the reading program at anytime. At the end of the program, I will be happy to provide information about the progress of those students who have taken part.

If you have any questions about the information contained in this letter, please feel free to call me at 433-0321 on weekday evenings, or leave a message for me with the receptionist at the Faculty of Education, Simon Fraser University at 291-3395.

Thank you for your cooperation. I look forward to working with your child and your child's teacher in the coming months.

Sincerely,

Lorraine Graham
I give consent for my child, ________________________, to participate in the assessment procedures, and if appropriate, the strategy training involved in the study of a teaching strategy to improve comprehension. This research will be conducted by Lorraine Graham at Meadowbrook Elementary School in September, October, and November of 1991.

(Signature of parent or guardian) (Telephone number) (Date)
APPENDIX C

Metacognitive and opinion questionnaires

C-1. Metacognitive questionnaire

C-2. Opinion questionnaire: After training

C-3. Opinion questionnaire: Delayed maintenance session
C-1. Metacognitive questionnaire


**Metacognitive Interview Response Sheet**

Name: __________________________

Content Question #: __________________________

**Group A (Right or Wrong)**

If the student gives a right or wrong answer to the question, ask the following:

1. Do you think that is the right answer?
   - △ Yes
   - △ No

2a. How do you know that is the right answer?
   - △ It makes sense.
   - △ It says so in the story.
   - △ It's part of my background knowledge.
   - △ I know from both the story and background knowledge.
   - △ I don't know.
   - △ Another answer.

2b. Why do you think it's the wrong answer?
   - △ It doesn't make sense.
   - △ It doesn't say so in the story.
   - △ I don't know.
   - △ Another answer.

**Group B (I Don't Know)**

If the student responds with "I don't know" to the question, ask the following:

1. Why do you think you don't know the answer to the question?
   - △ It isn't in the story.
   - △ I don't know anything about this subject.
   - △ I didn't read well enough.
   - △ Another answer.
2. What do you think you could do to come up with the right answer?
   - Look for clues in the text.
   - Think about what I might already know about this subject.
   - Try and answer and then ask myself if it makes sense.
   - I don't know.
   - Another answer.

   *(Don't forget to ask the student Question #4 at the end of the interview.)*

3a If the student says that the answer is in the story, ask:
Do you know where in the story the answer is?
   - Yes (*Have the student show you the clues and check ______ if he can do so.*)
   - No

3b If the student says that the answer is in his head (background knowledge), ask:
Do you usually ask yourself what you know about something when you need to answer a question about material you've read?
   - Yes (*Ask the student what s/he knows about the topic of the passage and check ______ if s/he can tell you.*)
   - No

3c. If the student says that the answer came from both his/her background knowledge and the story, ask him/her the two optional questions given above.

4. *(The student should be asked this question only once -- at the end of the interview.)*
When you need to think of an answer to a question during reading, what do you do?
   - Think about what I already know about the subject.
   - Think of an answer and then ask myself if it makes sense.
   - I don't know.
   - Reread, go back, look it over again.
   - Another answer.
C-2. Opinion questionnaire: After training

1. When you answer questions after you have read or listened to a passage, what do you do? Anything else?

2. What is the 3H strategy?

3. Do you think learning the 3H strategy has been useful to you? Why?

4. Do you think you could use the 3H strategy in your classroom? How? On what sort of work?

5. What part of the 3H strategy have you found to be most useful and important to know about and use?

6. Can you think of any way I can improve the 3H strategy and how I have taught it to you? What would you suggest?
C-3. Opinion questionnaire: Delayed maintenance session

1. When you answer questions after you have read or listened to a passage, what do you do? Anything else?

2. Do you remember the 3H strategy? What is it?

3. Do you think learning the 3H strategy has been useful to you? Why?

4. Have you used the 3H strategy in your classroom? How? On what sort of work?

5. What part of the 3H strategy have you found to be most useful and important to know about and use?

6. Have you any more comments to make about the 3H strategy and your work with me?
APPENDIX D

Passages, question sheets, and marking sheets used in the research.

D-1. Passages used with pretraining metacognitive questionnaire

D-2. Simple training passages used to introduce the 3H strategy

D-3. Baseline and training passages for grade five students

D-4. Baseline and training passages for grade six students

D-5. Maintenance test passages for grade five and six students

D-6. Passages used with posttraining metacognitive questionnaire

D-7. Delayed maintenance test passages for grade five and six students
D-1. Passages used with pretraining metacognitive questionnaire

**Studying Different Cultures**

All people have the same basic needs. They need food to eat, clothes to wear, and homes to live in. People in different parts of the world meet these needs in different ways. People who live in the mountains eat different foods from people who live along the seacoast. People who live in the desert dress differently from people who live in a rain forest.

The people of a culture express their thoughts and feelings in many different ways. Music, dance, and art are some of the creative outlets that people have. Language is another. Language has been called the key to the culture of a group of people. When people speak the same language, they can share their thoughts and feelings with each other. They can talk to each other and write to each other. They can read books written by other people in their culture. They can also share the knowledge that is part of their culture. There are over 3,000 languages in the world, but each language developed for these same reasons.

Each culture has also developed a particular set of beliefs about the world. The people of a culture may believe in one god, many gods, or no gods, but their spiritual and cultural beliefs have all led to certain ways of thinking, acting, and behaving. The people of a culture have traditions and festivals that express their beliefs about life and the world they live in.
Questions on Studying Different Cultures

1. How many languages are spoken in the world?

I got it!  Maybe?  Didn't get it.

2. What food might people who live along the seashore eat that those who live in the desert may not?

I got it!  Maybe?  Didn't get it.

3. What are four ways in which people of a culture express their thoughts and feelings?

I got it!  Maybe?  Didn't get it.

4. What are three basic needs that all people have?

I got it!  Maybe?  Didn't get it.

5. What are two reasons why language can be called "the key to culture"?

I got it!  Maybe?  Didn't get it.

6. What might be different about how someone in the desert dresses compared to how someone who lives in the rainforest dresses?

I got it!  Maybe?  Didn't get it.

7. Why don't people from different cultures celebrate their special days of the year in exactly the same way?

I got it!  Maybe?  Didn't get it.
Studying Different Cultures

All people have the same basic needs. They need food to eat, clothes to wear, and homes to live in. People in different parts of the world meet these needs in different ways. People who live in the mountains eat different foods from people who live along the seacoast. People who live in the desert dress differently from people who live in a rain forest.

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Questions on Studying Different Cultures

1. How many languages are spoken in the world?

*Here* 3,000 languages are spoken in the world.

I got it! Maybe? Didn't get it.

2. What food might people who live along the seashore eat that those who live in the desert may not?

*Head* They might eat seafood. (Any suitable answer along these lines.)

I got it! Maybe? Didn't get it.

3. What are four ways in which people of a culture express their thoughts and feelings?

*Hidden* People of a culture express their thoughts and feelings through music, dance, art, and language.

I got it! Maybe? Didn't get it.

4. What are three basic needs that all people have?

*Here* People need food to eat, clothes to wear, and homes to live in.

I got it! Maybe? Didn't get it.

5. What are two reasons why language can be called "the key to culture"?

*Hidden* Language can help people share their thoughts and feelings, talk and write to one another, and read books and share knowledge that is part of their culture.

I got it! Maybe? Didn't get it.

6. What might be different about how someone in the desert dresses compared to how someone who lives in the rainforest dresses?

*Head* Someone in the desert would wear cool, loose white clothing. Someone in the rainforest would wear hardly any clothing or clothing made from animal skins or plants.

I got it! Maybe? Didn't get it.

7. Why don't people from different cultures celebrate their special days of the year in exactly the same way?

*Hidden* Because people's spiritual and cultural beliefs lead to certain ways of acting, and festivals are a time to express beliefs about life and the world, then people from different cultures celebrate their special days of the year in many varied ways.

I got it! Maybe? Didn't get it.
Communication

When you talk or write to your friends, you are communicating. You are sending a message that you want them to receive. You may want to share opinions, news, or information with others.

Speaking is the most common way of sending a message. The telephone, radio, and computer all help us to send messages over long distances. Televisions, satellites, and the postal system also allow us to send messages to places far away from us.

For complete communication to occur, your message must be received and understood by the person or people you are sending it to. If you spoke to your friends in a language they did not understand, you would not be communicating with them. If you wrote a letter that no one could read, you would not be communicating either.

When people communicate, they exchange ideas, information, thoughts and feelings. Their messages are not only sent with words, but also with gestures and expressions, like waving and smiling, or frowning and crying.
Questions on Communication
1. What is the most common way of sending a message?

I got it!  Maybe?  Didn't get it.

2. What are four ways we can use to communicate over long distances?

I got it!  Maybe?  Didn't get it.

3. What methods of communication mentioned in the passage have you used today? How?

I got it!  Maybe?  Didn't get it.

4. Give an example of how you have used speaking to communicate today.

I got it!  Maybe?  Didn't get it.

5. What is a satellite?

I got it!  Maybe?  Didn't get it.

6. What are two ways mentioned in the passage in which communication by speaking or writing can break down?

I got it!  Maybe?  Didn't get it.

7. What are "gestures"?

I got it!  Maybe?  Didn't get it.
Communication

When you talk or write to your friends, you are communicating. You are sending a message that you want them to receive. You may want to share opinions, news, or information with others.

Speaking is the most common way of sending a message. The telephone, radio, and computer all help us to send messages over long distances. Televisions, satellites, and the postal system also allow us to send messages to places far away from us.

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When people communicate, they exchange ideas, information, thoughts and feelings. Their messages are not only sent with words, but also with gestures and expressions, like waving and smiling, or frowning and crying.
Questions on Communication

1. What is the most common way of sending a message?

Here Speaking is the most common way of sending a message.

I got it! Maybe? Didn’t get it.

2. What are four ways we can use to communicate over long distances?

Hidden Any four of: telephone, radio, computer, television, satellites, the postal system.

I got it! Maybe? Didn’t get it.

3. What methods of communication mentioned in the passage have you used today? How?

Hidden Any of the methods mentioned in the passage (See 3). The answer requires students to use the passage and what they already know about their communication during the day.

I got it! Maybe? Didn’t get it.

4. Give an example of how you have used speaking to communicate today.

Head Any reasonable example of communication through speaking.

I got it! Maybe? Didn’t get it.

5. What is a satellite?

Head In this case a satellite is a human-made object intended to move around the earth for some purpose like gathering information about the weather.

I got it! Maybe? Didn’t get it.

6. What are two ways mentioned in the passage in which communication by speaking or writing can break down?

Hidden Two ways that communication can break down are: (1) if you speak in a language that no one around you can understand; (2) if you write a letter that no one can read.

I got it! Maybe? Didn’t get it.

7. What are "gestures"?

Head Gestures are movements, usually of the hands, which express meanings and/or feelings.

I got it! Maybe? Didn’t get it.
D-2. Simple training passages used to introduce the 3H strategy

Large Animals

Large animals often live longer than small ones. The giant turtle can live for 152 years or more. A cat only lives twenty years. Mice and smaller animals live only a few years. Some insects live only for a single day.

Questions About Large Animals

1. What type of animals often live the longest?

   ___________________________________________________________________________

   ___________________________________________________________________________

   ___________________________________________________________________________

   I got it! Maybe? Didn't get it.

2. Which lives longest: the turtle or the cat?

   ___________________________________________________________________________

   ___________________________________________________________________________

   ___________________________________________________________________________

   I got it! Maybe? Didn't get it.

3. How old is the oldest animal you know?

   ___________________________________________________________________________

   ___________________________________________________________________________

   ___________________________________________________________________________

   I got it! Maybe? Didn't get it.
Plants

Plants grow almost everywhere. They grow in the city and in the country. They grow in hot deserts and even under the snow. Some plants grow under the water. Almost anywhere you look out of doors, you see plants. Plants grow wherever there is soil, sunshine, and water.

Questions About the Plants

1. What do plants need to grow?
   
   I got it!  Maybe?  Didn't get it.

2. What plants grow in deserts?
   
   I got it!  Maybe?  Didn't get it.

3. Would plants grow in a city covered in snow?
   
   I got it!  Maybe?  Didn't get it.
The Sunstar Starfish

One kind of starfish is called the sunstar. It may have seven or more rays. The rays look like the lines around the sun. This starfish grows to be over twenty centimetres wide. Like the setting sun, it is also red.

Questions About the Sunstar Starfish

1. Where would you most likely find a sunstar starfish?

I got it! Maybe? Didn’t get it.

2. What are two ways that this starfish looks like the sun?

I got it! Maybe? Didn’t get it.

3. How wide does this starfish grow to be?

I got it! Maybe? Didn’t get it.

4. How many rays does this starfish have?

I got it! Maybe? Didn’t get it.
A language is a form of communication based on the sounds that humans can make. Some people speak English. Some speak French. Some speak Chinese. Others speak Italian, or Russian. Because people from all over the world live in Canada, many different languages are spoken here. Canada has chosen two official languages, English and French.

Humans' use of language is what makes us different from other living things. Birds can screech when they sense danger, dogs can growl when they are annoyed, but these sounds are very simple communication compared to the complicated messages that people send to each other. We talk about our hopes, dreams, and fears using language. We can even say and understand sentences we have never heard before. No animal can do this. Animals can't say, "This food doesn't taste very good. Do I have to eat it?", or "I have worked hard to learn this strategy. I know it will help me with my school work. If you test me, I know I will do well."

Even among people who speak the same language there are differences in how language is used. For example, no two people, not even twins, speak English in exactly the same way. Everyone has an individual way of talking, yet the differences are slight. If there were large differences, communication could not take place. People who grow up in the same area or country learn to speak their English language with the same accent. This is why Australian English and Canadian English sound different from each other. The words of English that we choose to use also depends on the situation we are in. The language you use to speak to family and friends may not be the best language for talking with teachers, policemen, or a group of strangers.
Questions on Language and Communication

1. What does "complicated" mean?

I got it!  Maybe?  Didn't get it.

2. What are three languages spoken in Canada?

I got it!  Maybe?  Didn't get it.

3. What are two differences in how people who speak English use their language?

I got it!  Maybe?  Didn't get it.

4. Do twins speak English in exactly the same way?

I got it!  Maybe?  Didn't get it.

5. What languages are Canada's official languages?

I got it!  Maybe?  Didn't get it.

6. Write two ways in which human's use of language is different from the communication used by other living things?

I got it!  Maybe?  Didn't get it.

7. How would you ask your best friend to help you answer a question? How would you ask your teacher for help on the same problem?

I got it!  Maybe?  Didn't get it.
Language and Communication

A language is a form of communication based on the sounds that humans can make. Some people speak English. Some speak French. Some speak Chinese. Others speak Italian, or Russian. Because people from all over the world live in Canada, many different languages are spoken here. Canada has chosen two official languages, English and French.

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Questions on Language and Communication

1. What does "complicated" mean?
Head  Complicated means consisting of many connected or closely related parts.

I got it!  Maybe?  Didn't get it.

2. What are three languages spoken in Canada?
Hidden  Any three: English, French, Chinese, Italian, Russian. Others from the
students' own knowledge are also acceptable. The teaching point is "always check the
passage first."

I got it!  Maybe?  Didn't get it.

3. What are two differences in how people who speak English use their language?
Hidden  They may have accents because of where they learned to speak English.
They also use different words of English for different situations.

I got it!  Maybe?  Didn't get it.

4. Do twins speak English in exactly the same way?
Here  No. Not even twins speak English in exactly the same way.

I got it!  Maybe?  Didn't get it.

5. What languages are Canada's official languages?
Here  Canada's official languages are English and French.

I got it!  Maybe?  Didn't get it.

6. Write two ways in which human's use of language is different from the communication
used by other living things?
Hidden  Human use of language is more complicated than animal communication.
Humans can say and understand sentences they have never heard before, but animals can't.

I got it!  Maybe?  Didn't get it.

7. How would you ask your best friend to help you answer a question? How would you
ask your teacher for help on the same problem?
Head  To ask a friend you might say, "I'm stuck. Can you help me with this
one?" To ask a teacher you would be more formal, "Excuse me Ms. G., could you help
me with this question, please?"

I got it!  Maybe?  Didn't get it.
One-Way and Two-Way Communication

Have you ever wanted to talk back to your television? Even if you do talk or yell at it, your TV can't respond to you. This is because the television signal only comes into your home. You can't use your TV to send a message back out to the television station. Your television is a one-way communication system. So is your radio.

Telephones and two-way radios are different. You can carry on a two-way conversation using them. You can send and receive messages. You can talk and listen as well.

Some computer programs allow a type of two-way communication. By selecting certain buttons on the computer screen, you can send a message saying what kind of information you want to have. Your computer receives this message, finds the information you want, and sends it to the screen for you to read.

Other computer programs offer an electronic mail service. Using this service, people are able to type messages to friends or co-workers in the same office, across town, or far away. The messages are received very quickly, almost as soon as they are sent. Each person has an electronic mail box where messages are filed. People check their mail boxes regularly to read and respond to their electronic mail. Electronic mail is a very modern form of two-way communication.
Questions on One-way and Two-Way Communication

1. What are two examples of one-way communication systems?

I got it!    Maybe?    Didn't get it.

2. What is the difference between a one-way and a two-way communication system?

I got it!    Maybe?    Didn't get it.

3. Do computers offer a one-way or two-way communication system? Give a reason for your answer.

I got it!    Maybe?    Didn't get it.

4. Do you ever yell at your radio? What usually happens?

I got it!    Maybe?    Didn't get it.

5. Are telephones a one-way or a two-way communication system? Why?

I got it!    Maybe?    Didn't get it.

6. How quickly are electronic mail messages received?

I got it!    Maybe?    Didn't get it.

7. Would you like to have an electronic mail system at your school? Why?

I got it!    Maybe?    Didn't get it.
One-Way and Two-Way Communication

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Questions on One-way and Two-Way Communication

1. What are two examples of one-way communication systems?
   **Here** Televisions and radios are one-way communication systems.
   I got it!______ Maybe?______ Didn't get it.

2. What is the difference between a one-way and a two-way communication system?
   **Hidden** With one-way systems a message can only be received, not sent. Two-way communication systems allow you to send and receive messages.
   I got it!______ Maybe?______ Didn't get it.

3. Do computers offer a one-way or two-way communication system? Give a reason for your answer.
   **Hidden** Computers offer a form of two-way communication. The user selects buttons on the computer screen to send a message about what information is needed. The computer then finds this information and displays it on its screen.
   I got it!______ Maybe?______ Didn't get it.

4. Do you ever yell at your radio? What usually happens?
   **Head** Students provide a reasonable answer from their knowledge base.
   I got it!______ Maybe?______ Didn't get it.

5. Are telephones a one-way or a two-way communication system? Why?
   **Hidden** Telephones are a two-way system because they allow us to send and receive messages.
   I got it!______ Maybe?______ Didn't get it.

6. How quickly are electronic mail messages received?
   **Here** Electronic mail messages are received almost as soon as they are sent.
   I got it!______ Maybe?______ Didn't get it.

7. Would you like to have an electronic mail system at your school? Why?
   **Head** Students must provide a reasonable justification for their opinion.
   I got it!______ Maybe?______ Didn't get it.
Communication and You

There are many reasons why you communicate with other people. You may want information. If you do, you may ask someone what time it is, or phone to ask your friend how she enjoyed her holidays. You may want to learn new things. To learn things, you might watch a television show on early explorers of Canada, or ask your teacher what a difficult word in the social studies book means. Sometimes you may want to share your thoughts and feelings with others. This is a good time for a quiet chat with your parents or friends. Communicating with other people can make you feel as if you are part of a group. You can feel as if you belong, instead of feeling cut off from everyone else.

Over the years, the need to communicate has not changed but the way we communicate and the tools we use to help us have changed a lot. The science that is concerned with how we send and receive messages is called communications. People who work in the communications industry develop new and better ways to send messages over great distances. For example, they set up networks of wires, satellites, and towers to make communication between people in different countries easier. Or they may study how the way we communicate today is different from the way people communicated in the early days of Canada.

Communications networks can be very valuable to huge countries like Canada where people live far apart. If we could not communicate across large distances, we would have more trouble working together as one country than we do now. Communications networks also bring Canadians closer to people in other parts of the world. In fact, some people say that today we live in a "global village" which means that we are able to communicate with people all over the world, just as easily as if we were all neighbours in a small village.
Questions on Communication and You

1. What is the science that is concerned with how we send and receive messages called?

I got it!  Maybe?  Didn't get it.

2. What are two reasons why communications networks are very important to Canada?

I got it!  Maybe?  Didn't get it.

3. What sort of things do people who work in the communications industry do? Give two examples of their work.

I got it!  Maybe?  Didn't get it.

4. Would you like to work in the communications industry?

I got it!  Maybe?  Didn't get it.

5. What are two reasons why you may want to communicate with someone else?

I got it!  Maybe?  Didn't get it.

6. What is meant by "global village"?

I got it!  Maybe?  Didn't get it.

7. Do you think we live in a global village? Why? or Why not?

I got it!  Maybe?  Didn't get it.
Communication and You

There are many reasons why you communicate with other people. 5You may want information. If you do, you may ask someone what time it is, or phone to ask your friend how she enjoyed her holidays. 5You may want to learn new things. To learn things, you might watch a television show on early explorers of Canada, or ask your teacher what a difficult word in the social studies book means. 5Sometimes you may want to share your thoughts and feelings with others. This is a good time for a quiet chat with your parents or friends. 5Communicating with other people can make you feel as if you are part of a group. You can feel as if you belong, instead of feeling cut off from everyone else.

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Communications networks can be very valuable to 2huge countries like Canada where people live far apart. If we could not 2communicate across large distances, we would have more trouble working together as one country than we do now. Communications networks also bring 2Canadians closer to people in other parts of the world. In fact, some people say that today we live in a 6"global village" which means that we are able to communicate with people all over the world, just as easily as if we were all neighbours in a small village.
Questions on Communication and You

1. What is the science that is concerned with how we send and receive messages called?  
   **Here** The science that is concerned with how we send and receive messages is called communications.

   I got it!  Maybe?  Didn't get it.

2. What are two reasons why communications networks are very important to Canada?  
   **Hidden** Any two: people live far apart in huge countries like Canada; we would have more trouble working together if we Canadians couldn't communicate across large distances; communications networks bring us closer to the rest of the world.

   I got it!  Maybe?  Didn't get it.

3. What sort of things do people who work in the communications industry do? Give two examples of their work.  
   **Hidden** (Any two) They develop new and better ways to send messages over great distances; they set up networks of wires, satellites, and towers to make communication easier; they study how the way we communicate today is different from how people communicated in the past.

   I got it!  Maybe?  Didn't get it.

4. Would you like to work in the communications industry? Why?  
   **Head** Students must give a reasonable response to justify their answer.

   I got it!  Maybe?  Didn't get it.

5. What are two reasons why you may want to communicate with someone else?  
   **Hidden** Students should always check the passage first. Any two reasons: to find out information; to learn new things; to share thoughts and feelings; to feel like part of a group.

   I got it!  Maybe?  Didn't get it.

6. What is meant by "global village"?  
   **Here** Living in a "global village" means that we are able to communicate with people all over the world as easily as if we were all neighbours in a small village.

   I got it!  Maybe?  Didn't get it.

7. Do you think we live in a global village? Why? or Why not?  
   **Head** Students must provide a good reason for their answer.
Communications from the Past to the Present: Messengers

Before modern inventions in communications, most messages were carried from one place to another. Where settlements were far apart, messengers would travel through hundreds of kilometres of wilderness to take the news from one place to another. Travel was slow. Because there were no engines, messengers travelled by foot, by canoe, or by horse. Sometimes they had to travel by snowshoe, or by dogsled.

The first Europeans who arrived in Canada relied on Indian messengers to carry their news and messages. The Europeans built fur trading posts throughout the wilderness. Indian runners or canoe paddlers carried messages between these trading posts. The people at the trading posts were very happy when messengers arrived with news from other places.

Early in Canada's European history, it became clear that there were many important reasons for encouraging better and faster ways to communicate. For one thing, Canada is a vast country and early settlements were great distances from each other. People who lived in the settlements wanted to keep in touch with their family and friends in other parts of Canada or the world. They became impatient waiting months for a letter or a message to arrive. Another reason for improving communication was that the powerful fur trading companies wanted to send instructions to their workers in small far-away trading posts. Also the government needed to find out what was happening all over the country.

Communication became faster as ways of transportation improved. As roads and railways were built, messengers could travel faster and more easily. Later, new inventions like the telegraph, made it possible to send information from one place to another without using messengers at all.
Questions on Messengers

1. What are four ways that messengers travelled before there were engines?

2. Who did the settlers rely on to carry their news and messages in the early days of European settlement in Canada?

3. What are two reasons why travel was so slow when messengers were used to take messages from one place to another?

4. What were three reasons for the encouragement of better and faster communication in Canada's early history?

5. What does "transportation" mean?

6. What is one new invention that made it possible to send information from one place to another without using messengers?

7. Why do you think people at the trading posts were happy when messengers arrived with news of other places?
Communications from the Past to the Present: Messengers

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Questions on Messengers

1. What are four ways that messengers travelled before there were engines?

*Hidden* Any four of: foot, canoe, horse, snowshoe, and dogsled.

I got it! Maybe? Didn't get it.

2. Who did the settlers rely on to carry their news and messages in the early days of European settlement in Canada?

*Here* The first Europeans relied on Indian messengers to carry their news and messages.

I got it! Maybe? Didn't get it.

3. What are two reasons why travel was so slow when messengers were used to take messages from one place to another?

*Hidden* The messengers had to travel through hundreds of kilometres of wilderness. There were no engines to make travelling easier.

I got it! Maybe? Didn't get it.

4. What were three reasons for the encouragement of better and faster communication in Canada's early history?

*Hidden* Any three from: Canada is a vast country and the settlements needed to be in touch; people in the wilderness wanted to keep in touch with their family and friends; it took too long for letters and messages to arrive in the bush; the fur trading companies wanted to send instructions to their trading posts more easily; the government wanted to know what was happening in the country.

I got it! Maybe? Didn't get it.

5. What does "transportation" mean?

*Head* Transportation refers to how goods are carried from one place to another.

I got it! Maybe? Didn't get it.

6. What is one new invention that made it possible to send information from one place to another without using messengers?

*Here* The telegraph made it possible to send information from one place to another without using messengers.

I got it! Maybe? Didn't get it.

7. Why do you think people at the trading posts were happy when messengers arrived with news of other places?

*Head* The students answers should reflect some understanding of the isolation of early settlers.

I got it! Maybe? Didn't get it.
Communications from the Past to the Present: Mail and Newspapers

The first Canadian newspaper was the "Halifax Gazette" which began publication in 1752. The "Quebec Gazette" began eleven years later in Quebec City. These papers were only a few pages long, and were published just once a week. The pages were printed with a hand press. Compared to today's newspaper presses, early printing was very slow. In one day, a printer and his assistant could print about 160 copies of a four-page newspaper. Because travel was also slow, it took a long time for the newspapers to reach people living outside major towns.

Canada's own postal service started around 1851. Before then, decisions about the mail were made in Great Britain. When Canada took charge of the mail service, the government printed the first Canadian postage stamps. As more and more roads were built in Canada, the mail moved faster and faster. Newspapers and mail moved even faster when the railways were opened. People began to receive letters and newspapers in a few days rather than a few weeks. By 1886, when the Canadian Pacific Railway was completed from coast to coast, it took just five and a half days for mail to get from Montreal to Port Moody. Mail sorter collected the mail from stations along the way. If the train didn't need to stop to pick up passengers, they used a long iron bar with a hook to grab the mailbag hanging from a post on the station platform. Cramped in a swaying rail car, the mail workers sorted the letters and parcels into different mailbags to be dropped off at stations across Canada. If the train didn't need to stop, they would throw the mailbags onto the platform as the train rattled past. In the 1920s, airplanes started carrying mail. Today planes can take the mail across the country in a few hours. Most mail sorting is now done by machines instead of people. The sorting machines use the postal code that Canadians have had since 1971.

Electronic mail and fax machines can send messages across the country in just seconds by using the telephone wires. Newspapers also use this new electronic technology. Instead of printing all the newspapers in one place, publishers can send
electronic plans to cities across Canada. Printers then use these plans to put together newspapers for readers living in their area. This use of communications technology is much faster than shipping thousands of newspapers across the country.

In 1752, the Halifax Gazette was printed on Canada's first printing press. How might a weekly newspaper have affected the lives of the settlers?
Questions on Mail and Newspapers

1. What was the first Canadian newspaper called?
   I got it!  Maybe?  Didn't get it.

2. In what year did Canada print its own postage stamps?
   I got it!  Maybe?  Didn't get it.

3. In what year was the Quebec Gazette first published?
   I got it!  Maybe?  Didn't get it.

4. How does the mail get across the country in a few hours today?
   I got it!  Maybe?  Didn't get it.

5. What does "technology" mean?
   I got it!  Maybe?  Didn't get it.

6. What are two jobs that the mail sorters did as they travelled across Canada on the Railway?
   I got it!  Maybe?  Didn't get it.

7. Why do you think the trains didn't always stop for the mail sorters to pickup and drop off the mailbags?
   I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Mail and Newspapers

The first Canadian newspaper was the "Halifax Gazette" which began publication in 1752. The "Quebec Gazette" began eleven years later in Quebec City. These papers were only a few pages long, and were published just once a week. The pages were printed with a hand press. Compared to today's newspaper presses, early printing was very slow. In one day, a printer and his assistant could print about 160 copies of a four-page newspaper. Because travel was also slow, it took a long time for the newspapers to reach people living outside major towns.

Canada's own postal service started around 1851. Before then, decisions about the mail were made in Great Britain. When Canada took charge of the mail service, the government printed the first Canadian postage stamps. As more and more roads were built in Canada, the mail moved faster and faster. Newspapers and mail moved even faster when the railways were opened. People began to receive letters and newspapers in a few days rather than a few weeks. By 1886, when the Canadian Pacific Railway was completed from coast to coast, it took just five and a half days for mail to get from Montreal to Port Moody. Mail sorters collected the mail from stations along the way. If the train didn't need to stop to pick up passengers, they used a long iron bar with a hook to grab the mailbag hanging from a post on the station platform. Cramped in a swaying rail car, the mail workers sorted the letters and parcels into different mailbags to be dropped off at stations across Canada. If the train didn't need to stop, they would throw the mailbags onto the platform as the train rattled past. In the 1920s, airplanes started carrying mail.

Today planes can take the mail across the country in a few hours. Most mail sorting is now done by machines instead of people. The sorting machines use the postal code that Canadians have had since 1971.

Electronic mail and fax machines can send messages across the country in just seconds by using the telephone wires. Newspapers also use this new electronic technology. Instead of printing all the newspapers in one place, publishers can send
electronic plans to cities across Canada. Printers then use these plans to put together
newspapers for readers living in their area. This use of communications technology is
much faster than shipping thousands of newspapers across the country.
Questions on Mail and Newspapers

1. What was the first Canadian newspaper called?
   **Here**  The first Canadian newspaper was called the Halifax Gazette.
   I got it!  Maybe?  Didn't get it.

2. In what year did Canada print its own postage stamps?
   **Hidden**  Canada began to print its own postage stamps in 1851.
   I got it!  Maybe?  Didn't get it.

3. In what year was the Quebec Gazette first published?
   **Hidden**  The Quebec Gazette was first published eleven years after the Halifax Gazette in 1763.
   I got it!  Maybe?  Didn't get it.

4. How does the mail get across the country in a few hours today?
   **Here**  Today planes take the mail across the country in just a few hours.
   I got it!  Maybe?  Didn't get it.

5. What does "technology" mean?
   **Head**  Technology means practical science as applied to industry and practical purposes.
   I got it!  Maybe?  Didn't get it.

6. What are two jobs that the mail sorters did as they travelled across Canada on the Railway?
   **Hidden**  Any two of: collecting the mail from stations along the way; grabbing mailbags from stations along the way; sorting the letters and parcels into different mailbags to be dropped off at stations along the way; throwing the mailbags on to the platform as the train passed.
   I got it!  Maybe?  Didn't get it.

7. Why do you think the trains didn't always stop for the mail sorters to pickup and drop off the mailbags?
   **Head**  Students must give a reasonable answer.
   I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Telegraph

In 1846, many Canadians were amazed to hear of the new invention called the telegraph. They called it the "talk by lightning" machine. It seemed to work like magic. The telegraph actually works by sending electricity along wires.

Telegraph operators used a switch to turn an electric current on and off. This made a pattern of long and short beeps. These beeps of electricity travelled along a wire stretched over many kilometres. The message sent from one end of the wire caused a lever at the other end to tap out the same pattern. Telegraph operators used Morse code to communicate with these beeps. The short beeps were called dots and the long beeps were called dashes. Every letter of the alphabet is known by a different combination of dots and dashes. The dots and dashes which spell out words are called Morse code. For example, the signal for help in Morse code is . . . - - - - - - - . (SOS).

By 1876, telegraph wires hung from a long line of poles stretching across the prairies. When the telegraph worked, it was wonderful. Settlers could call the doctor for help. They could order new clothes or farm equipment. They could also keep in touch with their families living far away. Unfortunately, the telegraph line didn't work all the time. Often the telegraph poles would fall down or be burned in prairie fires. Buffalo would rub against the poles and get tangled in the wires. Wet leaves would sometimes touch the wire and stop the electric current from flowing through it. The men who kept the telegraph working were very busy. Sometimes they went out at night in blizzards to fix the wires and prop up the poles.

Telegraph machines do not use Morse code today. Instead, words are typed into a teletypewriter. The message is then carried over wires until it reaches its destination. It is then typed out by another machine. Although not many people use the telegraph today, it was a very exciting and important invention in the past. The telegraph made it possible to send messages from place to place without using a messenger. The telegraph was the first
tool that allowed a message to be sent quickly to places further away than a person could see or hear.
Questions on Telegraph

1. What is the signal for help in Morse code?

I got it! Maybe? Didn't get it.

2. What are three reasons why the telegraph line didn't work all the time?

I got it! Maybe? Didn't get it.

3. How do telegraph machines work today?

I got it! Maybe? Didn't get it.

4. Would you have liked to have been a telegraph line worker in the 1880s? Why? or Why not?

I got it! Maybe? Didn't get it.

5. What are three ways that settlers could have used the telegraph when it worked?

I got it! Maybe? Didn't get it.

6. What is Morse code?

I got it! Maybe? Didn't get it.

7. Why do you think people first called the telegraph the "talk by lightning" machine?

I got it! Maybe? Didn't get it.
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tool that allowed a message to be sent quickly to places further away than a person could see or hear.
Questions on Telegraph

1. What is the signal for help in Morse code?
   **Here** The signal for help in Morse code is . . . - - - - . .
   I got it!  Maybe?  Didn't get it.

2. What are three reasons why the telegraph line didn't work all the time?
   **Hidden** Any three: the poles would fall down; they were burned; buffalo would rub against the poles and get tangled; wet leaves would touch the wires and stop the electric current.
   I got it!  Maybe?  Didn't get it.

3. How do telegraph machines work today?
   **Hidden** Telegraph machines do not use Morse code. Words are typed into a teletypewriter, the message is carried over the wires, and then it is typed out by another machine.
   I got it!  Maybe?  Didn't get it.

4. Would you have liked to have been a telegraph line worker in the 1880s? Why? or Why not?
   **Hidden** Students must give a reasonable justification for their answer.
   I got it!  Maybe?  Didn't get it.

5. What are three ways that settlers could have used the telegraph when it worked?
   **Hidden** Any three of: settlers could call the doctor for help; they could order new clothes or farm equipment; Settlers could keep in touch with friends and family far away.
   I got it!  Maybe?  Didn't get it.

6. What is Morse code?
   **Here** The dots and dashes which spell out words are called Morse code.
   I got it!  Maybe?  Didn't get it.

7. Why do you think people first called the telegraph the "talk by lightning" machine?
   **Hidden** Any reasonable answer, probably to do with the speed of the telegraph in sending messages or the fact that it uses electricity to send messages along the wires.
   I got it!  Maybe?  Didn't get it.
Alexander Graham Bell

Alexander Graham Bell invented the telephone. He was a teacher of the deaf and was very interested in how people hear. His idea for the telephone came from studying the human ear. In our ears there is an eardrum -- a thin sheet of skin that is stretched like the top of a tight drum. When sound waves travelling through the air hit the eardrum, it vibrates.

Each end of Bell's telephone contained a thin skin like an eardrum. Sound waves at one end of the phone caused the skin to vibrate. Electricity travelling through the wires of the telephone carried the pattern of this vibration to the other end of the telephone. The other thin skin would then move quickly back and forth to the pattern sent on the wires, and would make the original sounds.

On March 10, 1876 Alexander Graham Bell made the first telephone call to his assistant, Mr Watson. The first words Alexander Graham Bell said on the telephone were, "Mr Watson, come here. I want you!". Bell was born in Scotland but he did most of his work in Canada and the United States. He made the world's first long-distance telephone call from his summer home in Ontario. While Bell listened on the telephone in Paris, Ontario, he heard his father speaking in Brantford, almost 13 km away.

Alexander Graham Bell founded the Bell Telephone Company in 1876. By the time he was 35 he was a wealthy and successful man. He remained interested in inventing all his life. Bell experimented with finding ways of removing salt from seawater, and breeding sheep. He also built steam-powered airplanes, and very fast boats. In 1917, one of the boats he built set a world water-speed record of 114.04 kilometres per hour. Alexander Graham Bell lived in Nova Scotia for much of his later life. His great invention of the telephone changed how we communicate today.
Questions on Alexander Graham Bell

1. What are three inventions, besides the telephone, that Alexander Graham Bell was interested in?

2. What were the first words spoken over a telephone?

3. Explain briefly how Bell's telephone used electricity and sound waves to carry voices over wires?

4. What is one important way that you or your family uses the telephone to communicate?

5. In what provinces of Canada did Alexander Graham Bell live?

6. In what year was the first telephone call made?

7. What does "vibrate" mean?
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Questions on Alexander Graham Bell

1. What are three inventions, besides the telephone, that Alexander Graham Bell was interested in?

**Hidden** Any three of: removing salt from seawater, breeding sheep, steam-powered airplanes, very fast boats.

I got it! Maybe? Didn't get it.

2. What were the first words spoken over a telephone?

**Here** The first words spoken over a telephone were, "Mr Watson, come here. I want you!"

I got it! Maybe? Didn't get it.

3. Explain briefly how Bell's telephone used electricity and sound waves to carry voices over wires?

**Hidden** Bell's telephone had thin skins stretched on each end. The sound waves from a voice caused the skin to vibrate at one end. Electricity carried this pattern to the other end of the telephone where the other skin would vibrate and reproduce the original sounds.

I got it! Maybe? Didn't get it.

4. What is one important way that you or your family uses the telephone to communicate?

**Head** A reasonable answer.

I got it! Maybe? Didn't get it.

5. In what provinces of Canada did Alexander Graham Bell live?

**Hidden** Alexander Graham Bell lived in Ontario and Nova Scotia.

I got it! Maybe? Didn't get it.

6. In what year was the first telephone call made?

**Here** The first telephone call was made in 1876.

I got it! Maybe? Didn't get it.

7. What does "vibrate" mean?

**Head** Vibrate means to shake very rapidly with a fine slight movement. Vibrations can often be felt more than seen.

I got it! Maybe? Didn't get it.
Communications from the Past to the Present: Telephone

People began using the telephone on the west coast of Canada in 1880. Only three years earlier, Alexander Graham Bell had invented it. Unlike the telegraph, the telephone could carry voices over wires.

One of the first phone lines in Victoria, British Columbia, was less than a kilometre long. It ran from Jeffree's clothing store to Pendray's soap factory. A newspaper report from the 1880s described how the telephone worked like this: "In the office at each end of the wire there hangs against the wall a small black walnut box. At the side of the box is a small crank, which a person desirous of communicating with another turns." The person at the other end of the wire hears the alarm bell and answers the telephone by "taking the speaking-tube in his hand. He places it near his mouth and asks what is wanted." In the early days, people sometimes shouted into the phone. They thought they had to shout since they were talking to someone far away.

As telephones became more popular, telephone exchanges were built. Callers rang up the exchange and told the operator who they wanted to call. They did not always use telephone numbers. Instead, they might say, "Give me Alice's grocery, please." The switchboard operator would connect the right wires so that the telephone call could occur.

Telephones are very popular today. In fact, most Canadian homes have at least one telephone. There are 183 telephone companies employing over 100,000 people in Canada. During just one year Canadians made over 27 billion telephone calls. Because switchboard operators could not handle this many calls, technology has changed how telephone calls are made. The connection between telephone numbers is now made automatically when a telephone number is dialed. Technology has also changed the types of phones and phone services available to us. We now have a choice of mobile cellular phones and call alert services. Some businesses also use conference calls and even video phone links.
Questions on Telephones

1. How many phone calls did Canadians make in just one year?
   - I got it!
   - Maybe?
   - Didn't get it.

2. How is the early phone described in the second paragraph different from modern phones?
   - I got it!
   - Maybe?
   - Didn't get it.

3. In the days before every phone had its own number, how would you place a telephone call to your school friend?
   - I got it!
   - Maybe?
   - Didn't get it.

4. What does "desirous" mean?
   - I got it!
   - Maybe?
   - Didn't get it.

5. How would your life be different without a telephone?
   - I got it!
   - Maybe?
   - Didn't get it.

6. How long was one of the first phone lines in Victoria, British Columbia?
   - I got it!
   - Maybe?
   - Didn't get it.

7. What are three ways that technology has changed telephone connections and telephone services?
   - I got it!
   - Maybe?
   - Didn't get it.
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Questions on Telephones

1. How many phone calls did Canadians make in just one year?

*Here* During just one year Canadians made over 27 billion telephone calls.

I got it!  Maybe?  Didn't get it.

2. How is the early phone described in the second paragraph different from modern telephones?

*Hidden* Our modern phones don't have cranks or speaking tubes. They are not small black walnut boxes. (This is a Hidden QAR because its answer requires students to combine information from the passage and from their knowledge base.)

I got it!  Maybe?  Didn't get it.

3. In the days before every phone had its own number, how would you place a telephone call to your school friend?

*Hidden* You would call the operator and say, "Give me Sam's house, please."

Then the operator would connect the right wires so that the call could happen.

I got it!  Maybe?  Didn't get it.

4. What does "desirous" mean?

*Head* Desirous means having a strong wish to do something.

I got it!  Maybe?  Didn't get it.

5. How would your life be different without a telephone?

*Head* Any reasonable answer. For example: It would be harder to keep in touch with friends and family far away. It would be more difficult to call for help in an emergency.

I got it!  Maybe?  Didn't get it.

6. How long was one of the first phone lines in Victoria, British Columbia?

*Here* One of the first phone lines in Victoria was less than a kilometre long.

I got it!  Maybe?  Didn't get it.

7. What are three ways that technology has changed telephone connections and telephone services?

*Hidden* Any three: connections are now made automatically when a telephone number is dialed; We can now choose between mobile cellular phones, call alert services, conference calls, and video phone links.

I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Radio

Radio was a wonderful discovery. Because radio sets sent human voices through the air without using any wires they were first called "wireless" sets.

The first radio signal to cross the Atlantic Ocean was received near the city of St John's, Newfoundland, on a cold, wet December night in 1901. The Newfoundland site, now called Signal Hill, was chosen by the Italian inventor Guglielmo Marconi. At Signal Hill, Marconi attached an antenna to a kite that he flew high over the hill. The antenna received a signal sent all the way from England. The signal consisted of three dots which means the letter "S" in Morse code. Marconi's experiment proved that radio waves could travel around the curved surface of the earth.

Five years after Marconi's experiment, the world's first two-way broadcast of a human voice was made by a Canadian named Reginald Fessenden. Fessenden made this first two-way voice communication by radio between Scotland and North America. Later, on Christmas eve of that same year, Fessenden made the very first public broadcast of music and voice. He stepped before a microphone and played a Christmas carol on his violin, then he signed off by saying, "Merry Christmas."

By the 1920s there were radio stations all across Canada. The Canadian National Railway used stations to broadcast news and music to trains as they passed. Each seat in the parlour car was fitted with headphones so that passengers could listen to the radio. Some people bought train tickets just to listen to the radio.

Today, there are many hundreds of radio stations in Canada. One network that can be heard all across the country is the Canadian Broadcasting Corporation (CBC). The CBC was formed by the Canadian government in 1936. It is owned by all Canadians and broadcasts programs in English and French. Radio has become an important part of the Canadian way of life. Because of it, people all over Canada can listen to the latest news and music.
### Questions on Radio

1. Would you have brought train tickets just to listen to the radio in 1923? Why?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
<th>Didn't get it.</th>
</tr>
</thead>
</table>

2. What Canadian city is close to Signal Hill?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
<th>Didn't get it.</th>
</tr>
</thead>
</table>

3. What does CBC stand for?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
<th>Didn't get it.</th>
</tr>
</thead>
</table>

4. What two great achievements in radio did Reginald Fessenden make?

<table>
<thead>
<tr>
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</thead>
</table>

5. Why were radio sets first called "wireless" sets?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
<th>Didn't get it.</th>
</tr>
</thead>
</table>

6. In what year was Reginald Fessenden's two-way broadcast of the human voice between Scotland and North America made?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
<th>Didn't get it.</th>
</tr>
</thead>
</table>

7. How do you think Reginald Fessenden would have felt after making the very first broadcast of music and voice on Christmas eve?

<table>
<thead>
<tr>
<th>I got it!</th>
<th>Maybe?</th>
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Questions on Radio

1. Would you have brought train tickets just to listen to the radio in 1923? Why?
   Head     Any reasonable answer expressing the student's opinion.
   I got it! Maybe? Didn't get it.

2. What Canadian city is close to Signal Hill?
   Hidden    The city of St John's is close to Signal Hill.
   I got it! Maybe? Didn't get it.

3. What does CBC stand for?
   Here      CBC stands for Canadian Broadcasting Corporation.
   I got it! Maybe? Didn't get it.

4. What two great achievements in radio did Reginald Fessenden make?
   Hidden    Reginald Fessenden made the world's first two-way broadcast of the human voice. He also made the first public broadcast of music and voice.
   I got it! Maybe? Didn't get it.

5. Why were radio sets first called "wireless" sets?
   Here      Radios sent voices through the air without using wires, therefore, they were called "wireless" sets.
   I got it! Maybe? Didn't get it.

6. In what year was Reginald Fessenden's two-way broadcast of the human voice between Scotland and North America made?
   Hidden    Fessenden made the first two-way broadcast of the human voice in 1906.
   (i.e. Five years after Marconi's experiment in 1901.)
   I got it! Maybe? Didn't get it.

7. How do you think Reginald Fessenden would have felt after making the very first broadcast of music and voice on Christmas eve?
   Head     Any reasonable answer.
   I got it! Maybe? Didn't get it.
Communications from the Past to the Present: Microwaves

At first, telephone calls between towns were made by using system of poles and wires. There were some problems with this system, though, particularly when the poles would blow down during storms and needed to be fixed in bad winter weather. It was also very expensive to link remote communities where few people lived with telephone poles and wire. Instead, as early as 1948, telephone companies began to use microwaves to carry telephone conversations.

Microwaves are very short radio waves which travel through the air in a straight, narrow beam. To make sure nothing on the ground blocks their path, microwaves are sent from tall towers. Often these towers are built on top of buildings or on mountainsides. The microwaves are beamed from one tower to another. On the top of each tower there is antenna-shaped like a dish that receives the microwave signal.

By 1958, Canada's telephone companies had built a line of microwave towers across the country. Each tower receives microwave signals, makes them stronger, then passes them on to the next tower. The 139 towers form a communications highway over 6200 kilometres long. At the time it was completed, it was the longest line of microwave towers in the world. Canada's microwave network sends information across the forests, prairies, and mountains from coast to coast, in one fiftieth of a second. That is faster than you can wink an eye!

*The dish-shaped antennas at the top of this tower receive microwave signals.*
Questions on Microwaves

1. What are three problems with using poles and wires to provide telephone service?

   I got it!  Maybe?  Didn't get it.

2. What are microwaves?

   I got it!  Maybe?  Didn't get it.

3. What do you think would happen if something blocked the path of microwaves?

   I got it!  Maybe?  Didn't get it.

4. How many years did it take from the beginning of microwave service by telephone companies to the completion of a line of microwave towers across the country?

   I got it!  Maybe?  Didn't get it.

5. How fast can the microwave network send information from coast to coast?

   I got it!  Maybe?  Didn't get it.

6. What are two clues that would help you figure out whether a tall tower was a microwave tower or not?

   I got it!  Maybe?  Didn't get it.

7. How else can we use microwaves in our homes today?

   I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Microwaves

At first, telephone calls between towns were made by using system of poles and wires. There were some problems with this system, though, particularly when the poles would blow down during storms and needed to be fixed in bad winter weather. It was also very expensive to link remote communities where few people lived with telephone poles and wire. Instead, as early as 1948, telephone companies began to use microwaves to carry telephone conversations.

Microwaves are very short radio waves which travel through the air in a straight, narrow beam. To make sure nothing on the ground blocks their path, microwaves are sent from tall towers. Often these towers are built on top of buildings or on mountainsides. The microwaves are beamed from one tower to another. On the top of each tower there is antenna-shaped like a dish that receives the microwave signal.

By 1958, Canada's telephone companies had built a line of microwave towers across the country. Each tower receives microwave signals, makes them stronger, then passes them on to the next tower. The 139 towers form a communications highway over 6200 kilometres long. At the time it was completed, it was the longest line of microwave towers in the world. Canada's microwave network sends information across the forests, prairies, and mountains from coast to coast, in one fiftieth of a second. That is faster than you can wink an eye!
Questions on Microwaves

1. What are three problems with using poles and wires to provide telephone service?

Hidden The poles would blow down during storms and needed to be fixed in bad winter weather. They also were expensive to use to link remote communities to communications networks.

2. What are microwaves?

Here Microwaves are very short radio waves which travel through the air in straight, narrow beams.

3. What do you think would happen if something blocked the path of microwaves?

Head The microwave beams would not pass through the object and the message would be stopped or interrupted.

4. How many years did it take from the beginning of microwave service by telephone companies to the completion of a line of microwave towers across the country?

Hidden It took ten years. (The microwave service was begun in 1948 and the string of towers was completed in 1958.)

5. How fast can the microwave network send information from coast to coast?

Here The microwave network send messages from coast to coast in one fiftieth of a second.

6. What are two clues that would help you figure out whether a tall tower was a microwave tower or not?

Hidden The tall tower might be a microwave tower if it is built on top of a building or mountainside, and if it has an antenna-shaped dish on the top of it.

7. How else can we use microwaves in our homes today?

Head Most often as microwave ovens.
Communications from the Past to the Present: Television

In October, 1932, about 100 000 people visited a department store in Montreal to see the first television in Canada. The picture on the screen wasn't in colour, or even in black and white. It was black and red! Soon Canadians began watching American programs on their television sets. It took 20 years from viewing the first television in Montreal before Canada was producing many of its own television programs.

The first Canadian Broadcasting Corporation (CBC) television program was in French. Two days later, the first English program was broadcast. The first English broadcast started with the name of the television station, CBLT, upside down on the screen. After some other problems, the program improved and gave its audience news, weather forecasts, and some good entertainment.

Television has become more and more popular over the years. Most Canadians enjoy watching some television, even though they may worry about how it has changed the way they spend their time. Some people worry that most of the programs we watch are American and not Canadian. Others worry about the effects of watching violent programs which show lots of shooting and killing.

Television has changed our lives forever by bringing us information and entertainment from all over the world. Today we can see people and places we never could have seen without it. In 1969, when astronauts walked on the moon for the first time, many people around the world saw it, and shared in the excitement of the moment because of television. In 1991, many people saw what was happening in the Gulf War because of television.
Questions on Television

1. What is one difference between that first television in 1932 and modern TVs?

I got it!  Maybe?  Didn't get it.

2. What year was it before Canada was producing many of its own television programs?

I got it!  Maybe?  Didn't get it.

3. How would your life be different without television?

I got it!  Maybe?  Didn't get it.

4. What are two worries people may have about watching TV?

I got it!  Maybe?  Didn't get it.

5. In what year did people watch astronauts walk on the moon?

I got it!  Maybe?  Didn't get it.

6. What was wrong with the first CBC television broadcast in English?

I got it!  Maybe?  Didn't get it.

7. What is one good point about your favourite television program?

I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Television

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Questions on Television

1. What is one difference between that first television in 1932 and modern TVs?

Hidden The first television was black and red and not in colour. Any other suitable answer which combines information from the passage and from the student's knowledge of TV.

I got it!  Maybe?  Didn't get it.

2. What year was it before Canada was producing many of its own television programs?

Hidden 1952 It took twenty years from the viewing of the first television in 1932, before Canada was producing many of its own television programs.

I got it!  Maybe?  Didn't get it.

3. How would your life be different without television?

Head Any reasonable, thoughtful answer.

I got it!  Maybe?  Didn't get it.

4. What are two worries people may have about watching TV?

Hidden Any two of: People worry about how television has changed the way they spend their time; that most of the programs are American and not Canadian; about the effect of watching violent programs.

I got it!  Maybe?  Didn't get it.

5. In what year did people watch astronauts walk on the moon?

Here People watched the astronauts walk on the moon in 1969.

I got it!  Maybe?  Didn't get it.

6. What was wrong with the first CBC television broadcast in English?

Here The first English broadcast started with the name of the station, CBLT, upside down on the screen.

I got it!  Maybe?  Didn't get it.

7. What is one good point about your favourite television program?

Head Any thoughtful answer.

I got it!  Maybe?  Didn't get it.
Communications from the Past to the Present: Satellites

Pangnirtung is a small Inuit village on Baffin Island in the Northwest Territories. Even as recently as 1972, communication with the rest of Canada was difficult for the people in Pangnirtung. There were no telephone wires connecting it to other places. There were no microwave towers across the northern wilderness, and radio signals do not work very well that far north.

In November of 1972, Canada launched its first communications satellite into space. The satellite was called "Anik A-1". "Anik" means "brother" in the language of the Inuit Indians. This satellite brought great changes to small Arctic villages like Pangnirtung. In a couple of months, the rest of Canada was just a phone call away. By spring, people in the village were able to watch television. In the two years from 1972 to 1974, people in Pangnirtung ordered over three hundred television sets.

Since 1972 many more communications satellites have been launched above Canada. These satellites work like microwave antennas, but instead of being built on mountain tops they are placed in orbit 36,000 kilometres above the earth. Telephone and television signals are beamed up to a satellite from an earth station. It takes the signals about one eighth of a second to get there. The satellite then strengthens the signals and sends them down to other earth stations thousands of kilometres away.

Canada was one of the first countries in the world to use satellites to improve communications for people in isolated areas. Life in northern communities changed because of satellite communications. The people could suddenly get the latest news and weather forecasts. They could use the phone for help if there was an emergency and to keep in touch with friends and family in other places. By the early 1980s, people in the north were producing some of their own television programs to let others know what was happening in northern communities. Many of these programs were broadcast in Inuktitut, the native language of the Inuit.
Questions on Satellites

1. What does Anik mean in the language of the Inuit Indians?

I got it! Maybe? Didn't get it.

2. Before satellites, why was communication difficult for people in far northern communities? Give two reasons.

I got it! Maybe? Didn't get it.

3. Why do you think many programs in the far north are broadcast in Inuktitut rather than Canada's official languages of English or French?

I got it! Maybe? Didn't get it.

4. Explain briefly how satellites work to send telephone and television signals to earth stations?

I got it! Maybe? Didn't get it.

5. How high above the earth do satellites orbit?

I got it! Maybe? Didn't get it.

6. What are three ways that satellite communication have changed life in northern communities?

I got it! Maybe? Didn't get it.

7. Why do you think Canada was one of the first countries in the world to develop a satellite communication network?

I got it! Maybe? Didn't get it.
Communications from the Past to the Present: Satellites

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Canada was one of the first countries in the world to use satellites to improve communications for people in isolated areas. Life in northern communities changed because of satellite communications. The people could suddenly get the latest news and weather forecasts. They could use the phone for help if there was an emergency and to keep in touch with friends and family in other places. By the early 1980s, people in the north were producing some of their own television programs to let others know what was happening in northern communities. Many of these programs were broadcast in Inuktitut, the native language of the Inuit.
Questions on Satellites

1. What does Anik mean in the language of the Inuit Indians?

   Here    Anik means brother in the language of the Inuit.

   I got it!  Maybe?  Didn't get it.

2. Before satellites, why was communication difficult for people in far northern communities? Give two reasons.

   Hidden    Any two of: There were no telephone wires connecting the far north with the rest of Canada; no microwave towers meant that messages could not be sent that way; radio signals did not work well that far north.

   I got it!  Maybe?  Didn't get it.

3. Why do you think many programs in the far north are broadcast in Inuktitut rather than Canada's official languages of English or French?

   Head    Because people in the far north don't speak English and/or French as often as they speak Inuktitut.

   I got it!  Maybe?  Didn't get it.

4. Explain briefly how satellites work to send telephone and television signals to earth stations?

   Hidden    Satellites work like microwave antennas. The signals are beamed up to them from an earth station. Then the satellite strengthens the signals and sends them down to other earth stations far away.

   I got it!  Maybe?  Didn't get it.

5. How high above the earth do satellites orbit?

   Here    Satellites orbit 36 000 kilometres above the earth.

   I got it!  Maybe?  Didn't get it.

6. What are three ways that satellite communication have changed life in northern communities?

   Hidden    Because of satellite communication people in the north could get the latest news and weather forecasts and use the phone to call for help and to keep in touch with friends and family.

   I got it!  Maybe?  Didn't get it.

7. Why do you think Canada was one of the first countries in the world to develop a satellite communication network?

   Head    Canada was one of the first countries to develop satellite communications because it is a very big country with many people living in isolated areas.

   I got it!  Maybe?  Didn't get it.
Watching the News

Television is a very powerful kind of communication. Millions of people watch it. This means that the people who prepare the news have a big responsibility. They must do a good job of communicating the news.

There is no such thing as "The News". The news can be very different, depending on who prepares the newscast. Assignment editors choose the stories to be covered on the news. If you were an assignment editor, you might choose different stories than someone else would. If you were a reporter, you might explain the story in a different way. Tape editors choose the videotape to go with the news stories. If you were a tape editor, you might choose different pieces of videotape then someone else would. In fact, on the same day, two different television news teams may prepare very different newscasts, even though they both started with the same information. If you switch channels at news time, you can see the differences.

Most news teams do a good job, but they are often rushed and they can make mistakes. While trying to keep news stories short they may leave out important information. When you watch the news, it is important to remember this. Ask yourself whether the news is presented fairly. Ask yourself whether there is another point of view that the newscast does not show. If you don't like someone you see on the news, ask yourself why. Maybe the tape editor chose a piece of videotape that makes the person look worse than he or she really is.

If we watch it wisely a television can be a very good thing. But we need to be aware of the mistakes that can be made on TV. We should always think for ourselves, the television may be wrong.
Questions on Watching Television

1. What does "responsibility" mean?

2. What are two reasons that explain why news teams make mistakes?

3. What does an assignment editor do?

4. What does a tape editor do?

5. Why do you think a tape editor might choose a piece of videotape that makes a person look worse than he or she really is on the news?

6. What are two questions you should ask yourself when viewing a newscast?

7. Why is there no such thing as "The News"? Give two reasons.
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If we watch it wisely a television can be a very good thing. But we need to be aware of the mistakes that can be made on TV. We should always think for ourselves, the television may be wrong.
Questions on Watching Television

1. What does "responsibility" mean?

**Head** Responsibility means the duty of looking after something so that no one can be blamed if something goes wrong. I got it! Maybe? Didn't get it.

2. What are two reasons that explain why news teams make mistakes?

**Hidden** News teams may make mistakes when they are rushed and when they try to keep stories short and leave out important information. I got it! Maybe? Didn't get it.

3. What do assignment editors do?

**Here** Assignment editors choose the stories to be covered on the news. I got it! Maybe? Didn't get it.

4. What do tape editors do?

**Here** Tape editors choose the videotape to go with the news stories. I got it! Maybe? Didn't get it.

5. Why do you think a tape editor might choose a piece of videotape that makes a person look worse than he or she really is on the news?

**Head** Any reasonable answer. I got it! Maybe? Didn't get it.

6. What are two questions you should ask yourself when viewing a newscast?

**Hidden** Ask yourself whether the news is presented fairly, and ask yourself why, if you don't like someone you see on the news. I got it! Maybe? Didn't get it.

7. Why is there no such thing as "The News"? Give two reasons.

**Hidden** Any two of: The news can be different depending on who prepares it. Two different television news teams may prepare very different newscasts even though they started with the same information. We need to be aware that mistakes can be made on TV. (Other parts of the passage may also be used as reasons why there is no "News".) I got it! Maybe? Didn't get it.
Communications and Computers

Forty years ago computers were almost unknown. Today they are found in stores, offices, banks, factories, schools and homes. Computers have changed our lives and our ways of communicating with each other.

A computer can do many tasks. It can store huge quantities of information and use it much faster than people can. It can add long lists of numbers in seconds. It can keep track of all of the items for sale in a department store. It can use hundreds of pieces of information about the weather to prepare a satellite weather forecast. A computer can even help you learn by guiding you through a spelling exercise or helping you learn number facts through a computer game. People can do these things too, but computers do them many, many times faster.

Computers are vital to communication in a number of ways. They may be used to develop and design new communication equipment. Or they may allow people to order information from a computer information bank like the videotex system does. They may also help by controlling or keeping track of complicated communications systems. When satellites are placed in orbit, computers control almost every part of the launch. Computers are used in our telephone exchanges too. In just one year Canadians make over 27 billion telephone calls. Without computers to keep track of calls, make telephone connections, and place long-distance calls, it would be very expensive to use our telephones.
Questions on Communications and Computers

1. What are three tasks that computers can do for us?

2. How many phone calls do Canadians make in just one year?

3. What does "vital" mean?

4. What are three ways in which computers are vital to communication?

5. How does the passage say a can the computer help you learn?

6. Why do you think it would be very expensive to use our telephones without computers to keep track of calls, make telephone connections, and place long-distance calls?

7. The weatherman on television gives us the satellite weather forecast. What are two ways that computers been involved in making this possible?
Communications and Computers

Forty years ago computers were almost unknown. Today they are found in stores, offices, banks, factories, schools and homes. Computers have changed our lives and our ways of communicating with each other.

A computer can do many tasks. 1 It is can store huge quantities of information and use it much faster than people can. It can add long lists of numbers in seconds. It can keep track of all of the items for sale in a department store. 1 and 7 It can use hundreds of pieces of information about the weather to prepare a satellite weather forecast. 1 and 5 A computer can even help you learn by guiding you through a spelling exercise or helping you learn number facts through a computer game. People can do these things too, but computers do them many, many times faster.

Computers are vital to communication in a number of ways. 4 They may be used to develop and design new communication equipment. Or they may allow people to order information from a computer information bank like the videotex system does. They may also help by controlling or keeping track of complicated communications systems. 4 and 7 When satellites are placed in orbit, computers control almost every part of the launch. 7 Computers are used in our telephone exchanges too. 2 In just one year Canadians make over 27 billion telephone calls. Without computers to keep track of calls, make telephone connections, and place long-distance calls, it would be very expensive to use our telephones.
Questions on Communications and Computers

1. What are three tasks that computers can do for us?

**Hidden** Any three of: store huge quantities of information and use it much faster than people can; add long lists of numbers in seconds; keep track of all of the items for sale in a department store; use hundreds of pieces of information about the weather to prepare a weather forecast; help you learn.

I got it!  Maybe?  Didn't get it.

2. How many phone calls do Canadians make in just one year?

**Here** In just one year Canadians make over 27 billion telephone calls.

I got it!  Maybe?  Didn't get it.

3. What does "vital" mean?

**Head** Vital means very necessary and of the greatest importance.

I got it!  Maybe?  Didn't get it.

4. What are three ways in which computers are vital to communication?

**Hidden** Any three of: used to develop and design new communication equipment; allow people to order information from a computer information bank; by controlling or keeping track of complicated communications systems; controlling the launch of satellites; helping with our telephone exchanges.

I got it!  Maybe?  Didn't get it.

5. How does the passage say a can the computer help you learn?

**Here** It can guide you through a spelling exercise or help you learn number facts through a computer game.

I got it!  Maybe?  Didn't get it.

6. Why do you think it would be very expensive to use our telephones without computers to keep track of calls, make telephone connections, and place long-distance calls?

**Head** Without computers to keep track of calls, make telephone connections, and place long-distance calls, we would have to pay people to do all these jobs. This would make our telephone service very expensive.

I got it!  Maybe?  Didn't get it.

7. The weatherman on television gives us the satellite weather forecast. What are two ways that computers been involved in making this possible?

**Hidden** When satellites are placed in orbit, computers control almost every part of their launch. Computers also use hundreds of pieces of information about the weather to prepare the satellite weather forecast.

I got it!  Maybe?  Didn't get it.
Looking at the Land

The nation of Japan is an archipelago, or in other words, a group of many islands. There are four large islands: Hokkaido, Honshu, Shikoku, and Kyushu. In addition, there are thousands of smaller islands. Together they form a long curve off the east coast of continental Asia.

Steep mountains cover most of the narrow islands. Forests cover most of these mountains. Mount Fuji, the highest mountain in Japan is a volcano. It has not erupted for many years. Only about 28 per cent of the land in Japan is level enough for growing crops and building homes. Most of this land is along the coast, between the mountains and the sea.

Tokyo, the capital city of Japan, is on the Pacific coast. About 15 million people live in the Tokyo area. Yokohama, Nagoya, and Osaka are all major manufacturing centres. Each of these cities has a population of well over a million people.

Japan has a very long and winding coast. Many inlets and bays reach far into the land. Along these inlets are small villages, where people once made their living by fishing. Some of them still have fishing boats, but others have turned to different ways of earning a living.

The climate of Japan varies greatly. In the southern region, the Nansei Islands are nearly tropical; even the winters are mild. In the northern region, the large island of Hokkaido is subarctic; it has warm summers and very cold winters with much snow. The western region along the coast of the Japan Sea also has warm summers and cold winters with some snow.
Questions on Looking at the Land

1. What is an "archipelago"?

I got it! Maybe? Didn't get it.

2. What are four cities with populations of over a million in Japan?

I got it! Maybe? Didn't get it.

3. What crop do you think might be grown on the level land that is good for farming in Japan?

I got it! Maybe? Didn't get it.

4. How do you think the villagers who no longer make their money from fishing earn a living?

I got it! Maybe? Didn't get it.

5. What sort of food might people who live in the Nansei Islands eat?

I got it! Maybe? Didn't get it.

6. Which part of Japan would have a climate most like Vancouver's?

I got it! Maybe? Didn't get it.

7. What are the names of the four large islands that make up Japan?

I got it! Maybe? Didn't get it.
Looking at the Land

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Questions on Looking at the Land

1. What is an "archipelago"?
   **Here** An archipelago is a group of many islands.
   I got it! Maybe? Didn't get it.

2. What are four cities with populations of over a million in Japan?
   **Hidden** Tokyo, Yokohama, Nagoya, and Osaka have populations of over a million people.
   I got it! Maybe? Didn't get it.

3. What crop do you think might be grown on the level land that is good for farming in Japan?
   **Head** Rice, fruit (reasonable answer)
   I got it! Maybe? Didn't get it.

4. How do you think the villagers who no longer make their money from fishing earn a living?
   **Head** Perhaps they work in factories in the towns or cities, maybe they farm.
   I got it! Maybe? Didn't get it.

5. What sort of food might people who live in the Nansei Islands eat? Why?
   **Hidden** The Nansei Islands are almost tropical, so maybe pineapple, mangoes, bananas.
   I got it! Maybe? Didn't get it.

6. Which part of Japan would have a climate most like Vancouver's?
   **Hidden** The western region along the coast of the Japan Sea has warm summers and cold winters with some snow. Vancouver's climate is similar to this. Vancouver is not subarctic like Hokkaido or tropical like the Nansei Islands.
   I got it! Maybe? Didn't get it.

7. What are the names of the four large islands that make up Japan?
   **Here** The four large islands that make up Japan are Hokkaido, Honshu, Shikoku, and Kyushu.
   I got it! Maybe? Didn't get it.
Japanese Foods

Japan's spring rains and hot, humid summers provide ideal climatic conditions for growing rice, which is the main crop throughout the country. For this reason, rice is a basic food in Japan, just as bread is a basic food in Canada. As well as rice, Japanese people eat noodles made of buckwheat flour or rice flour.

A traditional Japanese breakfast is rice, bean-paste soup, egg, pickles, and sometimes fish. Today, though some young people prefer cereal or toast for breakfast. Lunch might be a bowl of noodles topped with barbequed pork, or fried rice with bits of chicken and vegetables. Dinner is usually rice served with dishes of fish, chicken, or pork, fried or boiled vegetables, and pickles. Beef is not eaten very often. It is very expensive because not many beef cattle are raised in Japan. Japan is made up of many islands, therefore, fish is an important source of protein.

Tea is served at most meals. No sugar or milk is ever added to Japanese tea. It is called green tea because of its colour. Green tea is very mild, and children drink it as well as adults. Fruit juice and soft drinks are also very popular in Japan. Dozens of ice cream and pop machines line the shopping streets. A favourite drink of Japanese children is melon pop, which is bright green.

In Japan, many people eat western foods as well as traditional Japanese foods. Most of the foods we eat in Canada are also sold in Japan.
Japanese Foods

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In Japan, many people eat western foods as well as traditional Japanese foods. Most of the foods we eat in Canada are also sold in Japan.
Questions on Japanese Foods

1. What are three drinks that are common in Japan?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

2. What color is melon pop?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

3. What climatic conditions are ideal for growing rice?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

4. Three Japanese meals are described in the passage. Which would you like best? Why?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

5. What are three differences between Japanese green tea and English black tea?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

6. What is the one food found in all the Japanese meals described in the passage?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.

7. What western foods do you think Japanese people might eat?

__________________________________________________________________________

I got it!   Maybe?   Didn't get it.
Questions on Japanese Foods

1. What are three drinks that are common in Japan?

   **Hidden** Any three of tea, soft drinks, juice, and melon pop.  
   I got it!  Maybe?  Didn't get it.

2. What colour is melon pop?

   **Here** Melon pop is bright green.  
   I got it!  Maybe?  Didn't get it.

3. What climatic conditions are ideal for growing rice?

   **Here** Japan's spring rains and hot, humid summers provide ideal climactic conditions for growing rice.  
   I got it!  Maybe?  Didn't get it.

4. Three Japanese meals are described in the passage. Which would you like best? Why?

   **Head** Any of the three. There should be a good reason provided.  
   I got it!  Maybe?  Didn't get it.

5. What are three differences between Japanese green tea and English black tea?

   **Hidden** Any three differences: Colour, no milk or sugar added, very mild, children drink it.  
   I got it!  Maybe?  Didn't get it.

6. What is the one food found in all the Japanese meals described in the passage?

   **Hidden** Rice  
   I got it!  Maybe?  Didn't get it.

7. What western foods do you think Japanese people might eat?

   **Head** Any reasonable answer, particularly popular foods like pizza and hamburgers.  
   I got it!  Maybe?  Didn't get it.
Japanese Clothing

In Japan today, nearly everyone wears western-style clothing for work and for play. Men wear shirts and trousers. Women wear skirts, pants or dresses. Young people dress in jeans and sweatshirts or t-shirts. They like to wear the latest fashions. Many clothes designers in Japan make western-style clothes. Some have introduced styles that have become fashionable in Canada and in other parts of the world.

Traditional clothes are still important in Japanese life, however. People like to wear traditional clothes for special events, like festivals and weddings. Some older women and older men wear traditional clothing every day.

The most important piece of traditional clothing for both men and women is the kimono. The kimono is a wrap-around robe that reaches down to the ankles. It is held in place by a wide sash wound tightly around the waist. Kimonos for girls and women come in beautiful patterns and colours. Men and boys wear dark-coloured kimonos tucked into wide trousers which they call hakama. Many kinds of fabric are used for kimonos: cotton or linen for summer, wool for winter, and silk for special occasions.
Questions on Japanese Clothing

1. Describe what a kimono for a girl would look like.
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

2. What kinds of fabrics are used to make kimonos?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

3. What does "traditional" mean?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

4. What sort of clothing would a Japanese man wear to the Cherry Blossom Festival? What would it be made of?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

5. When do most Japanese people like to wear traditional clothes?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

6. What is one difference between the traditional kimono and western-style clothing that young Japanese people wear?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.

7. Why do you think some older people still wear traditional clothing every day?
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   I got it! Maybe? Didn't get it.
Japanese Clothing

In Japan today, nearly everyone wears western-style clothing for work and for play. Men wear shirts and trousers. Women wear skirts, pants or dresses. Young people dress in jeans and sweatshirts or t-shirts. They like to wear the latest fashions. Many clothes designers in Japan make western-style clothes. Some have introduced styles that have become fashionable in Canada and in other parts of the world.

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Questions on Japanese Clothing

1. Describe what a kimono for a girl would look like.
Hidden A girl's kimono is a wrap-around robe held by a wide sash that reaches down to the ankles. It comes in beautiful patterns and colours.

2. What kinds of fabrics are used to make kimonos?
Here Many kinds of fabrics are used for kimonos: cotton, linen, wool, and silk.

3. What does "traditional" mean?
Head Traditional means the passing down of beliefs, customs, ways of behaving from the past to the present.

4. What sort of clothing would a Japanese man wear to the Cherry Blossom Festival? What would it be made of?
Hidden A man would wear traditional dress to a special occasion like the Cherry Blossom Festival. He would wear a kimono tucked into hakama trousers. His clothes would be made of silk.

5. When do most Japanese people like to wear traditional clothes?
Here Japanese people like to wear traditional clothes for special events, like festivals and weddings.

6. What is one difference between the traditional kimono and western-style clothing that young Japanese people wear?
Hidden Traditional kimonos are wrap-around robes, sometimes made of silk. Jeans and t-shirts are not wrap-around, nor are they made of silk. (Other reasons along these lines.)

7. Why do you think some older people still wear traditional clothing every day?
Head The older people who still wear kimonos everyday probably grew up wearing them and are most comfortable in them. They may not trust the growing western influence in Japan and prefer their traditional clothes.
Natural Disasters in Japan

People in Japan have had to learn to live under the threat of natural disasters which may destroy their homes and take their lives. Japan has more earthquakes than any other country in the world. There are as many as 5 000 earthquakes each year in various parts of the country. Luckily, only about 1 000 are severe enough for people to feel them, and they cause only minor damage. When a big earthquake strikes though, the effect is tragic. In 1923, a severe quake destroyed 100 000 houses and left 150 000 people dead or missing.

Earthquakes can cause landslides, split the ground, and shake buildings to pieces. They can also cause tsunamis. Tsunamis are giant waves which can crash ashore, sweeping away houses, bridges, and people. An old Japanese story says that a giant fish sleeps under the sea. When it is restless, it sends shudders through the land, causing earthquakes and tsunamis.

Where there are earthquakes there are usually volcanoes. Many countries that border the Pacific Ocean are part of an earthquake and volcano zone called the Ring of Fire. The west coast of Canada and the United States is also part of the Ring of Fire. In Japan, there are 67 active volcanoes. There are also many hot springs. Over 1100 of these steaming pools of water bubble out of the earth in Japan.

Some parts of Japan may have very bad storms called typhoons in the autumn. When a typhoon hits, heavy rains pound down, causing flooding and landslides. Roaring winds can blow as hard as 120 kilometres per hour. Typhoons can cause a lot of damage.
Questions on Natural Disasters in Japan

1. What are three natural disasters which sometimes affect Japan?

I got it!  Maybe?  Didn't get it.

2. What are tsunamis?

I got it!  Maybe?  Didn't get it.

3. Name three countries which are part of the "Ring of Fire"?

I got it!  Maybe?  Didn't get it.

4. Approximately how many earthquakes that do not cause any damage occur in Japan each year?

I got it!  Maybe?  Didn't get it.

5. What does "tragic" mean?

I got it!  Maybe?  Didn't get it.

6. How many active volcanoes are in Japan?

I got it!  Maybe?  Didn't get it.

7. Why do you think people live in parts of the world where disasters like earthquakes and typhoons happen?

I got it!  Maybe?  Didn't get it.
Natural Disasters in Japan

People in Japan have had to learn to live under the threat of natural disasters which may destroy their homes and take their lives. Japan has more earthquakes than any other country in the world. There are as many as 50,000 earthquakes each year in various parts of the country. Luckily, only about 4,100 are severe enough for people to feel them, and they cause only minor damage. When a big earthquake strikes though, the effect is tragic. In 1923, a severe quake destroyed 100,000 houses and left 150,000 people dead or missing.

Earthquakes can cause landslides, split the ground, and shake buildings to pieces. They can also cause tsunamis. Tsunamis are giant waves which can crash ashore, sweeping away houses, bridges, and people. An old Japanese story says that a giant fish sleeps under the sea. When it is restless, it sends shudders through the land, causing earthquakes and tsunamis.

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Some parts of Japan may have very bad storms called typhoons in the autumn. When a typhoon hits, heavy rains pound down, causing flooding and landslides. Roaring winds can blow as hard as 120 kilometres per hour. Typhoons can cause a lot of damage.
Questions on Natural Disasters in Japan

1. What are three natural disasters which sometimes affect Japan?

Hidden Any three of earthquakes, landslides, tsunamis, volcano eruptions, and typhoons.

I got it! May be? Didn't get it.

2. What are tsunamis?

Here Tsunamis are giant waves that can crash ashore and wash away houses, bridges, and people.

I got it! Maybe? Didn't get it.

3. Name three countries which are part of the "Ring of Fire"?

Hidden The west coast of Canada and the United States are part of the "Ring of Fire". So is Japan. Other countries may also be identified from the map accompanying this passage.

I got it! Maybe? Didn't get it.

4. Approximately how many earthquakes that do not cause any damage occur in Japan each year?

Hidden 5 000 earthquakes in a year - 1 000 that cause damage = 4 000 that do not cause damage.

I got it! Maybe? Didn't get it.

5. What does "tragic" mean?

Head Tragic means terrible, unhappy, and unfortunate.

I got it! Maybe? Didn't get it.

6. How many active volcanoes are in Japan?

Here There are 67 active volcanoes in Japan.

I got it! Maybe? Didn't get it.

7. Why do you think people live in parts of the world where disasters like earthquakes and typhoons happen?

Head They probably have little choice. They may have been born in that part of the world and want to stay there. If people learn and follow safety rules, many survive natural disasters. They hope they won't be the ones to get hurt. (Any other reasonable answer)

I got it! Maybe? Didn't get it.
How the Japanese Write

Japan has one of the highest literacy rates in the world. This means that nearly every person can read and write. This is a great achievement because the written Japanese language is very hard to learn.

Children must learn four different ways to write Japanese. Kanji are Chinese picture symbols. They were adopted by Japan in the fifth century. Each symbol stands for a whole word or idea. There are over 40,000 Kanji symbols. But people only need to know about 2,000 of these symbols to be able to read newspapers and magazines.

Katakana is another set of about 50 symbols that are used to write foreign words by using sounds. Hiragana is a third set of about 50 symbols that are used with Kanji to indicate things like verb tense and pronunciation. Romaji uses the same 26 letter alphabet that we use for English. It is a way of writing foreign or Japanese words according to the way they sound. Romaji is used for signs and labels.

Kanji, Katakana, and Hiragana used to be written in columns, from top to bottom, but now they are most often written across the page in lines like English. At school, Japanese children learn the art of brush writing or calligraphy. Normally though, they write with a pen or pencil like you do.
Questions on How the Japanese Write

1. What are the four different ways that Japanese children learn to write?

I got it! Maybe? Didn’t get it.

2. Which way of writing uses the same 26 letter alphabet that we use in English?

I got it! Maybe? Didn’t get it.

3. How many Kanji symbols are there?

I got it! Maybe? Didn’t get it.

4. Which type of writing are the characters shown in the picture below most likely to be? Why?

I got it! Maybe? Didn’t get it.

5. Romaji is used to write foreign words used for signs and labels. Why do you think it is being used more and more frequently in Japan these days?

I got it! Maybe? Didn’t get it.

6. How many symbols would you need to learn if you wanted to know enough Kanji to read the newspaper, all of Katakana, and all of the Hiragana symbols?

I got it! Maybe? Didn’t get it.

7. If you had a choice of learning any one of the Japanese ways of writing, which would you choose? Why?
How the Japanese Write

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Questions on How the Japanese Write

1. What are the four different ways that Japanese children learn to write?

*Hidden* Kanji, Katakana, Hiragana, and Romaji are ways of writing that Japanese children learn.

I got it! Maybe? Didn't get it.

2. Which way of writing uses the same 26 letter alphabet that we use in English?

*Here* Romaji uses the same 26 letter alphabet that we use for English.

I got it! Maybe? Didn't get it.

3. How many Kanji symbols are there?

*Here* There are over 40,000 Kanji symbols.

I got it! Maybe? Didn't get it.

4. Which type of writing are the characters shown in the picture below most likely to be?

*Hidden* They are Kanji picture symbols. Each of the symbols stands for a whole word or idea.

I got it! Maybe? Didn't get it.

5. Romaji is used to write foreign words used for signs and labels. Why do you think it is being used more and more frequently in Japan these days?

*Head* Romaji is being used more often because more foreign words are being used in Japan. There are more western products like Coca Cola and McDonald's fast food in Japan these days.

I got it! Maybe? Didn't get it.

6. How many symbols would you need to learn if you wanted to know enough Kanji to read the newspaper, all of Katakana, and all of the Hiragana symbols?

*Hidden* 2,100 symbols: 2,000 Kanji symbols, 50 Katakana symbols, and 50 Hiragana symbols.

I got it! Maybe? Didn't get it.

7. If you had a choice of learning any one of the Japanese ways of writing, which would you choose? Why?

*Head* Kanji, Katakana, Hiragana, or Romaji. Any reasonable answer.

I got it! Maybe? Didn't get it.
Japanese Schools

Education is considered very important in Japan. Students must pass difficult examinations to get into good schools. Those who graduate from the best schools get the best jobs.

All children must go to school between the ages of six and fifteen. Many parents also pay to put their children into kindergarten for one or two years. Kindergarten gives children an early start to learning and helps them get accepted into good elementary schools.

After completing grades one through 6 in an elementary school, students must go to junior high for four years. After junior high, school is not compulsory. However, 94 percent of students write exams to enter senior high school. Many of the rest chose to go to technical high schools.

Although Japan has many universities, there are not enough places for all those who want to attend. The university entrance exams are the most important exams of students' lives. They must write a different set of exams for each university that they apply to. These exams are very tough and competition is fierce.

Students in Japan work very hard. They go to school six days a week, Monday through Saturday. On Saturdays, school finishes at noon. Spring and winter breaks are two weeks each, and summer holidays are six weeks long. Even vacations are no rest for many students who choose to do special homework assignments during their holidays.
Questions on Japanese Schools

1. How many years of school are compulsory in Japan?


I got it! Maybe? Didn't get it.

2. What percentage of Japanese students write exams to enter senior high school?


I got it! Maybe? Didn't get it.

3. How many weeks of holiday do Japanese schoolchildren have in one year?


I got it! Maybe? Didn't get it.

4. At what time does school finish on Saturdays in Japan?


I got it! Maybe? Didn't get it.

5. If a student was applying for entrance to Tokyo University, Nagoya University and Osaka University, how many sets of entrance exams would s/he have to write? Why this many?


I got it! Maybe? Didn't get it.

6. Would you do special homework assignments during your vacations?


I got it! Maybe? Didn't get it.

7. Would you like to go to school in Japan? Why? or Why not?


I got it! Maybe? Didn't get it.
Japanese Schools

Education is considered very important in Japan. Students must pass difficult examinations to get into good schools. Those who graduate from the best schools get the best jobs.

All children must go to school between the ages of six and fifteen. Many parents also pay to put their children into kindergarten for one or two years. Kindergarten gives children an early start to learning and helps them get accepted into good elementary schools.

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Questions on Japanese Schools

1. How many years of school are compulsory in Japan?

Hidden  Ten Years: Six years of elementary school and four years of junior high.
(Hidden because the students use the passage but do the simple arithmetic by using their heads.)

I got it!  Maybe?  Didn't get it.

2. What percentage of Japanese students write exams to enter senior high school?

Here  94 percent of Japanese students write exams to enter senior high school.

I got it!  Maybe?  Didn't get it.

3. How many weeks of holiday do Japanese schoolchildren have in one year?

Hidden  Ten weeks: Two weeks in the spring, two in the winter, and six in the summer. (Students use their heads to do the arithmetic, so this is a Hidden question that uses info from the passage and from what the students' already know.)

I got it!  Maybe?  Didn't get it.

4. At what time does school finish on Saturdays in Japan?

Here  School finishes at noon on Saturdays.

I got it!  Maybe?  Didn't get it.

5. If a student was applying for entrance to Tokyo University, Nagoya University and Osaka University, how many sets of entrance exams would s/he have to write? Why this many?

Hidden  S/he would have to write three sets of exams. (This answer requires the joining together of information from the question and from the passage.)

I got it!  Maybe?  Didn't get it.

6. Would you do special homework assignments during your vacation?

Head  Any reasonable answer evidencing some thought.

I got it!  Maybe?  Didn't get it.

7. Would you like to go to school in Japan? Why? or Why not?

Head  Yes or No. A good reason must be given.

I got it!  Maybe?  Didn't get it.
Art in Japan

Japan is noted for its traditional watercolour paintings and woodblock prints. These are part of what we call the "fine arts", which are valued for their beauty. The fine arts often express the strong love of nature that the people of Japan have. Watercolour paintings usually show scenes from nature, such as mountains, flowers, and birds. Woodblock prints are usually of landscapes, scenes from history and daily life, or portraits of actors.

To make a woodblock print, an artist first paints a picture on paper. Then a skilled carver cuts all the parts of the picture that are to be the same colour into a flat piece of wood. Next the carver cuts another wood-block for parts of the picture that are to be another colour. A print that has five colours will be cut into five different pieces of wood; one for each colour. Finally, a printer rolls coloured inks onto the blocks and presses them one by one onto a sheet of paper. Some prints may have as many as sixteen colours.

Crafts in Japan are more a part of daily life. Craftspeople or artisans produce objects that are useful as well as beautiful. Pottery, lacquerwork, and clothing are some of the best-known crafts of Japan. One branch of crafts that delights children is folk art. Folk artists make traditional toys and decorations, such as kites and dolls. The "arts of living", such as calligraphy, poetry, and flower arrangement are practised by many people. They learn these "arts of living" to enrich their own lives with beauty and a sense of harmony.

Artisans are highly regarded. The Japanese government has honoured some artisans with the title "National Living Treasure". These people are considered living treasures because of their talent and their skills. People who are honoured as "National Living Treasures" receive money every year to encourage them to use their skills and teach them to others. By supporting these artisans, the government hopes to preserve the traditional crafts that are a part of the Japanese cultural heritage.
Questions on Art in Japan

1. What sort of scenes are usually shown in watercolour paintings?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

2. How many separate woodblocks would be needed to make a woodblock print in eleven colours? Why this many?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

3. What is one difference between the fine arts and the crafts of Japan?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

4. What is the title that the Japanese government gives to honour some artisans?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

5. Do you think Canada should have "National Living Treasures" too? Why?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

6. Which one of the arts or crafts of Japan would you most like to learn? Why?

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.

7. Are the "arts of living", like calligraphy, poetry, and flower arrangements most like fine arts, or like crafts? Give a reason for your answer.

__________________________________________________________________________

I got it!  Maybe?  Didn't get it.
Art in Japan

Japan is noted for its traditional watercolour paintings and woodblock prints. These are part of what we call the fine arts, which are valued for their beauty. The fine arts often express the strong love of nature that people of Japan have. Watercolour paintings usually show scenes from nature, such as mountains, flowers, and birds. Woodblock prints are usually of landscapes, scenes from history and daily life, or portraits of actors.

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Artisans are highly regarded. The Japanese government has honoured some artisans with the title "National Living Treasure". These people are considered living treasures because of their talent and their skills. People who are honoured as "National Living Treasures" receive money every year to encourage them to use their skills and teach them to others. By supporting these artisans, the government hopes to preserve the traditional crafts that are a part of the Japanese cultural heritage.
Questions on Art in Japan

1. What sort of scenes are usually shown in watercolour paintings?

**Here** Watercolour paintings usually show scenes from nature, such as mountains, flowers, and birds.

**I got it!** Maybe? Didn't get it.

2. How many separate woodblocks would be needed to make a woodblock print in eleven colours? Why this many?

**Hidden** Eleven woodblocks would be required. One block is carved for each colour in the print.

**I got it!** Maybe? Didn't get it.

3. What is one difference between the fine arts and the crafts of Japan?

**Hidden** Fine arts are valued for their beauty alone while crafts are more a part of daily life. Crafts can include useful and beautiful objects like pottery and clothing. (Along these lines.)

**I got it!** Maybe? Didn't get it.

4. What is the title that the Japanese government gives to honour some artisans?

**Here** The Japanese government honours some artisans with the title "National Living treasure".

**I got it!** Maybe? Didn't get it.

5. Do you think Canada should have "National Living Treasures" too? Why?

**Head** A well considered answer.

**I got it!** Maybe? Didn't get it.

6. Which one of the arts or crafts of Japan would you most like to learn? Why?

**Head** One of the arts or crafts in the passage. This is an opinion question. Students would offer a good reason for the choice they made.

**I got it!** Maybe? Didn't get it.

7. Are the "arts of living", like calligraphy, poetry, and flower arrangements most like fine arts, or like crafts? Give a reason for your answer.

**Hidden** Students could justify either choice. The reason given is most important. "Arts of living" could be fine art because they are valued for their beauty. They could be crafts because they can be a part of daily life.

**I got it!** Maybe? Didn't get it.
Farming in Japan

Farming villages are scattered throughout Japan. Most are on the plains along the coast, but some are in the mountains. Many farmers own 10 to 20 tiny fields, which are spread out over a large area. The average total size of a farm is 1.2 hectares. Most small farms are owned by families. Some members of the family will work on the farms only during the busy planting and harvesting times; the rest of the year they work in nearby factories or towns. Much of the work on the farms is done by women, children, and the older people in the family.

Rice and vegetables are grown throughout Japan. One popular vegetable is the giant white radish, called the daikon, which can grow up to a metre long. Cabbage, spinach and broccoli are some of the other vegetables grown.

Fruit is another major crop. Persimmons and strawberries are grown almost everywhere. The north is known for its orchards of pear and apple trees. Fruit farmers in the central area grow peaches and grapes. In the south, oranges and mandarin oranges are grown. Pineapples are grown in Okinawa, an island in the far south of the country.

Livestock is becoming increasingly important in Japanese farming. Pigs and chickens are raised throughout the country. Some beef and dairy cattle are raised, but mostly in Kyushu and Hokkaido where there is enough land to have some pastures for these animals.

Although less than 15% of Japan is farmland, the farmers know how to get the most out of their land. They produce all the rice that is needed in Japan, and almost all the eggs and vegetables that people can eat. Farmers also produce much of the fruit and milk that is required. The Japanese depend on other countries for many other important foods. Japan imports nearly all of its corn, wheat, and soybeans, as well as a large amount of its meat from other countries.
Questions on Farming in Japan

1. What are four fruits grown in Japan?

I got it!  Maybe?  Didn't get it.

2. Who does most of the work on Japanese farms?

I got it!  Maybe?  Didn't get it.

3. What are three farm products from Japan that are also produced in Canada?

I got it!  Maybe?  Didn't get it.

4. Where is pineapple grown in Japan? What must the climate be like there?

I got it!  Maybe?  Didn't get it.

5. Why do you think Japanese farms are so small?

I got it!  Maybe?  Didn't get it.

6. What is the giant white radish grown in Japan called?

I got it!  Maybe?  Didn't get it.

7. Why do you think some members of farm families have to work in nearby factories or towns for part of the year?

I got it!  Maybe?  Didn't get it.
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Fruit is another major crop. Persimmons and strawberries are grown almost everywhere. The north is known for its orchards of pear and apple trees. Fruit farmers in the central area grow peaches and grapes. In the south, oranges and mandarin oranges are grown. Pineapples are grown in Okinawa, an island in the far south of the country.

Livestock in becoming increasingly important in Japanese farming. Pigs and chickens are raised throughout the country. Some beef and dairy cattle are raised, but mostly in Kyushu and Hokkaido where there is enough land to have some pastures for these animals.

Although less than 15% of Japan is farmland, the farmers know how to get the most out of their land. They produce all the rice that is needed in Japan, and almost all the eggs and vegetables that people can eat. Farmers also produce much of the fruit and milk that is required. The Japanese depend on other countries for many other important foods. Japan imports nearly all of is corn, wheat, and soybeans, as well as a large amount of its meat from other countries.
Questions on Farming in Japan

1. What are four fruits grown in Japan?

**Hidden** (Any four) Persimmons, strawberries, pears, apples, peaches, grapes, oranges, mandarin oranges, and pineapples are grown in Japan.

I got it! Maybe? Didn't get it.

2. Who does most of the work on Japanese farms?

**Here** Much of the work on Japanese farms is done by women, children, and older people in the family.

I got it! Maybe? Didn't get it.

3. What are three farm products from Japan that are also produced in Canada?

**Hidden** (Any three products mentioned in the passage which the student knows are also grown in Canada -- not pineapples or daikon.) For example, any three of: apples, peaches, milk, vegetables.

I got it! Maybe? Didn't get it.

4. Where is pineapple grown in Japan? What must the climate be like there?

**Hidden** (Students need to combine information from the passage with information from their knowledge base.) Pineapples are grown in Okinawa. The climate must be hot and wet (tropical or semi-tropical).

I got it! Maybe? Didn't get it.

5. Why do you think Japanese farms are so small?

**Head** (Students use what they know of Japan to answer this question.) Because Japan has many mountains not much of its land is suitable for farming. Japan also has a high population. People need land to live on. If the population was smaller more land would be available for farming.

I got it! Maybe? Didn't get it.

6. What is the giant white radish grown in Japan called?

**Here** The giant white radish is called the daikon.

I got it! Maybe? Didn't get it.

7. Why do you think some members of farm families have to work in nearby factories or towns?

**Head** Probably because there is not much work on the farm during the winter. Maybe because it is hard to make enough money on the farm if someone doesn't work.

(Other reasonable alternatives accepted.)

I got it! Maybe? Didn't get it.
Food in Japan, Germany, and Australia

All people need food to eat. In different parts of the world, people fulfill this need in different ways. In this passage, we will look at the food people eat in Japan, Germany, and Australia.

In Japan, rice is the most important food. It is the staple food of the Japanese diet. The Japanese do not say, "Let's have a meal together"; they say, "Let's have some rice." Most Japanese eat rice as part of their breakfast, lunch, and dinner. Because Japan is a country of islands and everywhere is close to the sea, fish and seafood are always available. When it is freshly caught, fish is perfectly safe and delicious to eat raw. Sashimi is one of Japan's most famous dishes. It is beautifully cut and arranged raw fish. Another famous dish is sushi. To make sushi, raw fish is pressed onto rice which has been delicately seasoned with vinegar. The Japanese do not eat much meat or dairy products, instead they have more vegetables and seaweed in their diet.

Two of the foods that Germany is best known for are bread and sausages. There are a huge number of different types to choose from in the butcher's and baker's shops. Germans also love rich cream cakes. Many people go to cafes and order coffee and cakes in the afternoon. As in many countries, German street markets sell fresh fruits and vegetables. Before foods from other countries were readily available in Germany, potatoes and sauerkraut were often the main meal of the day. Today though, most German children prefer hamburgers, kebabs, pizza, and spaghetti to potatoes, and sausages, and green salads are as popular as sauerkraut.

Up to about 50 years ago, Australian cooking was generally very plain and basic. Main meals usually consisted of roast meat, potatoes and vegetables, or fish and chips. As people from many different countries have come to live in Australia, cooking and tastes in food have changed. A greater range of foods is now available in the shops. Many immigrants have set up their own special shops that sell food imported from other countries. In this way, Australians have been introduced to salami from Italy, black olives
from Greece, and sauerkraut from Germany. They have also been able to enjoy sushi and sashimi from Japan. Many ethnic restaurants have opened because Australians are now willing to try different flavours and foods.
Questions on Food in Japan, Germany, and Australia

1. What did German people often eat as their main meal in the days before many foods from other countries were available?

I got it! Maybe? Didn't get it.

2. What are four foods that are part of the Japanese diet?

I got it! Maybe? Didn't get it.

3. For which two foods is Germany best known?

I got it! Maybe? Didn't get it.

4. What is the difference between sushi and sashimi?

I got it! Maybe? Didn't get it.

5. What are four foods that have been introduced to Australia from other countries?

I got it! Maybe? Didn't get it.

6. Why do you think fish is not a big part of the German diet?

I got it! Maybe? Didn't get it.

7. Would you like to eat like the Japanese, German, or Australian people? Give a reason for your answer.

I got it! Maybe? Didn't get it.
Food in Japan, Germany, and Australia

All people need food to eat. In different parts of the world, people fulfill this need in different ways. In this passage, we will look at the food people eat in Japan, Germany, and Australia.

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olives from Greece, and sauerkraut from Germany. They have also been able to enjoy sushi and sashimi from Japan. Many ethnic restaurants have opened because Australians are now willing to try different flavours and foods.
Questions on Food in Japan, Germany, and Australia

1. What did German people often eat as their main meal in the days before many foods from other countries were available?
   **Here** They ate potatoes and sauerkraut.

2. What are four foods that are part of the Japanese diet?
   **Hidden** Four foods that are part of the Japanese diet are (any four) rice, fish, other seafood, vegetables, and seaweed.

3. For which two foods is Germany best known?
   **Here** Two of the foods that Germany is best known for are bread and sausages.

4. What is the difference between sushi and sashimi?
   **Hidden** Sushi and sashimi are both raw fish. Sushi is pressed onto seasoned rice while sashimi is beautifully cut and arranged raw fish.

5. What are four foods that have been introduced to Australia from other countries?
   **Hidden** Four foods introduced to Australia from other countries are (any four) salami, black olives, sauerkraut, sushi, and sashimi.

6. Why do you think fish is not a big part of the German diet?
   **Head** Germany does not have a large coastline. Its access to the ocean is limited, therefore fish is not a big part of the German diet. (We located all these counties on the maps in our reading passports and commented on features such as amount of coastline and distance of the population from the ocean.)

7. Would you like to eat like the Japanese, German, or Australian people? Give a reason for your answer.
   **Head** Any choice. This is an opinion question. The students' reasons are most important.
Farming and Fishing in Japan and Australia

Because so much of Japan is covered by mountains, there is very little flat land left for farming, much less than in Europe, the USA, or Canada. Rice is the main crop and on almost every square metre of suitable land there are rice fields. There are even some fields squeezed in between houses in the suburbs of the cities. In the past the Japanese ate rice at almost every meal. But now tastes are changing and people are eating more Western foods like bread and milk. Melons, oranges, grapes and other fruit and vegetable crops are also important in Japan. Most Japanese farms are very small and there is little room to keep animals. In fact, sometimes animals are kept in underground shelters so that they don't take up land that could be used for growing crops. Some cows are fed on beer and massaged daily to make their beef tender. Cows which are treated this way become famous Kobi beef which is extremely expensive.

As Japan is a country of islands, the sea is an important source of food. Japanese fishing fleets trawl the ocean for tuna, cod, sardines and other fish. Other smaller boats fish for mackerel and prawns. There are also many fish farms. Saltwater fish like yellowtail tuna and sea bream are kept in sheltered bays. Freshwater fish like carp and rainbow trout are bred and kept in large ponds.

In Australia there is a lot of land that is suitable for raising sheep and cattle. In this country, sheep and cattle graze on grass rather than being fed grain in sheds. The USA is the major customer for Australian beef, though beef is also sold to other countries such as Japan. Many Australian sheep are sold to countries in the Middle East.

All kinds of fruit are grown in Australia, from bananas and pineapples in tropical Queensland to apples in Tasmania. In the warmer, drier inland areas citrus fruits are grown. Much fresh or canned fruit is exported. Important customers for Australian fruit include Europe, Canada, and Japan. Wheat is the most important grain crop in Australia. It is grown in many areas, and most of it is sold to other countries. Australia's largest customers for wheat are China, Egypt, the Soviet Union, and Japan.
Other crops that are important to Australia's economy are sugar, tobacco, and grapes that are made into wine. As Australia has a long coastline, fishing is another important industry. Tuna and salmon are canned, while other fish such as mullet, whiting, and snapper are caught for the people to eat right away.
Questions on Farming and Fishing in Japan and Australia

1. What is the most important grain crop in Australia?

I got it!  Maybe?  Didn't get it.

2. What is one type of fish that is caught in Japan as well as in Australia?

I got it!  Maybe?  Didn't get it.

3. What are two foods that Australia sells to Japan?

I got it!  Maybe?  Didn't get it.

4. Canada is an important customer for which Australian food?

I got it!  Maybe?  Didn't get it.

5. What is different about how cows are treated on Japanese farms compared to how they are raised on Australian farms?

I got it!  Maybe?  Didn't get it.

6. Why do you think Canada doesn't grow all the food we see in the supermarket?

I got it!  Maybe?  Didn't get it.

7. What is your favourite food? Is it grown in Canada, or is it imported from another country?

I got it!  Maybe?  Didn't get it.
Farming and Fishing in Japan and Australia

Because so much of Japan is covered by mountains, there is very little flat land left for farming, much less than in Europe, the USA, or Canada. Rice is the main crop and on almost every square metre of suitable land there are rice fields. There are even some fields squeezed in between houses in the suburbs of the cities. In the past the Japanese ate rice at almost every meal. But now tastes are changing and people are eating more Western foods like bread and milk. Melons, oranges, grapes and other fruit and vegetable crops are also important in Japan. Most Japanese farms are very small and there is little room to keep animals. In fact, sometimes animals are kept in underground shelters so that they don't take up land that could be used for growing crops. Some cows are fed on beer and massaged daily to make their beef tender. Cows which are treated this way become famous Kobi beef which is extremely expensive.

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In Australia there is a lot of land that is suitable for raising sheep and cattle. On large farms sheep and cattle graze on grass rather than being fed grain in sheds. The USA is the major customer for Australian beef, though beef is also sold to other countries such as Japan. Many Australian sheep are sold for food to countries in the Middle East.

All kinds of fruit are grown in Australia, from bananas and pineapples in tropical Queensland to apples in Tasmania. In the warmer, drier inland areas citrus fruits are grown. Much fruit is exported either fresh or canned. Important customers for Australian fruit include Europe, Canada, and Japan. Wheat is the most important grain crop in Australia. It is grown in many areas, and most of it is sold to other countries. Australia's largest customers for wheat are China, Egypt, the Soviet Union, and Japan.
Other crops that are important to Australia's economy are sugar, tobacco, and grapes that are made into wine. As Australia has a long coastline, fishing is another important industry. Tuna and salmon are caught and canned, while other fish such as mullet, whiting, and snapper are caught for the people to eat right away.
Questions on Farming and Fishing in Japan and Australia

1. What is the most important grain crop in Australia?
   
   **Here** Wheat is the most important grain crop in Australia.
   
   I got it!  Maybe?  Didn't get it.

2. What is one type of fish that is caught in Japan as well as in Australia?
   
   **Hidden** Tuna is caught in both Japan and Australia.
   
   I got it!  Maybe?  Didn't get it.

3. What are two foods that Australia sells to Japan?
   
   **Hidden** Wheat, fruit, and beef (any two) are foods that Australia sells to Japan.
   
   I got it!  Maybe?  Didn't get it.

4. Canada is an important customer for which Australian food?
   
   **Here** Canada is an important customer for Australian fruit.
   
   I got it!  Maybe?  Didn't get it.

5. What is different about how cows are treated on Japanese farms compared to how they are raised on Australian farms?
   
   **Hidden** (Any one difference is sufficient.) In Japan, cows are sometimes kept underground. In Australia, cattle graze in the open. In Japan, some cows are fed on beer and massaged every day. In Australia, cows have grass to eat. They don't have to be fed grain in sheds.
   
   I got it!  Maybe?  Didn't get it.

6. Why do you think Canada doesn't grow all the food we see in the supermarket?
   
   **Head** (Any reasonable answer) There are many foods that would not grow in Canada because it is too cold. There are so many foods that it would not be economical to grow them all.
   
   I got it!  Maybe?  Didn't get it.

7. What is your favourite food? Is it grown in Canada, or is it imported from another country?
   
   **Head** Any reasonable answer. Students tend to answer that pizza or hamburgers are their favourite foods. (This question opens up a discussion about how our diets have changed because foods from many other parts of the world are now available to us.)
   
   I got it!  Maybe?  Didn't get it.
Resources and Trade of Japan

Japan has few natural resources. Coal is the nation's most important mineral resource. However, this coal is of poor quality and is mostly used for heating. Good coal must be used for making steel, which is a very important product made in Japan. Good quality coal is brought to Japan from the United States, Australia, and Canada.

Timber is another important natural resource in Japan. Although forests cover 66% of the land in Japan, so much wood is needed for houses, furniture, and fuel that large amounts must be imported every year.

Oil is a raw material that is vital to Japanese industry. However, the oilfields off the northwest coast of Honshu fill less that 1% of the total oil needs of Japan. For this reason, Japan imports huge amounts of oil from the Middle East.

For a country's economy to be sound, trade must flow in two directions. Although Japan makes use of its few natural resources it must import a lot of food, fuel, and the raw materials used by its many factories. In order to pay for the fuel, raw materials and the workers' wages, Japan must export manufactured goods. Japan's main exports include cars, steel, ships, metals, and fabrics.
Questions on Resources and Trade of Japan

1. What does "export" mean?

I got it!  Maybe?  Didn't get it.

2. How much of Japan's oil needs are imported to Japan from the Middle East and other countries?

I got it!  Maybe?  Didn't get it.

3. What are two natural resources that Japan does have?

I got it!  Maybe?  Didn't get it.

4. Which countries sell good quality coal to Japan?

I got it!  Maybe?  Didn't get it.

5. What are three main exports of Japan?

I got it!  Maybe?  Didn't get it.

6. What goods do you think Canada buys from Japan? Why?

I got it!  Maybe?  Didn't get it.

7. How would the Gulf War in the Middle East have affected Japan?

I got it!  Maybe?  Didn't get it.
Resources and Trade of Japan

Japan has few natural resources. **3**Coal is the nation's most important mineral resource. However, this coal is of poor quality and is mostly used for heating. Good coal must be used for making steel, which is a very important product made in Japan. **4**Good quality coal is brought to Japan from the United States, Australia, and Canada.

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Questions on Resources and Trade of Japan

1. What does "export" mean?
   **Head** Export means to send out of a country for sale.

2. How much of Japan's oil needs are imported from the Middle East and other countries?
   **Hidden** 99%. Only 1% of Japan's oil needs are filled from Japanese oil fields, the rest is imported.

3. What are two natural resources that Japan does have?
   **Hidden** Japan has coal and timber resources.

4. Which countries sell good quality coal to Japan?
   **Here** The United States, Australia, and Canada sell good quality coal to Japan.

5. What are three main exports of Japan?
   **Here** Three main exports of Japan are cars, steel, ships, metals, and fabrics.

6. What goods do you think Canada buys from Japan? Why?
   **Head** Students' reasons for selecting items are important here. They may choose cars, ships, etc from the passage, or hi-tech products they use in their homes.

7. How would the Gulf War in the Middle East have affected Japan?
   **Hidden** The huge amounts of oil from the Middle East that Japan usually imports would have been stopped by the war. Japan could have had an oil shortage.
Industry in Japan

Japan is one of the world's most important industrial nations. It has made much of its wealth through exporting goods to other countries. Many of the things in your home are probably made in Japan. People buy Japanese goods like electronic games, cameras, watches, calculators, televisions, compact disc players, and cars because they are cheap and reliable. Also Japanese companies are often the first to develop new, advanced products.

In the 1960s and the 1970s, Japan's most important exports were steel, ships, cars, televisions, and video recorders and cameras. Today the steel and shipbuilding industries are in difficulty, partly because of competition from other Asian countries like South Korea.

In the 1980s and 1990s Japanese companies are concentrating on high-technology industries such as computers, and robotics. Many of these industries may lead to exciting developments for the future: High Definition Television, computers that can make some decisions by themselves, and robots that can take over routine jobs in factories so that humans are free to do more interesting work.

There are many reasons for the success of Japanese industry. One is that the Japanese company is run like a big family. Once workers join a company, they rarely leave. The company provides a home, and a share in the profits. Most companies also provide daycare and schools for children. Sometimes companies even provide a trip and a hotel for their employees' holidays.
Questions on Industry in Japan

1. What are three reasons why people might buy Japanese cameras, calculators, compact disc players, and cars?

2. What is one Asian country that is competing with Japan in the steel and shipbuilding industries?

3. How are the industries that Japan concentrated on in the 1960s and 1970s different from the industries that Japanese companies are developing in the 1990s?

4. What are three services that Japanese companies provide for their employees?

5. What does "reliable" mean?

6. Do you or anyone in your family own anything that has been made in Japan? Why did you buy it?

7. What is one example of a high-technology industry being developed in Japan?
Industry in Japan

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Questions on Industry in Japan

1. What are three reasons why people might buy Japanese cameras, calculators, compact disc players, and cars?

**Hidden** People buy Japanese goods because they are cheap, reliable, and often the newest and most advanced on the market.

I got it! Maybe? Didn't get it.

2. What is one Asian country that is competing with Japan in the steel and shipbuilding industries?

**Here** South Korea is competing with Japan in the steel and shipbuilding industries.

I got it! Maybe? Didn't get it.

3. How are the industries that Japan concentrated on in the 1960s and 1970s different from the industries that Japanese companies are developing in the 1990s?

**Hidden** The industries of the 90s are more high-tech than the industries of the 60s and 70s. Japan is not building as many huge ships. Instead, Japanese industry is concentrating on smaller more complicated industries like computers and robotics.

I got it! Maybe? Didn't get it.

4. What are three services that Japanese companies provide for their employees?

**Hidden** Many Japanese companies provide daycare and schools for their employee's children. They also provide trips and hotels for employee's vacations.

I got it! Maybe? Didn't get it.

5. What does "reliable" mean?

**Head** Reliable means dependable or able to be trusted.

I got it! Maybe? Didn't get it.

6. Do you or anyone in your family own anything that has been made in Japan? Why did you buy it?

**Head** Any acceptable answer. The reason given is particularly important.

I got it! Maybe? Didn't get it.

7. What is one example of a high-technology industry being developed in Japan?

**Head** (Any one) High-technology industries in Japan include the computer industry and the robotics industry: Specific examples include High Definition Television, Computers that can make some decisions, and robots for factories.

I got it! Maybe? Didn't get it.
Transportation in Japan

The Bullet Train or *Shinkansen* is Japan's most famous train. It has a nose like a bullet and travels at a maximum speed of 250 kilometres per hour. For many years it was the fastest train in the world. Now some European trains are faster -- but not for long. The Japanese are working on a hovertrain which will glide above an electric rail at twice the speed of the Bullet Train.

The Bullet Train is still, like all Japanese transport systems, the most punctual in the world. If it is more than a few minutes late, half your fare will be returned to you. In 1987 the Japanese opened the longest railway tunnel in the world, from Honshu to Hokkaido. It will soon be possible to travel between all of Japan's four main islands by train.

Japanese trains are very crowded. At rush hour in some Tokyo stations, white-gloved staff push people into trains so that the doors can close. The roads in Japan are also very crowded with cars. In the 1970s, the air in Tokyo was very polluted by the fumes from all the traffic. The government passed a law setting a limit to the amount of poisonous carbon monoxide that cars could give off. Today all Japanese cars are built to this standard, and the air is much cleaner.

Many people travel around Japan by air. There are airports in all the major cities and frequent flights by Japan Air Lines and other carriers. One interesting feature of flying in Japan is that some planes allow you to watch a live video of what the pilot sees as you take off and land. This lets passengers feel as if they are sitting next to the Captain in the cockpit of the plane.
Questions on Transportation in Japan

1. What does "punctual" mean?

I got it! Maybe? Didn't get it.

2. What are two methods of transportation used in Japan?

I got it! Maybe? Didn't get it.

3. How many kilometres per hour will the new hovertrain travel?

I got it! Maybe? Didn't get it.

4. Which Japanese islands are joined by the longest railway tunnel in the world?

I got it! Maybe? Didn't get it.

5. What is the Japanese word for Bullet Train?

I got it! Maybe? Didn't get it.

6. Would you like to travel by Bullet Train? Why?

I got it! Maybe? Didn't get it.

7. What are two methods of transport that the passage mentions are very crowded in Japan?

I got it! Maybe? Didn't get it.
Transportation in Japan

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Questions on Transportation in Japan

1. What does "punctual" mean?
   **Head** Punctual means not late, arriving at the exact time.
   I got it!  Maybe?  Didn't get it.

2. What are two methods of transportation used in Japan?
   **Hidden** Any two: Bullet Train, trains, cars, airplanes.
   I got it!  Maybe?  Didn't get it.

3. How many kilometres per hour will the new hovertrain travel?
   **Hidden** The new hovertrain will travel twice the speed of the Bullet Train which travels at 250 kilometres per hour: 500 kilometres per hour.
   I got it!  Maybe?  Didn't get it.

4. Which Japanese islands are joined by the longest railway tunnel in the world?
   **Here** Hokkaido and Honshu are joined by the longest railway tunnel in the world.
   I got it!  Maybe?  Didn't get it.

5. What is the Japanese word for Bullet Train?
   **Here** The Japanese word for Bullet Train is Shinkansen.
   I got it!  Maybe?  Didn't get it.

6. Would you like to travel by Bullet Train? Why?
   **Head** Yes or no. A good reason is necessary.
   I got it!  Maybe?  Didn't get it.

7. What are two methods of transport that the passage mentions are very crowded in Japan?
   **Hidden** The passage mentions that trains are very crowded and so are the roads of Japan.
   I got it!  Maybe?  Didn't get it.
Looking at the Past: The Edo or Tokugawa Era

This is the best-known period of Japanese history. During the Edo era, which lasted from 1603 to 1867, the Tokugawa clan were the Shoguns of Japan. They set up their government in Edo. The city of Edo is now called Tokyo.

At the beginning of the Edo era, contact between Japanese people and European traders and missionaries became more and more frequent. It increased so much, in fact, that the government felt foreigners were a threat to the peace and culture of their country. Little by little, the Shoguns began to limit European contact until it was not allowed at all.

For two hundred years, Japan was isolated from the rest of the world. During this time, people's lives were ruled by very detailed laws that concerned every part of daily life. The Shoguns made laws that decided what people were allowed to wear, what they were allowed to eat, where they could live, and even the positions in which they could sleep. Orders from soldiers were to be obeyed immediately; questioning or talking back was punished by death. Many Japanese who left their country and returned during this time were executed to stop the introduction of any outside ideas to the country.

The isolation of the Edo era was brought to an end in 1853 by the ships of Commodore Perry of the US Navy. Perry demanded that Japan open up to trade, which it did within a few years. The Shoguns realized that Japan was powerless in the face of modern weapons and needed to become a more modern nation. The rule of the Shoguns ended in 1868 when Emperor Meiji joined with the Choshu and the Satsuma clans to end the Tokugawa government and regain his full powers as Emperor of Japan.
Questions on the Edo or Tokugawa Era

1. Would you have liked to have lived in Japan during the Edo Era? Why?

I got it!  Maybe?  Didn't get it.

2. When in history was the Edo or Tokugawa Era?

I got it!  Maybe?  Didn't get it.

3. What is the city of Edo now called?

I got it!  Maybe?  Didn't get it.

4. Why was the time that Japan was cut off from the rest of the world called either the Edo or Tokugawa Era?

I got it!  Maybe?  Didn't get it.

5. How did the Tokugawa government feel about foreigners? What action did they take?

I got it!  Maybe?  Didn't get it.

6. Whose ships ended the isolation of the Edo era? What did he demand

I got it!  Maybe?  Didn't get it.

7. Why do you think the Shoguns imposed such detailed laws on their people during the Edo or Tokugawa Era?

I got it!  Maybe?  Didn't get it.
Looking at the Past: The Edo or Tokugawa Era

This is the best-known period of Japanese history. During the Edo era, which lasted from 1603 to 1867, the Tokugawa clan were the Shoguns of Japan. They set up their government in Edo. The city of Edo is now called Tokyo.

At the beginning of the Edo era, contact between Japanese people and European traders and missionaries became more and more frequent. It increased so much, in fact, that the government felt foreigners were a threat to the peace and culture of their country. Little by little, the Shoguns began to limit European contact until it was not allowed at all.

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Questions on the Edo or Tokugawa Era

1. Would you have liked to have lived in Japan during the Edo Era? Why?
   Head The students' reasons are most important.
   I got it! Maybe? Didn't get it.

2. When in history was the Edo or Tokugawa Era?
   Here The Edo era lasted from 1603 to 1867.
   I got it! Maybe? Didn't get it.

3. What is the city of Edo now called?
   Here The city of Edo is now called Tokyo.
   I got it! Maybe? Didn't get it.

4. Why was the time that Japan was cut off from the rest of the world called either the Edo or Tokugawa Era?
   Hidden It was called the Tokugawa Era because the Tokugawa clan (or family) ruled Japan at this time. It was called the Edo Era because the Tokugawa government was set up in Edo.
   I got it! Maybe? Didn't get it.

5. How did the Tokugawa government feel about foreigners? What action did they take?
   Hidden The government felt foreigners were a threat to the peace and culture of their culture. They gradually began to limit foreign contact until it was not allowed at all.
   I got it! Maybe? Didn't get it.

6. Whose ships ended the isolation of the Edo era? What did he demand
   Hidden Commodore Perry's ships brought an end to the Edo Era. Perry demanded that Japan open up to trade.
   I got it! Maybe? Didn't get it.

7. Why do you think the Shoguns imposed such detailed laws on their people during the Edo or Tokugawa Era?
   Head The students' reasons must be thoughtful.
   I got it! Maybe? Didn't get it.
D-5. Maintenance test passages for grade five and six students

**Japan and the Future**

A hundred years ago, Japan was a country of samurai, farmworkers and shopkeepers who were completely isolated from the rest of the world. Today, Japan is probably the most technologically advanced country in the world. Its economy is strong and the country is playing a more important part in world affairs. Every year, more and more Japanese travel abroad on business and on holiday to places like Canada, the United States, Europe, and Australia.

The dramatic changes in recent years have caused problems as well as brought benefits to the Japanese. Young people growing up today are used to Western ways. They wear Western clothes and eat Western food. Older people are afraid that if young people get used to western ways their traditional Japanese culture and way of life will be lost.

In the past, young married people always lived with their parents. Now, many are living on their own. When their parents grow old, it is less likely that family members will be able to look after them. The Japanese are generally healthy and live a long time. Soon there will be more old people than there are young ones who can work and support them. This is another problem for Japan.

In the past few years the Japanese have become more and more concerned about their environment. Because there are so many factories, much of the countryside and a lot of the water has been spoiled. Farm crops have been damaged after being watered from polluted streams. In the Inland Sea area, pollution has killed many of the fish and people have suffered after eating fish caught in these waters. In the cities, the air is still quite dirty, even though there are now laws against pollution. Cars must have controls on their exhausts to cut down on air pollution. Factories that pollute are fined. Government and industry are trying to develop more ways to decrease water and air pollution in Japan.
Questions on Japan and the Future

1. What is a "samurai"?

I got it!  Maybe?  Didn't get it.

2. What are two important problems mentioned in this passage that Japan faces today?

I got it!  Maybe?  Didn't get it.

3. Why are older people in Japan afraid of young people getting used to Western ways?

I got it!  Maybe?  Didn't get it.

4. What are three things that have happened because of pollution in Japan?

I got it!  Maybe?  Didn't get it.

5. Where do Japanese people often travel on business and on holiday?

I got it!  Maybe?  Didn't get it.

6. How do the laws against pollution affect cars and factories in Japan?

I got it!  Maybe?  Didn't get it.

7. What do you think the future will be like for Japan?  Why?

I got it!  Maybe?  Didn't get it.
Japan and the Future

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Questions on Japan and the Future

1. What is a "samurai"?

Head A Samurai is a class of military nobleman in Japan in former times.

I got it! Maybe? Didn't get it.

2. What are two important problems mentioned in this passage that Japan faces today?

Hidden Any two of: Older people are afraid that their traditional culture and way of life will be lost; soon there will be more older people then there are young ones who can work and support them; A lot of the water has been spoiled; and the air is dirty.

I got it! Maybe? Didn't get it.

3. Why are older people in Japan afraid of young people getting used to Western ways?

Here Older people are afraid that their traditional Japanese culture and way of life will be lost.

I got it! Maybe? Didn't get it.

4. What are three things that have happened because of pollution in Japan?

Hidden Any three of: Water has been spoiled; farm crops damaged; pollution has killed many fish; people have suffered after eating fish caught in polluted waters; the air is dirty from pollution.

I got it! Maybe? Didn't get it.

5. Where do Japanese people often travel on business and on holiday?

Here Japanese people travel on business and holiday to Canada, the United States, and Australia.

I got it! Maybe? Didn't get it.

6. How do the laws against pollution affect cars and factories in Japan?

Hidden Laws against pollution ensure that cars have controls on their exhausts, and fine factories that pollute the environment.

I got it! Maybe? Didn't get it.

7. What do you think the future will be like for Japan? Why?

Head The reasons that students give must be thoughtful.

I got it! Maybe? Didn't get it.
The Canadian Broadcasting Corporation

The Canadian Broadcasting Corporation (CBC) was created in 1936. All Canadians own the CBC radio and television network because the government of Canada pays for it with our tax dollars.

It is very expensive to send radio and television signals to remote places. The Canadian government did not think that private stations would be willing to provide this service, so it set up the CBC. The CBC network now provides Canadian entertainment and sport to almost all Canadians, including some who live in places which do not receive any other radio or television stations. There are programs for people of all ages, and from all parts of the country.

Large cities like Vancouver have many different radio and television stations. Almost all of these are privately owned. The private stations make money from advertisers who want to broadcast commercials to the people who are listening. The CBC radio is different. Although CBC television does make some money from commercials, there are no advertisements on CBC radio.

The CBC broadcasts in both English and French. About three quarters of the television programs on the English network are Canadian. Even more are Canadian on the French network. In the north, CBC broadcasts programs in Inuit and other Indian languages. CBC radio is also heard overseas. The Radio Canada International section of the CBC lets people in other countries know what is happening in Canada.

The CBC costs Canadians about $900 million dollars a year. When you are working, you will help to pay for the CBC programs.
### Questions on the Canadian Broadcasting Corporation

1. Who owns the CBC?

   - I got it!  
   - Maybe?  
   - Didn't get it.

2. What four languages does the CBC use to broadcast?

   - I got it!  
   - Maybe?  
   - Didn't get it.

3. How is the CBC radio different from private radio?

   - I got it!  
   - Maybe?  
   - Didn't get it.

4. How much does the CBC cost every year?

   - I got it!  
   - Maybe?  
   - Didn't get it.

5. What does "overseas" mean?

   - I got it!  
   - Maybe?  
   - Didn't get it.

6. What are three services that the CBC provides for Canadians?

   - I got it!  
   - Maybe?  
   - Didn't get it.

7. Do you think the CBC is important to Canada? Why?

   - I got it!  
   - Maybe?  
   - Didn't get it.
The Canadian Broadcasting Corporation

The Canadian Broadcasting Corporation (CBC) was created in 1936. All Canadians own the CBC radio and television network because the government of Canada pays for it with our tax dollars.

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The CBC costs Canadians about $900 million dollars a year. When you are working, you will help to pay for the CBC programs.
Questions on the Canadian Broadcasting Corporation

1. Who owns the CBC?
   **Here** All Canadians own the CBC.
   I got it! Maybe? Didn't get it.

2. What four languages does the CBC use to broadcast?
   **Hidden** The CBC broadcasts in English, French, Inuit and other Indian languages.
   I got it! Maybe? Didn't get it.

3. How is the CBC radio different from private radio?
   **Hidden** The CBC radio does not play commercials, but private radio stations do.
   I got it! Maybe? Didn't get it.

4. How much does the CBC cost every year?
   **Here** The CBC costs $900 million every year.
   I got it! Maybe? Didn't get it.

5. What does “overseas” mean?
   **Head** Overseas means somewhere across the seas or foreign.
   I got it! Maybe? Didn't get it.

6. What are three services that the CBC provides for Canadians?
   **Hidden** Any three of: The CBC provides Canadian entertainment and sport to all Canadians; including people in isolated areas; programs for people of all ages; from all parts of the country; Radio Canada International provides an overseas service.
   I got it! Maybe? Didn't get it.

7. Do you think the CBC is important to Canada? Why?
   **Head** A reasonable and thoughtful answer.
   I got it! Maybe? Didn't get it.
Traditional houses are one- or two-storey structures without a basement. They are built of wood, often covered with plaster. They have roofs of clay tile or sometimes sheet metal. The wood, whether on the inside or the outside, is never painted. At least one of the outside walls consists of sliding glass or wooden sections which can be slid open to keep the house cool in summer.

In traditional houses, most rooms have one wall of built-in cupboards. In the bedrooms, living room and dining room, the floors are completely covered with thick, fixed mats called tatami. Tatami mats are made of rushes and padded underneath with straw. The halls, kitchen, and bathroom have wood, tile, or linoleum floors. In the middle of the dining room is a large low table. People sit around this table on cushions.

Because Japanese homes are small, the living room often doubles as a bedroom at night. The Japanese do not usually sleep in beds, in a tatami room they sleep on mattresses called futons. At night, people pull their futons out from cupboards and place them on the floor. In the morning they fold their futons and put them away again.

In cities in Japan, land is scarce and very expensive. Houses are small and built very close together. Many homes have little or no room for yards or lawns. In the suburbs, larger homes still have very small gardens.

Some houses in the suburbs look like Canadian houses. They tend to be about half as big as the average Canadian house, though. In the country, there is a little more room, and farm houses are generally bigger than houses in the city. They usually have a large yard around them, and a few sheds and storehouses nearby.

Many families cannot afford to buy a house in Japanese cities, even in the suburbs where prices are lower. These families live in small apartment buildings made of wood, or in huge concrete apartments. In both kinds of apartments, living space is smaller than in the average Japanese house.
Before entering any house or apartment, the Japanese take off their shoes in the hall and put on slippers. They wear these slippers in the halls, kitchen, bathroom, and western rooms. Before entering traditional rooms, they always take off their slippers and walk on their stocking feet so they will not rip or dirty the tatami mats.

A long time ago, the ideal Japanese home was bare of most furnishings. Today, however, every type of home is crammed with possessions. Nearly every family owns a colour television set, refrigerator, washing machine, vacuum cleaner, telephone, and some western furniture.
Questions on Japanese Homes

1. What are three building materials that are used to make Japanese homes?

2. What are tatami mats made of?

3. How do the Japanese keep their houses cool in summer?

4. What is “linoleum”?

5. What are two ways in which a Japanese home is different from a Canadian home?

6. Would you like to live in a Japanese house? Why?

7. What are two differences between Japanese houses in the city and Japanese houses in the country?
Japanese Homes

Traditional houses are one- or two-storey structures without a basement. They are built of wood, often covered with plaster. They have roofs of clay tile or sometimes sheet metal. The wood, whether on the inside or the outside, is never painted. At least one of the outside walls consists of sliding glass or wooden sections which can be slid open to keep the house cool in summer.

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Questions on Japanese Homes

1. What are three building materials that are used to make traditional Japanese homes?

**Hidden** Any three of: wood, plaster, clay tile, sheet metal, and glass.

I got it! Maybe? Didn’t get it.

2. What are tatami mats made of?

**Here** Tatami mats are made of rushes and padded underneath with straw.

I got it! Maybe? Didn’t get it.

3. How do the Japanese keep their houses cool in summer?

**Here** At least one of the outside walls of Japanese houses is made of sliding glass or wooden sections which are slid open to keep the house cool in summer.

I got it! Maybe? Didn’t get it.

4. What is "linoleum"?

**Head** Linoleum is a floor covering made of strong cloth combined with linseed oil and other substances.

I got it! Maybe? Didn’t get it.

5. What are two ways in which a Japanese home is different from your Canadian home?

**Hidden** Any two (depending on the students’ own home): Houses are small, about half the size of a Canadian house; and built close together; little room for yards or lawns; very small gardens; there are tatami mats in Japanese homes.

I got it! Maybe? Didn’t get it.

6. Would you like to live in a Japanese house? Why?

**Head** The students’ reasons for their answers are most important.

I got it! Maybe? Didn’t get it.

7. What are two differences between Japanese houses in the city and Japanese houses in the country?

**Hidden** Japanese houses in the country are bigger than houses in the city. The houses in the country have a large yard around them. The houses in the cities have little or no room for yards and lawns.
Recent Inventions in Communications: Fibres Optics and Videotex

Fibre optics and videotex are two new ideas in communications. Fibre optics transfer information very quickly. They are very thin threads of glass, about the thickness of a human hair. These long fibres carry telephone and television signals faster than the usual copper wires. Fibre optic threads can carry many more signals at once than copper wire can. For example, if twenty-four people are making phone calls at the same time, four copper wires would be needed to handle the conversations. By contrast, a single fibre optics thread can carry up to 12,000 telephone conversations...and there would still be room left over for many television or radio signals.

Videotex is another invention that has recently been tested in Canada. With videotex, televisions are hooked up through telephone lines to a computer information bank. This information bank acts very like a large library. People can choose the information they want to see on their television screens by pressing buttons on a keyboard. For instance, farmers may want to find out the price of cattle at the market, or they may want a local weather forecast. Videotex can provide up-to-date facts, figures, pictures, and other information.

Since almost everybody needs information of some kind, there are countless possible uses for videotex. The government of Canada, through the Department of Communications has been trying to encourage further uses of videotex in education, business, and industry. Recent government reports indicate that the use of videotex will increase steadily over the years.
Questions on Fibre Optics and Videotex

1. What do fibre optic threads look like and what do they do?

2. How many telephone conversations can be carried by a single fibre optics thread?

3. Which department of the government of Canada has been trying to encourage the further use of videotex?

4. If your television was hooked up to a videotex network, what particular information would you be interested in getting?

5. What are two reasons why fibre optics are better than copper wires for transmitting information?

6. What is one way in which videotex is better than the local library?

7. How do you think videotex could be used if it was available in your classroom?
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Questions on Fibre Optics and Videotex

1. What do fibre optic threads look like and what do they do?

**Hidden** Fibre optics are very thin threads of glass, about the thickness of a human hair. They transfer information very quickly.

I got it! Maybe? Didn't get it.

2. How many telephone conversations can be carried by a single fibre optics thread?

**Here** A single fibreoptics thread can carry up to 12,000 telephone conversations.

I got it! Maybe? Didn't get it.

3. Which department of the government of Canada has been trying to encourage the further use of videotex?

**Here** The Department of Communications has been trying to encourage the further use of videotex.

I got it! Maybe? Didn't get it.

4. If your television was hooked up to a videotex network, what particular information would you be interested in getting?

**Head** Any reasonable answer.

I got it! Maybe? Didn't get it.

5. What are two reasons why fibre optics are better than copper wires for transmitting information?

**Hidden** Fibre optics carry messages faster than copper wires. They also carry more signals at once than copper wires.

I got it! Maybe? Didn't get it.

6. What is one way in which videotex is better than the local library?

**Hidden** Any one of: People can choose the information they want to see and it is shown on their TV screens straight away with videotex. It takes longer to find up-to-date facts and figures at the library.

I got it! Maybe? Didn't get it.

7. How do you think videotex could be used if it was available in your classroom?

**Head** Students' answers should show evidence of thought.

I got it! Maybe? Didn't get it.
No one knows when people first discovered the islands of Japan or where these people came from. We now think that some of these people may have come from different parts of Asia by way of Korea. Others may have reached Japan from lands around the south Pacific like New Zealand.

We do know that by 2000 years ago a mixture of people had become the first Japanese. They spoke an early form of the Japanese language. The early Japanese were a farming people whose main crop was rice. They also grew other grains and vegetables. The people who lived on the coast fished as well as farmed.

The early Japanese were divided into clans or large family groups. The clans often fought each other for land. Land is very important to a farming people: It means not only food but wealth and power. Slowly the chiefs of the Yamato clan gained more and more land and power. From the strong Yamato clan came the first emperors of Japan. Today's emperor of Japan is still a member of the Yamato clan.

After centuries of struggle, a rich and powerful clan became the Shoguns of Japan. There was still an emperor but all the important decisions concerning the country were made by the Shogun and his family. In 1630, after much fighting, the Tokugawa family took the position of Shogun. This family closed Japan off from the rest of the world in about 1653. Only a few foreigners were allowed to visit Japan. No Japanese were allowed to visit other countries. By cutting off all contact in this way, the Shoguns hoped to prevent Japan from being taken over by foreigners.

This period of isolation ended in 1853 when Commodore Perry of the US Navy demanded that Japan open up to trade with other countries. Within a few years Japan opened its ports and began to change from a farming nation to one of the world's most powerful and modern countries.
Questions on Early Japan to 1853

1. Of which clan is today's emperor of Japan still a member?

I got it! Maybe? Didn't get it.

2. What does "isolation" mean?

I got it! Maybe? Didn't get it.

3. The people who first discovered the islands of Japan came from which two countries or lands?

I got it! Maybe? Didn't get it.

4. Do you think closing Japan off to foreigners was a good idea? Why?

I got it! Maybe? Didn't get it.

5. In what year did Commodore Perry of the US Navy demand that Japan open up to trade with other countries?

I got it! Maybe? Didn't get it.

6. What three crops did the early Japanese farming people grow?

I got it! Maybe? Didn't get it.

7. For about how many years was Japan closed off from the rest of the world?

I got it! Maybe? Didn't get it.
Early Japan to 1853

No one knows when people first discovered the islands of Japan or where these people came from. We now think that some of these people may have come from different parts of Asia by way of Korea. Others may have reached Japan from lands around the south Pacific like New Zealand.

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Questions on Early Japan to 1853

1. Of which clan or family is today's emperor of Japan still a member?

**Here**

Today's emperor is still a member of the Yamato clan.

I got it! Maybe? Didn't get it.

2. What does "isolation" mean?

**Head**

Isolation means to be alone or separated from others.

I got it! Maybe? Didn't get it.

3. The people who first discovered the islands of Japan came from which two countries or lands?

**Hidden**

Any two of: We think the people may have come from different parts of Asia, Korea, or lands around the south Pacific, like New Zealand.

I got it! Maybe? Didn't get it.

4. Do you think closing Japan off to foreigners was a good idea? Why?

**Head**

Students' answers should be reasonable and thoughtful.

I got it! Maybe? Didn't get it.

5. In what year did Commodore Perry of the US Navy demand that Japan open up to trade with other countries?

**Here**

Commodore Perry demanded that Japan open up to trade in 1853.

I got it! Maybe? Didn't get it.

6. What three crops did the early Japanese farming people grow?

**Hidden**

The early Japanese grew rice, other grains, and vegetables.

I got it! Maybe? Didn't get it.

7. For about how many years was Japan closed off from the rest of the world?

**Hidden**

Japan was closed off from the rest of the world for about 200 years. The Tokugawa family closed Japan off in about 1653 and Commodore Perry ended the isolation in 1853.

I got it! Maybe? Didn't get it.
When Wolves Howl

Wolves howl to communicate. Their howls carry many different messages. Howls can be heard by either friendly or unfriendly wolves in the same area.

When communicating with the members of their own pack, wolves give information about themselves. They show their location. They even use howls to bring together members of a scattered pack. Wolves also howl and touch noses before hunting.

The howls that are used to communicate with unfriendly wolves carry the message, "Get lost! No trespassing!" Howls can protect hunting and mating areas by broadcasting the whereabouts of the pack of wolves that uses a certain area.

Scientists who study animal behaviour and communication are called ethologists. Ethologists have observed many wild wolf packs in eastern Canada. They have also studied wolves in the northern part of the United States of America. Ethologists have found that packs of wolves respond to unfamiliar howling more often at some times than at other times. Wolves are most likely to howl back when they have just made a kill, or during the spring season when their pups are born.

It has also been discovered by ethologists that wolves often send confusing messages to their enemies by changing the way that they howl. How deep and low the wolf's howl is usually indicates the size of the animal. Younger wolves have high-pitched howls while larger wolves have deep voices. When the adult wolves are away hunting, though, pups use deeper howls like the adults do. This can be very confusing to other wolf packs in the area and helps keep the pups safe from harm.

Ethologists have also noticed that wolves can use their voices to make it seem as if a pack is larger than it really is. Packs of six or seven wolves can make high and deep howls so that they sound like ten or fifteen different wolves. Even a pair of wolves can make as much noise as four or five adults with pups. The messages one wolf pack sends out can keep other packs puzzled and away from their territory.
Questions on When Wolves Howl

1. What are ethologists?

I got it! Maybe? Didn't get it.

2. What does "No trespassing!" mean?

I got it! Maybe? Didn't get it.

3. What are two messages that wolves send when they are communicating with members of their own pack?

I got it! Maybe? Didn't get it.

4. At what times are wolves most likely to howl back to other wolves?

I got it! Maybe? Didn't get it.

5. What are two places in North America where ethologists have observed and studied wolves?

I got it! Maybe? Didn't get it.

6. What are two ways that wolves can use their voices to confuse their enemies?

I got it! Maybe? Didn't get it.

7. Would you like to be an ethologist? Why?
When Wolves Howl

Wolves howl to communicate. Their howls carry many different messages. Howls can be heard by either friendly or unfriendly wolves in the same area.

When communicating with the members of their own pack, wolves give information about themselves. They show their location. They even use howls to bring together members of a scattered pack. Wolves also howl and touch noses before hunting.

The howls that are used to communicate with unfriendly wolves carry the message, "Get lost! No trespassing!" Howls can protect hunting and mating areas by broadcasting the whereabouts of the pack of wolves that uses a certain area.

Scientists who study animal behaviour and communication are called ethologists. Ethologists have observed many wild wolf packs in eastern Canada. They have also studied wolves in the northern part of the United States of America. Ethologists have found that packs of wolves respond to unfamiliar howling more often at some times than at other times.

Wolves are most likely to howl back when they have just made a kill, or during the spring season when their pups are born.

It has also been discovered by ethologists that wolves often send confusing messages to their enemies by changing the way that they howl. How deep and low the wolf's howl is usually indicates the size of the animal. Younger wolves have high-pitched howls while larger wolves have deep voices. When the adult wolves are away hunting, though, pups use deeper howls like the adults do. This can be very confusing to other wolf packs in the area and helps keep the pups safe from harm.

Ethologists have also noticed that wolves can use their voices to make it seem as if a pack is larger than it really is. Packs of six or seven wolves can make high and deep howls so that they sound like ten or fifteen different wolves. Even a pair of wolves can make as much noise as four or five adults with pups. The messages one wolf pack sends out can keep other packs puzzled and away from their territory.
Questions on When Wolves Howl

1. What are ethologists?

**Here**  Ethologists are scientists who study animal behaviour and communication.

I got it!  Maybe?  Didn't get it.

2. What does "No trespassing!" mean?

**Head**  No trespassing is a way of saying do not enter this private land.

I got it!  Maybe?  Didn't get it.

3. What are two messages that wolves send when they are communicating with members of their own pack?

**Hidden**  Any two of: They give information about themselves. They show their location. They can bring together members of the same pack. They howl and touch noses before they hunt to communicate.

I got it!  Maybe?  Didn't get it.

4. At what times are wolves most likely to howl back to other wolves?

**Here**  Wolves are most likely to respond when they have just made a kill, or during the spring when their pups are born.

I got it!  Maybe?  Didn't get it.

5. What are two places in North America where ethologists have observed and studied wolves?

**Hidden**  Ethologists have studied and observed wolves in eastern Canada and in the northern part of the USA.

I got it!  Maybe?  Didn't get it.

6. What are two ways that wolves can use their voices to confuse their enemies?

**Hidden**  Any two of: Wolves can send confusing messages by changing the way they howl. When the adults are away, the pups use deeper voices. Wolves can use their voices to make it seem as if a pack is larger than it really is. The wolves make a lot of noise. They make both high and deep howls so that they sound like different wolves.

I got it!  Maybe?  Didn't get it.

7. Would you like to study the behaviour and communication of animals? Why? What animal would you choose?

**Head**  A reasonable answer. Students' must have a good reason.

I got it!  Maybe?  Didn't get it.
APPENDIX E

Reading passports for grades five and six

E-1. Example of a grade five Reading Passport

E-2. Example of a grade six Reading Passport
Meadow Brook

Reading Passport

THE 3H STRATEGY
GENERAL STRATEGY USE

1. The 3H strategy can help you understand questions and answers better. It can help you answer more questions correctly.

2. The 3H strategy helps you think about where the answers to questions are found. It can help you answer questions after you have read a passage. The 3H strategy also helps you ask good questions. It shows you how to check your answers too.

3. Use the 3H strategy anytime you have to answer questions after a passage. Use the 3H strategy to ask questions about what you read. You can use this strategy with all types of school work: social studies, science, reading, and math word problems. Others?
IN YOUR READING REMEMBER:

You are a reading traveller. You already have a suitcase full of knowledge about how to read, what you have already read, and what you know. Your suitcase is packed with:

1. Everything you already know about the world.
2. Everything you know about reading.
3. "Souvenirs" from what you have read. Everything you read leaves you with a souvenir. It can be how to do something, more knowledge, or both.

INFORMATION ABOUT QUESTIONS AND ANSWERS

1. Some questions have no answers.
2. Some questions have more than one correct answer.
3. The answers to some questions change over time.
4. What you already know is important in understanding and answering questions.
5. Joining information together is important in answering questions.
THE 3H STRATEGY
(Head First!)

1. Use your head.
   Before reading
   During reading
   After reading

2. Ask for help if you need to.
   Content?
   Vocabulary?
   How to?

3. Use the 3Hs to remind you where the answers to questions are found.

   HERE    The answer is in one sentence, picture, or figure from the passage.

   HIDDEN  The answer is in two or more sentences, pictures, or figures from the passage. Or the answer comes from joining together information from the passage and information that you already know.

   In my HEAD The answer is in what you already know or what you think about the passage only. Just you and what you think about the passage.

4. Check your answers.
   Reread your questions and answers to see if they fit together.
   Did you get it? Maybe? or Didn't you get it?
   If you didn't get it or think you maybe are correct, go back to the 3H strategy and check that you used all the steps.

   You should have a reason for every answer. You do? Hurray!
   Congratulate yourself.
SOUVENIR FROM READING AND LISTENING
What did you learn from ___________________________? (14)

SOUVENIR FROM READING AND LISTENING

What did you learn from ___________________________? (15)
GENERAL STRATEGY USE

1. The 3H strategy can help you understand questions and answers better. It can help you answer more questions correctly.

2. The 3H strategy helps you think about where the answers to questions are found. It can help you answer questions after you have read a passage. The 3H strategy also helps you ask good questions. It shows you how to check your answers too.

3. Use the 3H strategy anytime you have to answer questions after a passage. Use the 3H strategy to ask questions about what you read. You can use this strategy with all types of school work: social studies, science, reading, and math word problems. Others?

---

Reading Passport

Surname
Given names
Nationality
Date of Birth
Date of Issue
Signature

Male or Female
IN YOUR READING REMEMBER:

You are a reading traveller. You already have a suitcase full of knowledge about how to read, what you have already read, and what you know. Your suitcase is packed with:

1. Everything you already know about the world.

2. Everything you know about reading.

3. "Souvenirs" from what you have read. Everything you read leaves you with a souvenir. It can be how to do something, more knowledge, or both.

INFORMATION ABOUT QUESTIONS AND ANSWERS

1. Some questions have no answers.
2. Some questions have more than one correct answer.
3. The answers to some questions change over time.
4. What you already know is important in understanding and answering questions.
5. Joining information together is important in answering questions.
THE 3H STRATEGY

(Head First!)

1. Use your head.
   Before reading       What do I know?
   During reading       What don't I understand?
   After reading        What do I need to find out?

2. Ask for help if you need to.
   Content?
   Vocabulary?
   How to?

3. Use the 3Hs to remind you where the answers to questions are found.

   HERE       The answer is in one sentence, picture, or figure from the passage.

   HIDDEN     The answer is in two or more sentences, pictures, or figures from the passage. Or the answer comes from joining together information from the passage and information that you already know.

   In my HEAD The answer is in what you already know or what you think about the passage only. Just you and what you think about the passage.

4. Check your answers.
   Reread your questions and answers to see if they fit together.
   Did you get it? Maybe? or Didn't you get it?
   If you didn't get it or think you may be correct, go back to the 3H strategy and check that you used all the steps.

   You should have a reason for every answer. You do? Hurray! Congratulate yourself.
APPENDIX F

Both sides of the 3H star prompt card
HEAD FIRST!
Ask questions about what you do not understand.

CHECK ANSWERS in your head. You should have reasons for your answers.

HIDDEN
In my head

HERE
APPENDIX G

Certificates used in the training programme

G-1. Certificate of achievement awarded at the completion of training

G-2. Seal affixed to the Reading Passport at the completion of training
Certificate of Achievement
Awarded to
Danny Valliers
For learning the 3H strategy
Date 25 Nov, 1991
[Signature]
Reading Passport

Surname H
Given names Shelley Louise
Nationality Canadian
Date of Birth Sept 9, 1980 Male or Female
Signatures Shelley H. White
APPENDIX H

Timetable for comprehension strategy teaching in the classroom
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NOTES:
4 Sessions per week
APPENDIX I

Sheet for Parents' Night: Discovering the 3H strategy through the students' work folders
DISCOVERING THE 3H STRATEGY THROUGH THIS FOLDER OF WORK

Questions to Discuss When Explaining Your Work Folder and the 3H Strategy

1. What does the star prompt card show?
   What are the five parts of the 3H strategy?

2. Explore your reading passport.
   Look at all the pages.
   How is reading like travelling?
   What are reading souvenirs?
   Explain pages 6 and 7: The 3H Strategy.

3. Explain you graphs (pages 12 and 13).
   (Remember the bottom graph is comprehension and the top one is how well you used the 3Hs. The orange block graph is for underlining. Every time you scored over 80%, you earned a star on your graph.)

4. Look at your passages.
   Which ones did you do before learning the 3H strategy?
   Which ones did you do after learning the 3H strategy?
   What differences are there between two sets of passages?

5. Why do you underline information from a passage?
   How can this help you answer questions about the passage?

6. How has learning the 3H strategy been useful to you?
   Can you use the 3H strategy with your regular schoolwork? What work? How?
   What has been the most important part of the 3H strategy for you?
   How do you feel about having learned the 3H strategy?
APPENDIX J
Lesson plans for the 3H strategy training program
Strategy Training Program

Lesson 1
Introduce the strategy folder and reading passport. Let students explore the materials. Discuss general strategy information and knowledge about questions and answers (pages 3 and 5).
- When do students answer questions in school?
- How do the students answer questions now?
- When could they use a strategy like the 3H strategy?

Reading Travellers! introduce the idea
A brief explanation of all parts of the strategy booklet.

Lesson 2
Reading Travellers! (page 4)
- Chart developed to show the highlights of trips that students remember and what souvenirs they have gathered from these trips. Worksheet 1 is appended to this section.

Emphasize what souvenirs are and how you can take something special to you like them from reading.
Students give examples of what they already know about reading, what they know about the world, and souvenirs they have taken from reading in school.

Lesson 3
What do students remember about being reading travellers? Complete answers to questions on worksheet 2 (appended)
- What do reading travellers need? What do they take from everything they read?
- What are souvenirs?
Introduce the 3H strategy.
- Use what you know about the world. (Head First!)
- Use what you know about reading.
- Ask questions about what you do not understand.
- The 3Hs remind us where the answers to questions are found.
- Always remember to check your answers. Use the confidence scale.

Use the 3H strategy on a simple comprehension passage (Large Animals).

Lesson 4
What do you remember about the 3H strategy and how reading is travelling?
Discuss the graphs in the strategy booklet which have been marked with students' baseline performances.
Introduce the 3H strategy star prompt card
Continue to use the 3H strategy on simple passages (Passage 1 = Large Animals and Starfish)
Introduce expectations (a) Write your answers in sentences
(b) Categorize the questions as Here, Hidden or In my Head
(c) Underline the appropriate part in the passage for Here and Hidden questions and answers.

Correct and discuss answers to simple training passages.

Lesson 5
Passage 2. What do students know about the topic already? What don't they understand as the passage is read to them? What do they need to find out? Discussion.
Questions. What are questions students think a teacher might ask about this passage?
Read the questions carefully. Are they understood?
Use the 3H strategy to answer the questions about the passage. Work cooperatively. Discuss the reason why students answer as they do. What souvenirs did you take from the passage? Discuss the purpose of the last pages of the reading passport.

**Lesson 6**
Show the training passages marked on the comprehension and strategy use graphs in the strategy booklet. Examine the difference before and after the strategy. Do students understand the graphs? Explain the importance of the stars on the students' achievement graphs. If they get above the goal line of 80% on the comprehension and/or strategy use measures, the students are given a star on the appropriate graph page(s) of their reading passport.

Students write down everything they can remember about the 3H strategy.

Begin passage 3. Talk about the topic. Read the passage. Discuss questions. Students think of a question that a teacher might ask about the passage. Practice categorizing the students' own questions as Here, Hidden, or In my Head. Cue the students to the different types of questions and answers, and clues about them.

Distribute the sheet of seven comprehension questions. Were any of the students questions the same as those on the sheet?

Students begin to answer the questions. Students remember to categorize the questions and their answers, and to check their answers as described in the 3H strategy.

**Lesson 7**
Students complete passage 3. They discuss and justify their answers to the comprehension questions. Whole group discussion.

During the discussion the researcher refers students back to the passage they are working on. She underlines information from the passage that can help students answer here and hidden questions. The usefulness of underlining information from the passage is pointed out to the students.

Begin passage 4. Use the 3H strategy
(a) Head First
(b) Here
(c) Hidden
(d) in my Head
(d) Check your answers

Students underline the information in the passage that supports their classification of Here and Hidden questions.

**Lesson 8**
Students write down everything they remember about the 3H strategy.

Complete passage 4. Discuss the usefulness of underlining information from the passage. Students comment on how the 3H strategy is impacting their question-answering.

Begin Passage 5
Discuss the questions and the cues they contain. Students are encouraged to underline or "box" keywords from the questions. Understanding what the question is asking for is discussed as a very important part of question-answering. Examples from passages 4 and 5 are used.

Students complete passage 5. Students remember to categorize the questions and their answers, and to check their answers as described in the 3H strategy. Students also underline the information in the passage which is useful in answering Here and Hidden questions.

**Lesson 9**
Students graphs now show how accurately they underlined information from the passage, in addition to their comprehension and strategy use performance. This is
discussed with the students. Again the importance of the stars on the students' achievement graphs is explained. If they get above the goal line of 80% on the underlining, and/or comprehension, and/or strategy use measures, the students are given a star on the appropriate graph(s) in their reading passport.

The researcher models the correct underlining and numbering of information from the passage on an enlarged photocopy of passage 5.

The differences between Here and Hidden categories are emphasized using the 3H prompt card. Students draw a box around the most important words in the descriptions of the 3H categories in the strategy booklet and on their prompt cards, i.e. Here - one sentence; Hidden - joining together; Head - you already know.

Begin Passage 6 Use the 3H strategy
(a) Head First
b) Here (c) Hidden (d) in my Head
(d) Check your answers

Underline the information in the passage that supports the classification of Here and Hidden questions

Lesson 10
Students recall orally everything they have learned about the 3H strategy. Can the students develop hand signals to indicate the intent of Here, Hidden, and In my Head? Play a game of Hand Signal Hs. A student is in charge. Everyone has a turn.

Return to passage 6 and complete it.

Restate the importance of reading the questions carefully. There is important information in the question, students suggest what the most important words in the questions are, and draw boxes around them.

Use the 3H strategy to work through passage 7

Lesson 11
Discuss progress as depicted on the students' graphs.
What souvenirs did you take from the previous passages? Looking at the students' work on the last pages of the reading passport.

The students recall the 5 parts of the 3H strategy; i.e. (1) Head First!; (2) Here; (3) Hidden; (4) in my Head; (5) Check your answers.

Use of the star prompt card is faded.

Students work through passage 8.

Students practice asking Here, Hidden, or in my Head questions about the passage

Lesson 12
Do students know the 5 parts of the 3H strategy?
Can the students remember the hand signals to indicate the intent of Here, Hidden, and In my Head? Play a game of Hand Signal Hs. A student is in charge. Everyone has a turn.

Passage 9
Read the questions carefully and discuss them. Box the important clue words in the questions.

Underline the information important to answering Here, or Hidden questions.

Lesson 13
Students recall orally everything they have learned about the 3H strategy.
Students take turns modelling the categorization of questions from passage 9.

Students recount experiences of strategy use in school. Has the 3H strategy been useful to you? How?
Begin training passage 10

**Lesson 14**
Complete passage 10
Students model answers and thinking from their question-answering on passage 10. What souvenirs did students take from the passage? From all of the passages they have done during the research? Complete some of the last pages of the reading passport.
Go for the Stars. Students get stars on their star prompt card if they know all the parts of the 3H strategy and can explain what each part means.

**Lesson 15**
Tie up the loose ends. For some groups this involves completing passages.
Students are given some time to write down the souvenirs they have taken from each of the passages they worked on.
Certificates of 3H achievement are pasted inside the students' folders.
Handshake ceremony as the inside cover of each student's reading passport is signed and sealed.
Appendix K

Illustrative Sections of Dialogue from Strategy Lessons
Appendix K

Illustrative Sections of Dialogue from Strategy Lessons
Dialogues are from the Pilot Study

Phase 1: Introduction to the Strategy

Main points of lessons 1-5
Discuss general strategy information and knowledge about questions and answers.
Reading Travellers! introduce the idea
Emphasize what souvenirs are and how you can take something special to you like them from reading.
Introduce the 3H strategy. Use it on a simple comprehension passage (Large Animals).
- Use what you know about the world. (Head First!)
- Use what you know about reading.
- Ask questions about what you do not understand.
- The 3Hs remind us where the answers to questions are found.
- Underline information from the passage for Here and Hidden passages.
- Always remember to check your answers.

What do students know about the topic already?
What don't they understand as the passage is read to them?
What do they need to find out? Discussion. Questions.
What are questions students think a teacher might ask about this passage?
Read the questions carefully. Are they understood?

Dialogue 1

(Students are David, Leilani, Jennifer, Sabrina, Cliff)

Ms G: There is some information about questions and answers that students in school should also know. Can you read the first one, Jennifer?
Jennifer: Some questions have no answers.
Ms G.: That's true. Do you realise that some questions don't have any answers?
Students: Yes. Mmmm. I know one that doesn't have any answer.
Ms G.: What is yours?
Jennifer: It doesn't have anything to do with social studies though. How many sucks does a lollipop take?
Ms G.: That's right. It can vary. No real answer. How many grains of sand on the beach?
David: Mnnnn. I don't know.
Cliff: Hard to see.
Leilani: Millions!
Ms G.: You know a lot of the time you can have an answer because you think through it. You say, "Well, even if I don't know for sure, I think the answer is this because . . ."
Leilani: How did the world start?
Ms G.: Exactly. Those are good questions but they don't have any secure answers. Have you got another one?
David: Who made the dinosaurs?
Ms G.: Exactly. Number two now. Can you read number two for me please, David?

(interval)
Ms G.: What you already know, your suitcase full of knowledge, is really important in answering questions. Don’t ever forget to use it. OK? Read number five, Sabrina.

Sabrina: Joining information together is important in answering questions.

Ms G.: That’s right. Sometimes you need to use information from the passage. You take two pieces of information from something you have read and you join it together. Sometimes you need to take something from your head and something from the passage and join them together. (With actions. Students giggle) Take something from your head and something from the passage and join them together to make the answer. You have your suitcase full of knowledge don’t forget to use it!

Dialogue 2.

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G.: Yesterday I gave you your reading passport to look at and we started to talk about the strategy that I am going to teach you. It has to do with being a reading traveller. What can you remember that a reading traveller needs and does? What does a reading traveller need? Paul what does a reading traveller need and do?

Paul: A book.

Ms G.: A book indeed, (writes response on a large sheet of paper) because reading travellers are all about reading and getting the most out of what you read. So when you are reading you want to make sure you are a reading traveller. Anytime you are reading you can use this idea. Justin, what have you got to share with us?

Justin: Credit cards

Ms G.: Well no. We are talking about reading travellers now. They don’t need credit cards or money. Remember we talked about money yesterday. It wasn’t on our list but something like it was...

Karen: Passport

Ms G.: Alright we will move back to this list. Grant, do you have something a reading traveller needs?

Grant: Eyes to read.

Ms G.: Eyes to read and read carefully too. We’ll put “read carefully” on our list. Right. Karen mentioned the reading passport. A reading passport is something that you are all going to have. Reading travellers need to read carefully. They need a reading passport because in it is important information. When you are reading something you need to know how to do it. You need a reading...?

Students: Strategy

Ms G.: Strategy, Alexia. That’s right, and Karen had that too. What is another word for strategy?

Karen: Purpose

Grant: Place. Plan.

Ms G.: Yes. Strategy or plan. What else does a reading traveller need? Justin was mentioning money before. It’s not money that a reading traveller needs, but he or she needs to expend some

Alexia: have energy.

Ms G.: Energy. And when you are reading the energy turns into effort. And that means you try hard when you are a reading traveller. You try hard and you use the strategy. You try hard. Now what do reading travellers collect as they are going along? Do you remember?

Grant: Passport.

Ms G.: No. They already have a passport like we have a passport with information and strategies in it.

Alexia: Souvenirs
Ms G.: Souvenirs. Terrific. Tell me about souvenirs and what they are. Reading souvenirs. What are they and where do you get them from?

Grant: Special things.
Ms G.: Yes. They can be special things that you want to remember and keep. Super Grant. Yes?

Justin: You need a souvenir because you need it . . . from your dad or mum got it for you.
Ms G.: You keep special things and it is like keeping special things from special people. except these souvenirs are from everything that you read. Special interesting information or important information. That makes a good reading souvenir. Every time you read something you need to collect a souvenir, bring something away with you from that piece of reading.

Well, now it just so happens that I have a summary chart from our previous discussion. The chart says, "Be a reading traveller." Well we had many of these down, didn't we? (Students take turns reading the point on the chart. They evaluate whether they remembered these points or not.)

Dialogue 3.

(Students are David, Leilani, Jennifer, Cliff)

(Answering questions about the simple comprehension passage titled Large Animals)

Ms G.: . . . Remember I said these were tricksy. Can you read your answer to number one? Who's going to volunteer to read their answer for number one. OK, Jenny, you can start. Number one. Listening?

Jenny: Most of the time big animals live the longest.
Ms G.: OK. There's one answer. What's your answer David?
David: The . . . the turtle does live the longest.
Ms G.: That's another answer. Anyone else with a different one?
Students: I don't know. Do you have to put an animal down?
Ms G.: What was your answer Leilani?
Leilani: I haven't got any animals down, yet.
Ms G.: Well, what have you got. Tell me what you've got.
Leilani: The kind of animal that lives for years is . . . (pause)
Ms G.: OK Everybody, everybody. The question says, "What type of animals?". "What type of animals?" It doesn't say, "What animal?". No, no no no, No. It says, "What type of animals?" Now don't change it. Don't rub it out. Think about it. It says, "What type of animals?" Is the answer green animals, red animals, purple animals, big animals, large animals, small animals, polka-dotted animals? What type of animals?
Students: Large animals. Turtles.
Ms G.: It tells you in the first sentence. I could hear some of you were right. Large animals often live the longest. Look at the first sentence, "Large animals often live longer than small ones." That is the sentence you should have underlined. OK?

Do it, Leilani.
Leilani: The giant turtle can live for . . .
Ms G.: No. We're not interested in a specific animal, you see, but a type of animal. Now this teaches two things. Listen, this teaches two things. The first one is: We really need to

Cliff: The 3H strategy
Ms G.: Yes. You need the 3H strategy but you also really need to remember to read carefully. And a reading traveller reads carefully. Not just the passage but the question too. The question is not asking you for a specific animal like a turtle.
am asking you for what type of animals and the answer is, "Large animals often live the longest."

Cliff: The answer is right here.
Ms G.: Exactly. And so is it Here, Hidden, or in my Head, Leilani?
Leilani: Here. Because the answer is right here in one sentence.
Ms G.: Super, it's Here. So if you got it completely right you would have two ticks. One for "Here" and one for "Large animals often live the longest". And there is a sentence to underline too.

(interval)

Ms G.: Number two now. Try it. "Which lives longest the turtle or the cat?" Now, I want you to remember to use the passage. Really use the passage first. If there is nothing about the answer in the passage, then you use your head, what you already know. I know this is a simple question but the ones we do later on won't be so easy. So use the passage first.

David: Can we start now?
Ms G.: Yep.

So is it Here, Hidden, or in my Head? Look at number two. "What lives longer the turtle or the cat?" David?

David: The turtle lives longer than the cat.
Ms G.: And it's a perfectly, beautiful sentence that you wrote too. Thank you very much for that. Jennifer?

Jennifer: The turtle lives the longest, one hundred and fifty-two years, the cat lives twenty years.
Ms G.: That's a beautiful sentence too. Thank you, Jenny. That's great. Leilani?

Leilani: The turtle lives longer than the cat.
Ms G.: That is a very good sentence too. Remember a capital to begin with. Now here comes the tricky bit. Is number two Here, Hidden, or in my Head? Leilani?

Leilani: Here.
Ms G.: Show me the answer in one sentence. Remember if it is Here, the answer is in ONE sentence. Can you show me the answer in one sentence?

Leilani: It's right here. The giant turtle can live for 152 years or more.
Ms G.: That's about the turtle, yes, but what about the cat?
Cliff: In my head.
Ms G.: No, there is information here in the passage to use. The answer is only totally in your Head if there is no information to answer the question in the passage.

David: A cat only lives twenty years.
Ms G.: That's about the cat. That's about the turtle.
Jennifer: Hidden.
Ms G.: Why, Jen?
Jennifer: Yes. The answer is in two places in the passage. You join them up.
Ms G.: Thank you, Jenny! Number two is Hidden. And it's Hidden because the question asks, "What lives longer, the turtle or the cat?" And in the passage you put a line under where it says about the giant turtle living 152 years. And you also need the information about the cat. (underlines) "The cat lives twenty years." You are using two sentences from the passage. Point number 1 under Hidden on your prompt card. Point number 1 under Hidden. Point number 1 under Hidden. (points to each students prompt card.) So the answer to number two is very definitely...

Students: Hidden.
Ms G.: Do you get it?
Leilani: I know why it is Hidden, because they are not two sentences stuck together.
Ms G.: Yes it's important that the answer is in two sentences or more, or maybe partly in
the passage and part in your head. These are two sentences that are separate,
though. Otherwise they wouldn't be two sentences at all, they would be one
sentence, wouldn't they?
Cliff: And it would be Here if they were in one sentence.
Ms G.: Exactly. You are all getting it. Does it make sense to you that this is Hidden? OK
Number three is tricky again. Read it carefully. Try hard, lots of effort then bring
your answers and your folders to me.
Where did you get your answer?
David: In my Head.
Ms G.: Perfect! You are a star.
(Individual help for students as they bring out their answers.)

Dialogue 4

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G.: This is a passage about cedar trees and the first part of the 3H strategy asks you to
"Use your Head First", so I want something you know about cedar trees. What do
you know about cedar trees? What do you know about them? Karen?
Karen: The Squamish Indians use them.
Ms G.: How do they use them?
Karen: They use them in making clothes.
Justin: Longhouses and canoes.
Karen: Diapers
Paul: Canoe bailers?
Ms G.: Terrific. Anything else about the cedar tree that you know?
Grant: Cradles. They made cradles.
Ms G.: OK. Now, listen. The next part of the strategy is to listen carefully. While I read
the passage and you think of any questions that you have about this as we go.
Right? Any questions that you have. So I am going to read it. You are going to
listen. And you think of any questions that you have about it. Now look at the
passage and make any marks you want near what you would like to ask a question
about. Everyone please follow along, so I know you are watching, listening, and
concentrating.

(Read passage)
Right, questions. Do you have a question? I heard you say one. Paul?
Paul: Where's the Mediterranean?
Ms G.: Good question. Did others wonder too? Does anyone know? O.K. It's a part of
the world. I will show you where or. the map of the world in here in your reading
passports. Mediterranean is around this part of the world. It is sort of like the land
around the sea. This is the Mediterranean Sea.
Paul: The Himalayas?
Ms G.: Does anyone else know? The Himalayas are mountains at the very top of India.
They're there on your maps. O.K.? Another use for your passport! Do you have
another question? Karen?
Karen: Are cedar trees used to make tea?
Ms G.: Are cedar trees used to make tea? I don't know. They have very strong smelling
leaves so they could have been used to make a medicine tea, perhaps. Maybe you
can look in the library and find out for sure? Any other questions?
Justin: The Rocky Mountains.
Ms G.: What about the Rocky Mountains?
Justin: That's where the best skiing resorts are and you can ski up there.
Ms G.: And did you see cedar trees up there?
Justin: Yeah.
Ms G.: O.K. Turn over your sheet and I want you to write a question that you think a teacher would ask about this passage. Do you think you could do that? What would a teacher ask about this passage? Look at the passage and think what a teacher would ask.

Students Questions:
HE WELL as it to see will it lives (He will ask to see where it lives? Justin)
HOW MANY METERS DO THE WHITS CEDAR TREES GROW? (Paul)
How many kinds of cedar trees are there? (Karen)
Who Knows where the himaleyas and Mediterraneans are? (Alexia)
How tall can a ceder tree grow (Grant)

Where do cedar trees grow? (David)
I think where do red ceders grow? (Leilani)
How old can a cedar tree grow? (Jennifer)
What a evergreen is (Sabrina)
Name three colours of cedar trees (Cliff)

Dialogue 5

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G.: Do you remember that just before we broke up yesterday, you wrote down some questions for me and these were the questions you wrote. These are the questions you wrote for me on cedar trees. So let's look at the cedar tree passage questions and what I want to do is to go through and see how good you are at choosing the right H: Here, Hidden or in my Head. You need our sheet on cedar trees and your prompt card.

(Review meaning of the 3Hs)
Have a look at question number one. Read it for me please, Karen.
Karen: How many types of cedar trees are there?
Ms G.: Alright. Check in the passage first. You always check in the passage first. And you will tell me either Here, Hidden, or in my Head. That is the information I want from you. And if it's Here, underline something in the passage: Underline the one sentence with a straight line and put the number of the question near it. If it's Hidden, underline the information and put the number of the question near it. If it's in your Head, you don't have to underline anything. No lines necessary on your young foreheads, OK? Questions? Yes?
Karen: Like if it's more than one sentence, do you underline it and put the number by each bit?
Ms G.: Yep! That's it. That's Hidden. A good point to mention, Karen.
Karen: If it's in one sentence, you underline just one bit?
Ms G.: Yes, because it's right here in this passage, in one sentence. Here. Start with number one. Try number one. I want to see Here, Hidden, or in my Head. That is the only thing you have to write down. Remember you have to underline something if you write Here or Hidden. (to students) You are so clever. Yes, Yes. You can use your prompt card.

(Individual conversations with students)
Now the idea here too, is you have to justify your answer. You might have something different from you neighbour but if you can give me a good reason, I can say "Fine, you're right!". Let's try number one. Who wants to share their answer first? Your hand was up first, Grant.

Grant: It's Here and its in the passage.
Ms G.: What did you underline in the passage, Grant? You said Here. Show me what you underlined.
Grant: No, I didn't.
Ms G.: Listen to someone else's answer then, Grant. Thanks for giving the first answer.
Karen: It's Hidden. It's in at least two sentences.
Ms G.: What are the cedar trees and the sentences you underlined, Karen?
Karen: The eastern white cedar and the western red cedar (Shows group sentences underlined on her sheet.)
Paul: The western red cedars grow on the coast of British Columbia. Eastern white cedars grow around the Great Lakes.
Ms G.: Is Paul right too? Well done. Give yourself check marks. What did you have, Alexia?
Alexia: Hidden because it's in two sentences. And I found two; and one is western red cedar and eastern white cedar.
Ms G.: Do you think you are right? Thank you. You were right too. What did you have, Justin?
Justin: (Squeak, Squeal) This.
Ms G.: What do you think of your answer, Justin? Well done! You underlined the right parts. You know what everybody, you could have even had the answer, "Three". Because there is also the yellow cedar. Have you heard of the yellow cedar?
Students: No. Yeah.
Ms G.: Some of you might have. Mr Cheater was talking about yellow cedars to the rest of the class. If you knew that in your head, and you knew the two mentioned in the passage, the answer would still be Hidden. You would be joining together information from the passage and from what you already know. So either way Hidden is the right classification. So good on you. Good on you. Good on you. And now you've fixed it up, good on you. And you've put Hidden too? Good.

Phase 2: Reinforcing the students' use of the 3H strategy

Main points from lessons 6-10
Show the training passages marked on the comprehension and strategy use graphs in the strategy booklet. Explain the importance of the stars on the students' achievement graphs.
Students think of a question that a teacher might ask about the passage.
Practice categorizing the students' own questions as Here, Hidden, or In my Head. Cue the students to the different types of questions and answers, and clues about them.
Students underline the information in the passage that supports their classification of Here and Hidden questions.
Students are encouraged to underline or "box" keywords from the questions.
Understanding what the question is asking for is discussed as a very important part of question-answering. Students complete passage 5.
Students remember to categorize the questions and their answers, and to check their answers as described in the 3H strategy. Students also underline the information in the passage which is useful in answering Here and Hidden questions.
The differences between Here and Hidden categories are emphasised using the 3H prompt card. Students draw a box around the most important words in the descriptions of the 3H categories in the strategy booklet and on their prompt cards, i.e. Here - one sentence; Hidden - joining together; Head - you already know.
Dialogue 6

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G.: Now, while I was reading and you were following was there anything that you
picked out that you don't understand? See the second point here under Use Your
Head? It says "What do I know?" We've talked about what you know about native
elders and all.

Grant: What don't you understand?

Ms G.: Yes! What don't you understand? Is there anything from what I read that you
don't understand? I want you to think about what you need to find out. What do
you need to ask for help about? Are there any words that you don't understand?
Are there any pieces in the story that don't make sense? Anybody have any
questions?
This is the time to ask questions about what's not in you suitcase. What don't you
understand about this? Are there any hard words here you don't know the
meanings of? OK, Justin?

Justin: This. I don't understand the floods come and will punish the people who don't live
in the right way.

Ms G.: Do you understand flood?

Justin: I know. I know. Water comes and there's big murder.

Ms G.: Well this is what the legend says will happen if we don't treat the earth properly.
The Squamish legend says floods will come.

Justin: Legend?

Ms G.: A legend is a story. To teach the children to treat the earth well, otherwise a flood
will come and hurt or punish them. Punish is to get into trouble.

Alexia: They would still be scared to try it.

Ms G.: That's right and that would teach the children to treat the earth properly. If they
thought a flood would come if they didn't live the right way. Right, Justin? Good
question. Stay with us so you can learn from the other people's questions too.
What's you question, Grant?

Grant: It's the same one. I was going to ask you if the flood would really come?

Ms G.: What does everyone else think? If the flood could really come? We don't know?
Maybe if we treat the world poorly enough something like that would happen.

Alexia: It would be polluted water.

Ms G.: Yes. Maybe. Karen has a question.

Karen: Have we tried it? Have there been floods like this before?

Ms G.: What do the rest of you think?

Paul: Maybe. Long ago.

Karen: There was a flood at Whistler, I think.

Ms. G.: Do you know the stories from the Bible that talk about the terrible floods many,
many years ago? Noah and his ark and the animals two by two? These stories
seem to be in lots of different legends from different religions. This is the
Squamish people's story. Maybe it will happen. Maybe it has. It was an
interesting story to tell the children, don't you think?

Do you know what all of the words mean? Are there any words you don't
understand?

Grant: My sister knows some in grade nine.

(Everyone laughs)

Ms G.: Oh Grant! From the story! Know them all? Alexia? Which one? Humble?

That's good. Can you ask me a question about this?

Paul: What does "humble" mean?

Grant: Oh! I don't understand this word either.
Ms G.: That's right. That's the sort of question I want you to be able to ask. You find words like humble, and you say, "Well, what does this mean?" Does anyone know?

Students: No

Ms G.: Well see, that's a question you all could have asked because that information isn't in your suitcase. The word humble means that you don't think you are better than everyone else even when you know that something you have done is really good. You don't go around saying, "I am the best! I'm the best! I did it the best! I know these better than you do!" You don't go around acting like that. You go around and you say, "Well, if you don't know that as well as I do perhaps I can help you?" Cause that was the Squamish people's way of life, helping one another and sharing. And you don't go around saying, "I'm better than you! I'm better than you!" Because you don't, no matter how good you are, you are humble. You think more of others than you do of yourself. That was a good question. Others?

Grant: This one.

Ms G.: Knowledge. Who can help with this one? These are good questions
Alexia: I know but I just can't explain it.

Ms G.: Have a go, Alexia.

Justin: It means like you are a smart guy and you have a lot of knowledge.

Ms G.: Yes. Everything you know. All the things there are to know.

Grant: Information.

Ms G.: Yes. It's in your head. Knowledge means you know it.

Karen: What are they doing in this picture?

Ms G.: Can you tell what they are doing?

Justin: They are in the longhouse listening to stories. Telling and listening to stories.

Ms G.: Good. Are there any other words or questions?

Alexia: Advice.

Grant: Advice?

Karen: I think it is like when you are small and you are not to touch this and don't touch that all the time.

Ms G.: Yes. If you have a problem you might ask for some extra advice from your parents or grandparents. And when you are little kid, just like Karen says, you get lots of advice about how to act and how to protect yourself.

Alexia: Don't talk to strangers.

Justin: And look out for the blue van?

(Students offer each other advice)

Ms G.: That's all good advice. Any other questions?

Grant: I forgot what legend means.

Ms G.: It says so in the story.

Alexia: It means they believe in it but it might be true but it might be like a fairy tale.

Ms G.: Look in the passage for that one. Read carefully now. No more questions? What I want you to do now is to, at the very bottom of this sheet, make up a question that you think a teacher would ask about the passage. See if you can come up with one of the questions I have on this sheet for you.

Students' Questions:

the pelop is happy went they are smrt sqamish? (Justin)
WHAT HAPPENS WHEN THEY ARE SELFISH AND GREEDY AND TAKE MORE THAN THEY WANT FROM THE LAND? (Paul)
Why would Sqamish children resepet the elders? (Karen)
Do you know anyting about the Squamish? (Alexia)
What deos elder mean? (Grant)
Who are the sqanishs enemys? (David)
What is humble mean. (Leilani)
how long does a Flood stay For? (Jennifer)
Why do think they have to listen to the elders (Sabrina)
What are elders? (Cliff)

Dialogue 7

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G.: (After reading the passage) Questions? Karen, what is your question?
Karen: But how did they know, like, what he did there?
Grant: He wrote a book.
Ms G.: Yes. He did. He kept a journal all the time.
Karen: But how did they finish it if they didn't know what he did?
Ms G.: Peter Puget, his friend, was on the same voyage as Vancouver. He was for some time the commander, or the Captain, of the Chatham. And Vancouver was the Captain of the Discovery. OK? His brother and Peter Puget, they were able to read the ship's journal and see what Vancouver had written every day. And, I guess they finished his book from that. Ok? Good question.
Karen: Is Captain George Vancouver the Captain of both ships?
Ms G.: He was the commander of everything. But he actually sailed the Discovery. And the Chatham for the last voyage was commanded by Peter Puget. Vancouver was in charge of both ships overall.
Grant: (referring to illustration) Is this the Chatham?
Ms G.: How can we find out?
Grant: Go to some more books and find out.
Alexia: What does Caribbean mean?
Ms G.: Great question. Does anyone know? The Caribbean is another part of the world and I can show you where it is on your maps of the world. Open your reading passports. Can I please use your book, Justin? Thank you. On your map of the world this is the area called the Caribbean. Here. There. That's the Caribbean. All of the islands and the water. Look carefully. Here near Florida in the USA. That's Indonesia and that is India.
Paul: What's this?
Ms G.: You remember. You're testing us, huh, Paul? Karen?
Karen: Where did he sail?
Ms G.: The passage can help us answer that.
(Students discuss Vancouver's voyage)
Ms G.: So we know he sailed from England all the way to Australia. Then to the Caribbean. Then he got his own command and went down this way from England and up the Pacific Coast. (interval) It was a long way. You are full of questions. Any others?
Karen: Where did he die?
Ms G.: Well, the passage tells you.
Paul: When he got back to England he was very ill.
Grant: He died in 1798.
Ms G.: And he died in England.
Karen: What graveyard is he in?
Ms G.: Pardon?
Karen: What graveyard is he in?
Ms G.: Do you think I'd know that? Does anyone here know that? This reminds me of the part in your passport where it outlines information about questions and answers. I don't know the answer to that one. But we could find out from a book on Vancouver's life, perhaps. Remember some questions don't have answers? I
can't give you an answer to this one, unless we look it up. One more thing you
need to do for me before we finish today. On the bottom of your sheet, or on the
back of your sheet, write me a question that you think a teacher would ask about
this passage.

Students Questions:
I wont too al have sise (Justin)
Where did Captain Vancouver die. (Paul)
WHAT TOWN DO YOU THINK HE DIED IN ENGLAND (Karen)
Vancouver was born in 1757 and died in . . . ? (Alexia)
When did vancouver die and where (Grant)
When was Captain Vancouver born? (David)
How many years did he sail. (Leilani)
What year did captain george vancsuver die in? (Jennifer)
How old did he die? (Sabrina)
How long did he live? (Cliff)

Dialogue 8

(Students are David, Leilani, Jennifer, Sabrina, Cliff)

Ms G.: Have a look at the questions. Something to do as I am reading out question
number 1 -- you underline what you think is the most important part of the
question. OK?
David: And put a box around it.
Ms G.: Why yes, or underline it. Make it stand out to you. Question number 1, "How
old was Captain George Vancouver when he died?"
Students: I know. I know.
David: I know what this thing
Ms G.: OLD
Ms G.: That was a cue.
Leilani: I know how old he was.
Ms G.: Yes. Good. Terrific. Write down your answer and say whether it's Here,
Hidden, or In my Head.
Leilani: If I subtracted would it be In my Head?
Ms G.: Look at your prompt card. Try to work out the answer to that question for
yourself, Leilani.
Cliff: Hidden
Sabrina: It's Hidden because it tells you here and here. (points to the passage)
Ms G.: It tells you something in the passage. Leilani, it's Hidden if it's in the passage and
then you use your head as well. It's only in your Head if you use just what you
already know. Look at number two there under "Hidden". Hidden point two.
"From the passage and what you know." Subtraction is what you know, but where
did you get the dates from?
Leilani: From the passage.
David: But what do you subtract from?
Sabrina.: When was he born?
Jen: And the year he died in.
David: 1757. Your subtracting that?
Ms G.: When did he die?
David: 1789.
Ms G.: Put the biggest one on top.
Cliff: Put it right here. I know. I know. I know.
David: I subtract them. I thought you add them.
Ms G.: Oh, Cliff's even writing his answer in a sentence. Bless you, Cliff. Cliff, Cliff, start with a capital letter, you star!
David: I know the answer.

Dialogue 9

(Student are Justin, Paul, Karen, Alexia, Grant)

Ms G.: Very last question. Would you have liked to have sailed with Captain Vancouver on his voyages? And I want you to give me a reason. Don't just tell me "No, because it wouldn't be fun!" Tell me a reason why or why not you would have liked to have sailed with Captain Vancouver. Why you might think it wouldn't be fun. A good reason.
Grant: No, because the boat might sink.
Ms G.: That's a good one.
Karen: Yes, because I would see new places.
Alexia: Yes, because I would like to explore other places.
Ms G.: Terrific.
Justin: I would be happy.
Ms G.: What would make you happy about sailing with Vancouver?
Justin: I like Prince Rupert.
Ms G.: Then answer with that reason. About liking northern BC where Vancouver sailed.
Justin: I'd be happy with Vancouver because I love Prince Rupert.
Paul: I couldn't go though because I wouldn't be born yet.
Ms G.: (laughing) Well you could have told me that reason too. You are tricky. Where was the answer to that question found, everybody?
Students: In my Head!

Dialogue 10

(Student are David, Leilani, Jennifer, Cliff, Sabrina)

Ms G: (Handing out students' folders) We'll start with out any further ado, making sure that we get a passage done today so that all your graphs can go up, up, up.
Yesterday we didn't get a chance to finish our passage with the fire drill interrupting our lesson.
Students: Thank you. What did you get? Oh! Neat!! Look at my graph.
Leilani: I went down on this but I went up on this.
Ms G: That's right but I'm sure you are going to go up on them both on the next passage.
Jennifer: I went down last time.
Leilani: I went up!
Ms G: Ahh! There's nothing new on those graphs for most of you, because we didn't finish our passage yesterday. That's still the same graph as yesterday for all of you except Leilani. She had to catch up on a passage. Your graphs are really showing your good work now, though. The stars on your graph are for every time you get more than 80% on a passage, for your comprehension, the 3Hs and the underlining. Every time you get seven out of seven, or six out of seven for these you get a star for your graphs, and a stamp for you papers. Well done everyone.
We must work hard now, so we can get our last passage finished and another begun this lesson.
This is the page I want your reading passports open at, pages six and seven. There are five parts to the 3H strategy. There are five parts, just like the star prompt card you have. The first part is use your head. Use your head, and it means as it says
here (Pointing to the place in the Reading Passport). What are some things that you do when you use your head? Cliff?

Cliff: During reading.

Ms G: How do you use it during reading?

Cliff: Think about what you read. Open your suitcase.

Ms G: Yes. You take souvenirs. What else do you do? David?

David: Before reading. Ask yourself what you know. What do I know?.

Ms G: Yes. Figure out what do you know about the passage already. (Children in the background: I know. I know) How else do you use your head? Sabrina?

Sabrina: After reading.

Ms G: What do you do after reading? How do you use your head after reading when you use the 3H strategy?

Sabrina: You decide what you need to find out.

Ms G: And how do you do that? You ask? QUESTIONS! And this group has been asking some very good questions about the passages we have been reading. That's something you have to do ever time. Ask good questions. OK?

What about during reading how do you use your head during reading?

Jennifer: Ask what you don't understand.

Ms G: Yeah. And you might make yourself a little note of what you don't understand in the passage and then ask a question about it. There were some words like humble and respect in passages that you need to ask questions about. And sometimes there are some bits of the passage that don't fit together and that's what you need to ask questions about. So when you are using the 3H strategy the first thing you do is you USE YOUR HEAD. Just like this says. In your book, points 1 and 2 go together because after you have figured out what you don't understand and what you need to find out, then you have to ask a question, ask for help if you need to. Ask for help if you need to. This is all in the first Use Your Head part of the 3H strategy.

NOW! The next part is using the 3H strategy to answer questions after you have read or followed along with a passage. This is when we use the 3Hs. Tell me the three Hs. Tell me the first one.

Cliff: Here, Hidden and in my Head.

Students: Here

Ms G: Here. OK. And the keyword for this is?

Students: One. It is in one sentence.

Ms G.: The next H?

Students: Hidden.

All: Two

Ms G: Two for Hidden?. You join together. That is the best keyword or phrase for Hidden -- join together. There are two ways of making a hidden answer. What's one?

Jennifer: Two pieces from there. In the passage. Two pieces that you join together or more than two.

Sabrina: And something from your head and something from the passage too.

Ms G: Uh huh. Very good. This is the trickiest one. What is the best phrase to remember for Hidden?

Students: Join together

Ms G.: So Here, Hidden, What is the next one?

David: In my Head. Not in the passage.

Ms G: Marvellous. And there is a fifth part of the 3H strategy that we haven't talked about today and it's this one here. Have a look at number 5 on your.

Students: Check you answers!

Cliff: I did that. I do that.
Ms G: This reminds you how to check you answer. When you are doing the 3H strategy how you check your answer is this: Read the question and then immediately after that read the answer and see if they fit. The important thing to remember here is to read the question really carefully, because that’s how many kids make mistakes when they’re doing comprehension questions. They don’t read carefully enough to know what they are actually supposed to answer. It is really important that you reread your questions and answers to see if they fit together. Any questions? I know you have been trying to remember all the parts of the 3H strategy. Today we are taking time to make sure you really understand all of the parts of the 3H strategy. Any questions? Any comments?

Just one more thing I want to talk about before we go on to our passage today. We have lots of time for it today. Let's talk about when you circle "Got it, Didn't get it, or Maybe" after your answer. Look at your last sheet of questions, the confidence scale tells you which questions and answers you really have to check even more thoroughly than the others. If you have circled "I got it", then those are answers that you are confident of. The ones you should really check are the ones where you say "Maybe" or you say "Didn't get it" because there might be a clue in the question to help you be more confident in your answer. There might be something you missed the first time around. So when you check your answers you make sure you check the "Maybe"s or the "Didn't get it"s first. You leave the "I got it"s for last because those are the ones you think you are confident of. Why do you think I am saying that you should do that?

David: So you don't get things wrong.
Ms G.: And how does this help you not get things wrong?
David: By checking it.
Ms G.: It gives you a good way to check it. Sabrina?
Sabrina: That was mine.
Ms G.: That was yours, too. OK So now you all have to start thinking about the five parts of the 3H strategy and you will all be getting stars in your folders in the next few days.

So, now, this passage is about how Indians catch salmon. This is a passage about how Indians catch salmon. So what do we do first?

Students: Talk about salmon. Talk about Indians.
Jennifer: They use canoes and nets.
Cliff: They kill them before they eat them.
Ms G: That's usually a good idea. A bit wiggly otherwise.
David: They use spears.
Sabrina: The spear is like a harpoon.
Leilani: I did this in social studies in my other school.
Jen: They use a net and scoop them out.
Cliff: They use big round sticks with a thing like that on it.
David: They use rocks and they spear them.
Ms G: You know lots already. So you will find this very sensible to listen to as I read.

So while I am reading, your job is to do what?

Cliff: Underline.
Ms G.: Underline or put a little "?" near anything that you don't understand and then ask a question about it.
Jen: Can we each read a sentence?
Ms G: Well you know, the whole idea of this was that I was going to do the reading here so that you don’t have to worry if you can’t work out words. So that you can really concentrate on what the sense of the passage is. If you concentrate on the job of underlining, putting a question mark near anything you don’t understand, I think that will be the way to best use your time. I know you could read it though...but I am going to do it.
David: This picture looks like a slingshot.
Cliff: It even has the strap.
Ms G: (reading) How the Indians of the Northwest Coast caught Salmon.
And I should see all the pencils following.
Ms G: (reading) How the Indians of the Northwest Coast Caught Salmon.
And I should see all the pencils following ready to put little question marks near if you don't understand anything. (Continues reading passage. When finished reading the students already have questions to ask.)
Students: Me? I have one!
Ms G: I am impressed!
Leilani: I have one. I don't understand this one here "provided".
Sabrina: The Tlingit? What were the Tlingit?

Phase 3: Consolidation and celebration of strategy use

Main points of lessons 11-15
The students recall the 5 parts of the 3H strategy, i.e., (1) Head First; (2) Here; (3) Hidden; (4) in my Head; (5) Check your answers.
Read the questions carefully and discuss them. Box the important clue words in the questions.
Underline the information important to answering Here, or Hidden questions.
Go for the Stars. Students get stars on their star prompt card if they know all the parts of the 3H strategy and can explain what each part means.
Certificates of 3H achievement are pasted inside the students' folders.
Handshake ceremony as the inside cover of each student's reading passport is signed and sealed.

Dialogue 11

(David, Leilani, Jennifer, Cliff, Sabrina)

Ms G: Spirits to the Squamish people often took the form of animals, and the animals became individual people's spirit helpers. Now if you had a spirit helper, if you had a special animal that meant something very special to you, what sort of animal would it be?
David: A turtle.
Ms G: Why?
David: I like turtles.
Ms G: Why do you like turtles?
David: Because they're neat and they're slimy and all that.
Ms G: What do you like something that's slimy and all that?
David: Because I like how they feel. They're my favourite animal.
Ms G: They are your favourite animal. OK. I still want to know why they are your favourite animal.
David: Because whenever an enemy comes they can hide in their shell.
Ms G: Now we are getting somewhere. Say that again.
David: Whenever an enemy comes they can hide in their shell.
Ms G: OK! For you, the turtle is your favourite animal, and a good reason for that is because it can protect itself from its enemies. People can learn from the turtle. How to protect themselves from enemies. That's very good. We have to get past that "I like it" and "because it's neat" to get to those wonderful reasons just like David did.
Ms G: What would your animal be?
Cliff: A dog or a cow. A dog.
Ms G: Why?
Cliff: It can do tricks.
Ms G: A dog can do tricks. It's smart, isn't it? You want a spirit helper that is really smart to help you.
Cliff: When you run they can run after you.
Jen: I like monkeys.
Ms G: Why do you like monkeys? Why would you have a monkey as a spirit helper?
Jen: Because it is fun.
Ms G: What do they do that is fun?
Jen: They swing from their tails.
Ms G: And why do you like that?
Jen: They are clever and do tricks.
Leilani: They always look like they are on the monkey bars.
Ms G: Because they are clever is a good reason. You need to be clever in life to handle what happens to you.
Jen: And you can dress them up.
David: I have another one.
Ms G: Yes?
David: A cheetah.
Ms G: Why?
David: Because it can run fast.
Ms G: They sure can. And why is that good?
David: So that is, like, the spirit of running fast. If an enemy comes that's good.
Ms G: Right, so you can protect yourself, again.
(interval)

Ms G: Any questions before we read?
Jen: We went to this place for social studies and we saw a couple of these faces.
David: UBC
Cliff: How can that be a beaver?
Leilani: How can that be a killer whale?
Ms G: I don't know.
David: Look at the teeth on that.
Ms G: This allows me to make an important point. In your passport, on the fifth page in the information about questions and answers section, it says, "There are some questions that have no answers." "There are some questions that have more than one correct answer." And the sort of questions you are asking now are these sorts of questions. I don't know. We can talk about what the answers might be but I don't know for sure, and I'm not sure looking up books would help.
Most important in answering questions 90% of the time is your reason for the answer that you put. That's why I say, "Go back to the passage". Because the passage can give you a good reason. If it's not in the passage, then you use your head. You think of a good reason why. It's not enough to say, "I like foxes because they're neat." You have to think, "I like foxes because they are . . ."
David: Have fluffy tails.
Ms G: Well, because they are very smart and they trick some of the other animals. Do you get my idea? Those sorts of questions we have to talk about to see what might be possible answers. It is best to have good answers that are well thought out.

Dialogue 12

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G: This is important. This is what I have noticed from your work. Now you are not getting many of these questions wrong at all, but the ones that you are getting
wrong, are ones where you don't read the question carefully. Read number one, Justin.
Justin: What is a mole?
Ms G: What's the most important word there?
Justin: Mole.
Ms G: So everybody put a box around "mole" because it is the most important word.
Grant: I'm going to box it.
Ms G: Paul, read number two.
Paul: What are three spirit helpers which could help a man in his work?
Ms G: What would you underline or box here? Alexia?
Alexia: Three.
Ms G: I might even underline or box "three spirit helpers". And I think I might underline one other word in there.
Grant: Spirit helpers.
Ms G: Yeah. But there is one other word. Yes, Paul?
Ms G: Yes, because I don't want to know the helpers for a woman, I want to know what the helpers for a man are.
Ms G: Number three, Alexia.
Alexia: Why was the wolf a powerful spirit the Squamish never hunted?
Ms G: Yes. What would you underline here as the most important part? Karen?
Karen: Powerful spirit?
Ms G: I don't think that is the most important part. There is one particular spirit mentioned in this question. Paul?
Paul: Wolf.
Ms G: OK. I'd make sure I knew it was a wolf that was important, that was never hunted. I have to find out why. Number five, would you read it please, Grant?
Grant: What are four jobs that spirit helpers can make easier for Squamish men and women?
Ms G: What would you underline?
Grant: Men and women.
Ms G: Justin?
Justin: Men and women.
Ms G: Men and women, yeah, and something else.
Karen: Four jobs.
Ms G: Yes. Four, and men and women, are most important.

Students' Questions:
Why do the snak hople them to wave? (Justin)
Why didn't hunters hunt wolves (Paul)
Do wolf's now still take care of the baby when they are in the forest? (Karen)
What spirits gave special powers to women? (Alexia)
How would the snak helq the wever (Grant)

Dialogue 13

(Students are Justin, Paul, Karen, Alexia, Grant)

Ms G: Look at the questions that you need to answer about Peter Pond. Read question number one, please, Justin.
Justin: What is a portage?
Ms G: Why didn't you ask me what a portage was? Here is the word in the passage.
Grant: What's a portage?
Karen Where?
Justin: Where?
Ms G: Does anybody know what a portage is?
Grant: I've never heard of the word.
Ms G: Well that's one you should have asked me when you were using your heads. OK
Listen. A portage is a piece of land that separates two rivers or lakes. When you
are canoeing, sometimes you have to portage. And that means, you get out of the
water with your canoe and you carry it across the land until you can put it back in
the water again. It comes from the French word, "porte" which means to carry.

Dialogue 14

(Students are David, Leilani, Jennifer, Sabrina, Cliff)

Ms G: Let me show you.
Students: Ah! Look at that.
Ms G: Jenny has a certificate of achievement. She's got three stars on it. On three
consecutive occasions, three times in a row, Jenny got above the goal line with both
her strategy use and her comprehension. Now what I have done, is to make a
certificate here that says, "Certificate of Achievement awarded to Jennifer F. for
Learning the 3H Strategy". I have dated it today and signed it. The 3H strategy is
here on the certificate, too. Head First, Here, Hidden, In my Head and Check your
Answers.
David: How about Head First? Oh, it's there.
Leilani: How do you do those stars?
Ms G.: I have a special stamp that does it. So Jenny, Congratulations! Look at the stars
you got for your work today. You got everything right. You used the strategy and
tried. That was good thinking, my girl. How do you feel?
Jenny: Happy.
Ms G: Me too.
APPENDIX L

Examples of teacher talk used in the 3H strategy programme

L-1. Examples of the kind of teacher talk used in the introduction to the strategy
   A. Introducing the metaphor of reading as travelling
   B. Introducing the 3H strategy
   C. Practising the 3H strategy on a short training passage

L-2. Examples of teacher talk used in the reinforcement of the students' use of the 3H strategy
   A. Reinforcing the Head First! part of the 3H strategy
   B. Emphasizing the importance of understanding the question
   C. The use of graphs, 3H keywords, and the confidence scale in strategy lessons

L-3. Examples of teacher talk used in the consolidation and celebration of strategy use
   A. Encouraging students to have good reasons for their answers
   B. Identifying important information in comprehension questions
   C. Celebrating student effort and achievement
L-1. Examples of the kind of teacher talk used in the introduction to the strategy

A. Introducing the metaphor of reading as travelling

Ms G: You have talked about how you usually answer questions after passages in school. Some of you seem to have a few problems in knowing what to do. You have told me that you answer questions like the ones you have been doing in your time with me in lots of school subjects. Subjects like science, and social studies and language arts. During the next weeks you will be learning a strategy that will help you answer questions after a passage. Do you know what a strategy is? Yes. Right. A strategy is a plan, a way of doing something which usually gets you the results that you want. The strategy I will be teaching you is the 3H strategy. And these are materials that we will be using as you learn the strategy. Feel free to open the folders and the booklets. Have a good look at the pages and we will start to talk about them.

What did you notice about the booklet in particular? Comments? Questions? Those are interesting observations. Let's look at the booklet together, now. This really is more than a booklet. It is a reading passport. Do you know what a passport is? Why do you think I have called this a reading passport? Yes, some good ideas. We'll discuss this more as we look at the pages of the passport. The first page is for you. Just like a real passport, there is a section to fill in with your personal information. I have brought an old passport of mine for you to see. If you have a photograph at home that you could bring for your reading passport, it would make this booklet extra special. Please bring one if you can. Look at the next page. This is a page about strategy use in school. We have covered many of these points in our discussion already. This page is to remind you of what a strategy like the 3H strategy can do and when it can be a help in school. Look at the points while I read them. Or would one of you like to read?

The next page is about being a reading traveller. Reading travellers need passports like the ones you have. Reading as travelling is an interesting way of thinking about reading, particularly in social studies which is all about Canada and other countries. Talk to me about your travels. Where have you and your families been lately? What did you bring back from your trip? Well, we have put together an interesting chart of trips and souvenirs here. Let's think for a minute about how world, or cross-Canada, travellers and reading travellers might be similar.

Some different ideas! Page four in your book describes reading travellers. World travellers get ready for a trip by gathering everything they need and packing it. If you are a reading traveller you already have a suitcase full of knowledge about how to read and what you know about the world. You have to remember to use what you already know when you are reading. If you do the chances are that you will understand what you read, ask good questions, and be able to answer questions about passages better. The 3H strategy will help you remember to do this.

Students who are reading travellers do many of the same things that world travellers do. They focus on the story or passage they are reading and become involved with it. Because they have already thought about what they already know about a topic, and are trying to understand it, reading travellers ask
questions about what is new to them, or what they don’t understand in a passage. Just like world travellers too, reading travellers take souvenirs from what they read. Sometimes the souvenirs are pieces of interesting information about the world, or sometimes interesting information about reading. What questions do you have about this? Do you understand what the souvenirs are in reading? Any other questions? All of the souvenirs collected by reading travellers are important in some way, so they are packed carefully away in their suitcases, or memories, with all the other kinds of information that reading travellers remember about the world and the information that they know about reading. There is some important information to know about questions and answers too, so let’s move on to page 5.

B. Introducing the 3H strategy

Ms G.: Yesterday I gave you your reading passport to look at and we started to talk about the strategy that I am going to teach you. It has to do with being a reading traveller. What can you remember that a reading traveller needs and does? What are souvenirs? How can reading be like travelling?

The 3H strategy is valuable information for your suitcase. It is a strategy, a plan, that can help you answer questions after you have read or listened to a passage. Look on pages six and seven of your reading passport. The 3H strategy works by asking you to discuss what you know about the topic of a passage first of all. You all know lots of things about the world, and about reading. The 3H strategy reminds you to use your general knowledge. This is important because it helps you understand the passage you are reading or listening to. Also remember when we share what we know in a small group we all end up knowing a little more than we did by ourselves.

We share what we know about a topic before reading the passage. Doing this also helps when we are trying to figure out what is not understood about a passage. I want you to ask lots of good questions about what you do not understand during our time together. When we start to work through passages this will all start to be much, much clearer. Do you follow where I am here on page six?

The 3Hs themselves are Here, Hidden, and in my Head. They work because they remind us where the answers to questions are found. Think about this for a moment. Where else would you find answers to the sorts of questions you are asked in school? The 3Hs are easy to remember. Who remembers what they are already? Right. Well done. Now let’s look at what they mean here on page seven. Who would like to read about Here out loud? (Students read about the Hs aloud.)

The 3Hs remind us to always use the passage first, even if you are certain that you remember the answer perfectly. This way you will always have a good reason for the answer you put down. If the answer is not in the passage, and you have checked really well, then you know that the question is asking for your opinion or some knowledge from your suitcase or what you know about the world. If you check the passage and the answer or part of the answer is there, then you will always have a good reason for your answer. If someone has another answer and thinks you are wrong, you can just go back to the passage and say, "My answer, or part of my answer, is here in the passage. I think that my answer is right because this sentence says this and over here it says that. And there is nothing in the passage about the other thing!" It is hard to argue with that sort of question answering. If you have a reason, you can justify the way you answered a question
to a teacher or to a classmate. We are going to practise using the 3Hs on short passages very soon.

The last part of the 3H strategy is "Check your answers". In this strategy you are told exactly how you are supposed to check your answers. Lots of teachers say "Check your answers" but very few of them ever tell their students how they want students to do this. I used to be guilty of this when I had my own classes, but now I am making up for my mistakes. To check your answers after a passage, you have to reread each of the questions and your answers and then see whether they fit. Ask yourself if you used the 3H strategy. If you used all the steps and you are pretty confident about your answers, you should congratulate yourself for doing good work. We'll keep learning lots about the 3H strategy, but this is a general idea of what it is. Your questions, please.

C. Practising the 3H strategy on a short training passage

Ms G.: OK Everybody, everybody. The question says, "What type of animals?". "What type of animals?" It doesn’t say, "What animal?". No, no no no, No. It says, "What type of animals?". Now don’t change it. Don’t rub it out. Think about it. It says, "What type of animals". Is the answer green animals, red animals, purple animals, big animals, large animals, small animals, polka-dotted animals? What type of animals?

Students: Large animals. Turtles.

Ms G.: It tells you in the first sentence. I could hear some of you were right. Large animals often live the longest. Look at the first sentence, "Large animals often live longer than small ones." That is the sentence you should have underlined. OK? Do it.

We're not interested in a specific animal, you see, but a type of animal. Now this teaches two things. Listen this teaches two things. The first one is: We really need to read carefully. A reading traveller reads carefully. Not just the passage but the question too. The question is not asking you for a specific animal like a turtle. Its asking you for what type of animals and the answer is, "Large animals often live the longest."

Student: The answer is right in the passage.

Ms G.: Exactly. And so is it Here, Hidden, or in my Head?

Student: Here. Because the answer is right here in one sentence.

Ms G.: Super, it's Here. So if you got it completely right you would have two ticks. One for "Here" and one for "Large animals often live the longest".

Ms G.: Now, number two. Try it. "Which lives longest the turtle or the cat?" I want you to remember to use the passage. Really use the passage first. If there is nothing about the answer in the passage, then you rely only on your head, what you already know. I know this is a simple question but the ones we do later on won't be so easy. So use the passage first.

So is it Here, Hidden, or in my Head? Look at number two. "What lives longer the turtle or the cat?"

Student: The turtle lives longer than the cat.
Ms G.: And it's a perfectly, beautiful sentence that you wrote too. Thank you very much for that. What about your answer?

Student: The turtle lives the longest, one hundred and fifty-two years, the cat lives twenty years.

Ms G.: That's a beautiful sentence too. Thank you. That's great. Your answer?

Student: The turtle lives longer than the cat.

Ms G.: That is a very good sentence too. Remember a capital to begin with. Now here comes the tricky bit. Is number two Here, Hidden, or in my Head? Yes?

Student: Here.

Ms G.: Show me the answer in one sentence. Remember if it is Here, the answer is in ONE sentence. Can you show me the answer in one sentence?

Student: It's right here. The giant turtle can live for 152 years or more.

Ms G.: That's about the turtle, yes, but what about the cat?

Student: In my head.

Ms G.: Maybe, but there is information here in the passage to use. Always use the passage first. The answer is only totally in your Head if there is no information to use in the passage.

Student: A cat only lives twenty years.

Ms G.: That's about the cat. That's about the turtle.

Student: Hidden.

Ms G.: Why, Who can tell us?

Student: The answer is in two places in the passage. You join them up.

Ms G.: Thank you! Number two is Hidden. And it's Hidden because the question asks, "What lives longer, the turtle or the cat?" And in the passage you put a line under where it says about the giant turtle living 152 years. And you also need the information about the cat. (underlines) "The cat lives twenty years." You are using two sentences from the passage. Point number 1 under Hidden on your prompt card. Point number 1 under Hidden. Point number 1 under Hidden. Point number 1 under Hidden. (points to each students prompt card.) So the answer to number two is very definitely.

Students: Hidden.

Ms G.: Do you get it?
L-2. Examples of teacher talk used in the reinforcement of the students' use of the 3H strategy

A. Leading students through the 3H strategy

Ms G.: This is a passage about cedar trees. The first part of the 3H strategy asks you to use your "Head First", so I want something you know about cedar trees. What do you know about cedar trees? What do you know about them?

OK. Now listen. The next part of the strategy is to listen carefully. While I read the passage and you think of any questions that you have about this as we go. Right? Any questions that you have. So I am going to read it. You are going to listen. And you think of any questions that you have about it. Now look at the passage and make any marks you want near what you would like to ask a question about. Everyone please follow along, so I know you are watching, listening, and concentrating.

Right, questions. Do you have a question? I heard you say one. Yes?

Good question. Did others wonder too? Does anyone know the answer to this question? O.K. It's a part of the world. I will show you where on the map of the world in here in your reading passports. Mediterranean is around this part of the world. It is sort of like the land around the sea. This is the Mediterranean Sea. Cedar trees grow around here.

Does anyone else know the answer to this? The Himalayas are mountains at the very top of India. They're there on your maps. Cedar trees grow all the way from around the Mediterranean to the Himalayas. O.K.? Another use for your passport is to hold these useful maps for us. Do you have another questions?

Now, turn over your sheet and I want you to write a question that you think a teacher would ask about this passage. Do you think you could do that? What would a teacher ask about this passage? Look at the passage and think what a teacher would ask.

The next day

Ms G.: Do you remember that just before we broke up yesterday, you wrote down some questions for me and these were the questions you wrote for me on cedar trees. So let's look at these cedar tree passage questions and what I want to do is to go through it and see how good you are at choosing the right H: Here, Hidden or in my Head. (Review meaning of the 3Hs)

Have a look at question number one. Read it for me, please.

Student: How many types of cedar trees are there?

Ms G.: Alright. Check in the passage first. You always check in the passage first. And you will tell me either Here, Hidden, or in my Head. That is the information I want from you. And if it's Here, underline something in the passage: Underline the one sentence with a straight line and put the number of the question near it. If it's Hidden, underline the information and put the number of the question near it. If it's in your Head, you don't have to underline anything. No lines necessary on your young foreheads, OK? Questions? Yes?
Student: Like if it's more than one sentence, do you underline it and put the number by each bit?

Ms G.: Yep! That's it. That's Hidden. A good point to mention.

Student: If it's in one sentence, you underline just one bit?

Ms G.: Yes, because it's right here in this passage, in one sentence. Here. Start with number one. Try number one. I want to see Here, Hidden, or in my Head. That is the only thing you have to write down. Remember you have to underline something if you write Here, or Hidden. Yes, Yes. You can use your prompt card.

Now the idea here too, is you have to justify your answer. You might have something different from your neighbour but if you can give me a good reason, I can say "Fine, you're right!". I do want the best answer, but I also want you to have good reasons for your answers. I want to reward good thinking. Let's try number one. Who wants to share their answer first? Your hand was up first. Go for it.

Ms G.: Now think about this possibility. Some of you might have heard your teacher talking about yellow cedars. If you knew that in your head, and you knew the two types of cedars mentioned in the passage, the answer would still be Hidden. You would be joining together information from the passage and from what you already know. So either way Hidden is the right classification. So good on you. Good on you. And now you've fixed it up, good on you. And you've put Hidden too? Good.

B. Reinforcing the first part of the 3H strategy

Ms G.: Now, while I was reading and you were following was there anything that you picked out that you don't understand? See the second point here under Use Your Head? It says "What do I know?" We've talked about what you know about native elders and all.

Yes! What don't you understand? Is there anything from what I read that you don't understand? I want you to think about what you need to find out. What do you need to ask for help about? Are there any words that you don't understand? Are there any pieces in the story that don't make sense? Anybody have any questions?
This is the time to ask questions about what's not in your suitcase. What don't you understand about this? Are there any hard words here you don't know the meanings of?
Are there any words you don't understand here?

Well see, that's a question you all could have asked because that information isn't in your suitcase. Does anyone else know the meaning? The word means. . . Others?

Gosh! Do you think I'd know that? Does anyone here know that? This reminds me of the part in your passport where it outlines information about questions and answers. I don't know the answer to that one. But we could find out from a book
in the library. Remember some questions don't have answers? I can't give you an answer to this one, unless we look it up.

Look in the passage, now. Read carefully. No more questions? What I want you to do now is to, at the very bottom of this sheet, make up a question that you think a teacher would ask about the passage. See if you can come up with one of the questions I have on this questions sheet for you, perhaps?

C. Emphasizing the importance of understanding the question

Ms G.: Have a look at the questions. Something to do as I am reading out question number 1 -- you underline what you think is the most important part of the question. OK? Put a box around the most important words. The words you want to make sure you have taken notice of. The ones that maybe give you clues about the sort of answer you will write.

You had some good suggestions. I think you have noticed some interesting features of the questions we have answered together so far in these lessons. There are some clues in the questions which sometimes give you a hint where to look for the answer. You know, whether the answer to the question is going to be Here, Hidden, or in my Head. Here questions and answers often share many of the same words. The question may be something like, "What was Alexander Graham Bell's greatest invention?". And the answer is in a sentence that says "Alexander Graham Bell's greatest invention was the telephone." Do you see how many of the same words are in the question and the answer? This answer is Here in one sentence.

Hidden questions and answers have clues too. These are the hardest questions to answer, often they ask for lists of reasons, or lists of countries. You know questions like, "What are three reasons why the telegraph didn't always work?" are likely to be hidden because they are asking for a number of pieces of information. THREE reasons. You will probably have to look in at least a couple of sentences to find the information to join together for this answer. So questions that ask you for a number of reasons or lists, like this, are often Hidden. So are questions that ask you to describe or to compare. Because you have to summarize or otherwise use different pieces of information from different sentences in the passage.

Questions that ask you to use some of what you know and some of what is in the passage are also Hidden. For example, "What products made in Yokohama do you use in your home?" To answer this question you need to reread the passage and find what products are made in Yokohama, then you need to think which of these you use in your home. The information about the products comes from the passage. The information about your home comes from your head. And to answer the question, you need to JOIN together both these pieces of information. The question and answer is Hidden because you are required to join together information.

In my Head questions and answers. You know some good clues for these already. Often there are words like "do you think?" in these questions. These are the questions and answers that you need to answer from your very own head, because the passage doesn't have what you want. Now, it is always a good idea to check the passage, just to make sure there is no information there that can answer the
question. I repeat, you should always check the passage for answers to questions, even if you are sure you could answer them on your own. This is a good way of making certain. If you check the passage you have a reason for your answer. You can discuss and defend your own question-answering, if you know whether or not there is any information in the passage to back you up, or whether this is a question that has no one answer in the passage. When you are sure the answer to a question is in your Head, you can go ahead and answer it from what you know with some confidence.

D. The use of graphs, 3H keywords, and the confidence scale in strategy lessons

Ms G: Your graphs are really showing your good work now, though. The stars on your graph are for every time you get more than 80% on a passage, for your comprehension, the 3Hs, and the underlining. Every time you get seven out of seven, or six out of seven for these you get a star for your graphs, and a stamp for your papers. A superstar stamp too, if you get 100%. Well done everyone. We must work hard now, so we can get a passage finished this lesson.

This is the page I want your reading passports open at, pages six and seven. There are five parts to the 3H strategy. There are five parts, just like the star prompt card you have. The first part is use your head. Use your head, and it means as it says here (Pointing to the place in the Reading Passport). What are some things that you do when you use your head?

And how do you do that? You ask? QUESTIONS! And this group has been asking some very good questions about the passages we have been reading. That's something you have to do every time. Ask good questions. OK?

Now, what about during reading how do you use your head during reading? How do you use your head during reading?

Yes. As you listen you try and figure out what you do not understand. You might make yourself a little note of what seems unclear in the passage and then ask a question about it. There were some words like "humble", "Tsunami", and "technological" in passages that you need to ask questions about. And sometimes there are some bits of the passage that don't fit together and that's what you need to ask questions about. So when you are using the 3H strategy the first thing you do is you USE YOUR HEAD. Just like this says. In your book, points 1 and 2 go together because after you have figured out what you don't understand and what you need to find out, then you have to ask a question, ask for help if you need to. Ask for help if you need to. This is all in the Head First part of the 3H strategy.

NOW! The next part is using the 3H strategy to answer questions after you have read or followed along with a passage. We use the 3Hs. Tell me the three Hs. Tell me the first one. Second? Third?

Look at the descriptions of the 3Hs on your prompt card and in your reading passport. What do you think are the most important words in these descriptions? For Here?

Students: One sentence.

Ms G.: Why "one sentence"? Yes the answer is in one sentence. Straight and simple in the passage. Many of the same words in the question and the answer. So lets put
a box around "one" to remind us that Here questions have their answers in one sentence in the passage. What about Hidden?

Students: Two

Ms G: Two for Hidden? Well, we do look in two or more places in the passage for Hidden. But we also use our heads and the passage. I think "two" might be misleading. What else? Join together? You join together. That is the best keyword or phrase for Hidden -- Join Together. There are two ways of making a hidden answer. One, Join together two or more pieces of information in the passage. And Two, Join together information from what we know in our heads and from the passage.

So Here, Hidden, What is the next one?

In my head. Not in the passage. What key words here? Why? "You already know." That seems to sum this H up. You already know the answer to many of these questions. Sometimes they ask for your opinions, what you think. Other times though, these questions aren't as easy. They often ask you to tell you reasons for your answer. The reasons you give have to be well thought through or you won't get these questions right. You already know the answers, but you still have to work, and think, and try hard.

Good! Now we have the keywords to remember. Learn them. I'll be checking to see if you know what they mean too. OK what is the last part if the 3H strategy on these pages?

Students: Check your answers!

Ms G: This section reminds you how to check you answer. When you are doing the 3H strategy how you check your answer is this: Read the question and then immediately after that read the answer and see if they fit. The important thing to remember here is to read the question really carefully, because that's how many kids make mistakes when they're doing comprehension questions. They don't read carefully enough to know what they are actually supposed to answer. It is really important that you reread your questions and answers to see if they fit together. Any questions? I know you have been trying to remember all the parts of the 3H strategy. Today we are taking time to make sure you really understand all of the parts of the 3H strategy. Any questions? Any comments?

Just one more thing I want to talk about before we go on to our passage. We have lots of time for it today. Let's talk about when you circle "Got it, Didn't get it, or Maybe" after your answer. Look at your last sheet of questions. The confidence scale tells you which questions and answers you really have to check even more thoroughly than the others. If you have circled "I got it", then those are answers that you are confident of. The ones you should really check over are the ones where you say "Maybe". or you say "Didn't get it" because there might be a clue in the question to help you be more confident in your answer. There might be something you missed the first time around. So when you check your answers you make sure you check the "Maybe"s or the "Didn't get it"s first. You leave the "I got it"s for last because those are the ones you are confident you got right. Why do you think I am suggesting that you should do this?
L-3. Examples of teacher talk used in the consolidation and celebration of strategy use

A. Encouraging students to have good reasons for their answers

Ms G: Spirits to the Squamish people often took the form of animals, and the animals became individual people's spirit helpers. Now if you had a spirit helper, if you had a special animal that meant something very special to you, what sort of animal would it be?

Student 1: A turtle.
Ms G: Why?
Student 1: I like turtles.
Ms G: Why do you like turtles?
Student 1: Because they're neat and they're slimy and all that.
Ms G: What do you like something that's slimy and all that?
Student 1: Because I like how they feel. They're my favourite animal.
Ms G: They are your favourite animal. OK. I still want to know why they are your favourite animal.
Student 1: Because whenever an enemy comes they can hide in their shell.
Ms G: Now we are getting somewhere. Say that again.
Student 1: Whenever an enemy comes they can hide in their shell.
Ms G: OK! For you, the turtle is your favourite animal for lots of good reasons. A particularly good reason is because it can protect itself from its enemies. People can learn from the turtle how to protect themselves from enemies. That's very good. We have to get past that "I like it" and "because it's neat" to get to those wonderful reasons just like you did.

Ms G: What would your animal be?
Student 2: A dog or a cow. A dog.
Ms G: Why?
Student 2: It can do tricks.
Ms G: A dog can do tricks. It's smart, isn't it? You want a spirit helper that is really smart to help you.
Student 2: When you run they can run after you.
Student 3: I like monkeys.
Ms G: Why do you like monkeys? Why would you have a monkey as a spirit helper?
Student 3: Because it is fun.
Ms G: What do they do that is fun?
Student 3: They swing from their tails.
Ms G: And why do you like that?
Student 3: They are clever and do tricks.
Student 4: They always look like they are on the monkey bars.
Ms G: Because they are clever is a good reason. You need to be clever in life to handle what happens to you.
Student 1: I have another one.
Ms G: Yes.
Student 1: A cheetah.
Ms G: Why?
Student 1: Because it can run fast.
Ms G: They sure can. And why is that good?
Student 1: So that is, like, the spirit of running fast. If an enemy comes, that's good..
Ms G: Right, so you can protect yourself again.

(interval)
Ms G: Any more questions before we read?
Student 2: How can that be a beaver?
Student 3: How can that be a killer whale?
Ms G: I don't know.
Student 1: Look at the teeth on that.
Ms G: This allows me to make an important point. In your passport, on the fifth page in the information about questions and answers section, it says, "There are some questions that have no answers." "There are some questions that have more than one correct answer." And the sort of questions you are asking now are these sorts of questions. I don't know. We can talk about what the answers might be but I don't know for sure, and I'm not sure looking up books would help.
Most important in answering questions 90% of the time is your reason for the answer that you put. That's why I say, "Go back to the passage". Because the passage can give you a good reason. If it's not in the passage, then you use your head. You think of a good reason why. It's not enough to say, "I like foxes because they're neat." You have to think, "I like foxes because they are . . . "
Student 1: Have fluffy tails . .
Ms G: Well, because they are very smart and they trick some of the other animals. Do you get my idea? Those sorts of questions we have to talk about to see what might be possible answers. It is best to have good answers that are well thought out.

B. Identifying important information in comprehension questions

Ms G: This is important. This is what I have noticed from your work. Now you are not getting many of these questions wrong at all, but the ones that you are getting wrong, are ones where you don't read the question carefully. Read number one, please.
Student 1: What is a mole?
Ms G: What's the most important word there?
Student 1: Mole.
Ms G: So everybody put a box around "mole" because it is the most important word.
Student 2: I'm going to box it.
Ms G: Please, read number two.
Student 3: What are three spirit helpers which could help a man in his work?
Ms G: What would you underline or box here? Student 4?
Student 4: Three.
Ms G: I might even underline or box "three spirit helpers". And I think I might underline one other word in there.
Student 2: Spirit helpers.
Ms G: Yeah. But there is one other word. Yes?
Student 2: Man. Man.
Ms G: Yes, because I don't want to know the helpers for a woman, I want to know what the helpers for a man are.
Ms G: Number three, Student 4.
Student 4: Why was the wolf a powerful spirit the Squamish never hunted?
Ms G: Yes. What would you underline here as the most important part? Student 5?
Student 5: Powerful spirit?
Ms G: I don't think that is the most important part. There is one particular spirit mentioned in this question. Paul?
Student 3: Wolf.
Ms G: OK. I'd make sure I knew it was a wolf that was important, that was never hunted. I have to find out why. Number five, would you read it please Grant?
Student 2: What are four jobs that spirit helpers can make easier for Squamish men and women?
Ms G: What would you underline?
Student 2: Men and women.
Ms G: Student 1?
Student 1: Men and women.
Ms G: Men and women, yeah, and something else.
Student 5: Four jobs.
Ms G: Yes. Four, and men and women, are most important.

C. Celebrating student effort and achievement

Students: Ah! Look at that.
Ms G: Student 3 has a certificate of achievement. She's got three stars on it. On three consecutive occasions, three times in a row, Jenny got above the goal line with both her strategy use and her comprehension. Now what I have done, is to make a certificate here that says, "Certificate of Achievement awarded to Student 3 for Learning the 3H Strategy". I have dated it today and signed it. And the 3H strategy is here on the certificate: Use your Head, Here, Hidden, In my Head, and Check your Answers.

Student 1: How about Head First? Oh it's there.
Student 2: How do you do those stars?
Ms G: I have a special stamp that does it. So Student 3, congratulations! If you get above the goal line on the passage we do today, you will be a 4-star certificate person which I hope you do. Look at the stars you got today. You got everything right. That was very good thinking, my girl. How do you feel?
Student 3: Happy.
Ms G: Me too.
APPENDIX M

Examples of the graphing and reward stamps used to motivate students during the 3H program

M-1. An example of a completed graph from a student's reading passport

M-2. Worksheets illustrating the use of reward stamps during the research
Farming in Japan

Farming villages are scattered throughout Japan. Most are on the plains along the coast, but some are in the mountains. Many farmers own 10 to 20 tiny fields, which are spread out over a large area. The average total size of a farm is 1.2 hectares. Most small farms are owned by families. Some members of the family will work on the farms only during the busy planting and harvesting times; the rest of the year they work in nearby factories or towns. Much of the work on the farms is done by women, children, and the older people in the family.

Rice and vegetables are grown throughout Japan. One popular vegetable is the giant white radish, called the daikon, which can grow up to a metre in length. Cabbage, spinach and broccoli are some of the other vegetables grown.

Fruit is another major crop. Persimmons and strawberries are grown almost everywhere. The north is known for its orchards of pear and apple trees. Fruit farmers in the central area grow peaches and grapes. In the south, oranges and mandarin oranges are grown. Even pineapples are grown in Okinawa, in the far south of the country.

Livestock is becoming increasingly important in Japanese farming. Pigs and chickens are raised throughout the country. Some beef and dairy cattle are raised, but mostly in Kyushu and Hokkaido where there is enough land to have pastures for these animals.

Although less than 15% of Japan is farmland, the farmers know how to get the most out of their land. They produce all the rice that is needed in Japan, and almost all the eggs and vegetables that people can eat. Farmers also produce much of the fruit and milk that is required. The Japanese depend on other countries for many other important foods. Japan imports nearly all of its corn, wheat, and soybeans, as well as a large amount of its meat.
1. What are four fruits grown in Japan?

- oranges
- pears
- tomatoes
- peaches

2. Who does most of the work on Japanese farms?

- women
- children
- older people

3. What are three farm products from Japan that are also produced in the United States?

- rice
- soybeans
- oranges

4. Where is pineapple grown in Japan? What must the climate be like there?

- they are grown in Okinawa
- it would be pretty hot

5. What is the name of the giant white radish grown in Japan called?

- It is called daikon

6. Why do you think Japanese farms are so small?

- because Japan is full of hills and mountains

7. Why do some members of farm families have to work in nearby factories or towns for part of the year?

- they work because they can keep up the farms, yes!
APPENDIX N

An example of the student reports written at the completion of 3H strategy training

Dear Mr and Mrs H..., 

My comprehension research is almost complete. Thank you for allowing Shelley to participate. Students at Eagle Ridge, Meadowbrook, and Walton Elementary Schools have worked hard to learn the 3H Strategy. This strategy helps students understand and answer comprehension questions posed about a section from a textbook, or other book. In future, this strategy should be useful whenever Shelley is faced with such a question-answering task.

During the strategy teaching sessions, Shelley learned about the 3Hs, listened to a passage on a social studies topic being covered in her classroom, then answered seven questions about the passage. She used the 3H Strategy to categorize each question as either HERE, HIDDEN, or In my HEAD according to where she thought the answer to each question could be found. I am pleased with the progress that Shelley has made during the last six weeks.

Accompanying this brief report you will find a single photocopy of two graphs which depict Shelley's progress on (a) answering comprehension questions, and (b) using the 3H Strategy to categorize questions and their answers as HERE, HIDDEN, or in my HEAD. Part of the strategy graph also shows how well Shelley was able to underline information from the passage which was useful in answering some of the questions. For each graph, scores have been converted to percentages. Each point on the comprehension and strategy graphs stands for Shelley's score on a different social studies passage. The underlining results are shown by the columns of a block graph drawn on the strategy graph.

Shelley has been interpreting her own graph for some time and will be able to explain it further. The goal line for students was set at 80%. If Shelley scored above 80% for comprehension, strategy use, or underlining she received a star on her graph.

Comprehension Results (bottom graph)

On the comprehension graph, the points that are before the first solid line are measures that were taken prior to Shelley learning about the 3H Strategy. Shelley's comprehension performance before the 3H strategy averaged to 63%.

The six points which occur next show Shelley's comprehension results while learning about the 3H strategy. Her comprehension performance at this time averaged to 93%.

The last section of the graph shows Shelley's comprehension achievement on her own after learning the 3H strategy. Shelley's comprehension performance after the 3H strategy averaged to 86%.

This is an improvement of 23% on answering comprehension questions.

Strategy Use Results (top graph)

Both the strategy use and the underlining results are shown on the top graph. By underlining information from the passage that helps answer HERE and HIDDEN questions, students can show that they have used the 3H Strategy and have a reason for their answer. This was an important part of our work with the 3H strategy during the final strategy teaching and test sessions. From the block graph showing underlining, it is evident that Shelley can locate appropriate information in the passage. This is an important skill in answering comprehension questions.
On the 3H strategy graph the points before the solid line show the Shelley's success in categorizing questions and their answers as either HERE, HIDDEN, or In my HEAD during the strategy teaching sessions. Shelley averaged 88% correct during this time.

The three points after the solid vertical line indicate Shelley's accuracy of independent strategy use. On the test passages, she was able to maintain an average score of 86%.

General Comment

You have done a fine job, Shelley. I have appreciated your cheerful and focused attitude during our weeks together in Mr Linfoot's room. You have learned the 3H strategy well and used it independently and accurately in the passages you have done on your own. Take extra care to read the questions accurately, though. You must understand what a question is asking to be able to answer it really well.

Thank you for your part in the grade six presentation. You did a fine job of explaining the underlining part of the 3H Strategy to your classmates, Shelley.

I am pleased to have met and worked with you. Remember to use the 3Hs! I'll check back with you in the spring of 1992.

I am hopeful that the progress Shelley has made will help her with her schoolwork in the future. I will be following up on the students who have taken part in my research in March/April of 1992, so I look forward to seeing her again then. If you have any further questions about this research, I would encourage you to attend the parent night at Walton school to be held at 6:30 pm on Tuesday the 26th of November (note attached). I thank you for your cooperation and am indebted to Shelley for her participation in my research.

Sincerely,

Lorraine Graham