PIRLS 2006

ASSESSMENT FRAMEWORK AND SPECIFICATIONS   2nd Edition

Progress in International Reading Literacy Study

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PIRLS 2006 Assessment Framework and Specifications 2nd Edition

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PREFACE

Reading is fundamental to all forms of personal learning and intellectual growth. In today's global society, a literate population is essential for a nation's social and economic development. To improve the quality of life for its people, a country needs to maximize the potential of its human, social, and material resources. Citizens that know how to read are crucial to this effort.

Concrete information about how well their students can read provides policymakers and researchers in every country with insight into how to improve literacy and reading achievement. To help improve reading teaching and learning around the world, the IEA General Assembly approved reading literacy as an essential component of the IEA's regular cycle of core studies, which also includes mathematics and science (known as TIMSS). With PIRLS 2006, IEA's Progress in International Reading Literacy Study (PIRLS) is in its second round of assessing reading achievement for students in their fourth year of school.

IEA, the International Association for the Evaluation of Educational Achievement, was founded in 1959 for the purpose of conducting comparative studies focusing on educational policies and practices in various countries around the world. In the 45 years since, IEA's membership has grown to more than 50 countries. It has a Secretariat located in Amsterdam, the Netherlands, and a data processing center in Hamburg, Germany. IEA studies have reported on a wide range of topics and subject matters, each contributing to a deep understanding of educational processes within individual countries and within a broad international context.

PIRLS 2006 provides countries with the unique opportunity to obtain internationally comparative data about how well their children can read. Countries also will obtain detailed information about home supports for literacy as well as school instruction. For the 35 countries that participated in PIRLS 2001, PIRLS 2006 will provide information on changes in students' reading achievement. Since PIRLS will continue on a five-year cycle into the future, new participants can collect important baseline information for monitoring trends in reading literacy.

The PIRLS 2006 Assessment Framework and Specifications is intended as a blueprint for IEA's 2006 assessment of reading literacy. Adapted from the widely-accepted PIRLS 2001 framework, the 2006 framework resulted from a collaborative process involving many individuals and groups – notably the PIRLS Reading Development Group (RDG) and the National Research Coordinators (NRCs) of the more than 40 countries participating in PIRLS. All told, the framework underwent several iterations in response to the comments and interests of the PIRLS countries and the reading research community, and embodies the ideas and interests of many individuals and organizations around the world.

Hans Wagemaker
Executive Director, IEA

The TIMSS & PIRLS International Study Center at Boston College

The TIMSS & PIRLS International Study Center at Boston College serves as the International Study Center for IEA's studies in mathematics, science, and reading – the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS). The staff at the Study Center is responsible for the design and implementation of the study. The following had major responsibility for preparing the PIRLS framework for the 2006 assessment.

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PIRLS Project Management Team

In implementing PIRLS, the TIMSS & PIRLS International Study Center at Boston College works closely with the IEA Secretariat in Amsterdam, Statistics Canada in Ottawa, the IEA Data Processing Center in Hamburg, and Educational Testing Service in Princeton, New Jersey. In each country, a national representative, called the National Research Coordinator (NRC), is responsible for implementing PIRLS in accordance with international procedures.

International Association for the Evaluation of Educational Achievement (IEA)

The IEA provides overall support in coordinating PIRLS. The Secretariat, located in Amsterdam, has particular responsibility for membership, translation verification, and hiring the quality control monitors. The Data Processing Center, located in Hamburg, is responsible for the accuracy and consistency of the PIRLS database within and across countries. The following persons are closely involved with PIRLS.

Hans Wagemaker
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Statistics Canada is responsible for PIRLS sampling activities in conjunction with Pierre Foy of the TIMSS & PIRLS International Study Center and the PIRLS Sampling Referee, Keith Rust of Westat, Inc. in the United States.

Marc Joncas
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Educational Testing Service

Educational Testing Service provides psychometric support to the TIMSS and PIRLS International Study Center. Mathias Von Davier is the ETS liaison to the Study Center.

PIRLS 2006 Advisory Groups

Updating the PIRLS Framework and Specifications for the 2006 assessment was a collaborative effort involving a series of reviews by the Reading Development Group, the Questionnaire Development Group, and the National Research Coordinators.

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National Research Coordinators

The PIRLS National Research Coordinators (NRCs) work with the project staff in the various areas to ensure that the study is responsive to their concerns, both policy-oriented and practical, and are responsible for implementing the study in their countries. The PIRLS NRCs for the 2006 assessment made excellent suggestions for updating the framework and specifications. A full list of NRCs is in Appendix A.

1 Overview of IEA's PIRLS Assessment

The IEA and Reading Literacy

Reading literacy is one of the most important abilities students acquire as they progress through their early school years. It is the foundation for learning across all subjects, it can be used for recreation and for personal growth, and it equips young children with the ability to participate fully in their communities and the larger society.

Because it is vital to every child's development, the International Association for the Evaluation of Educational Achievement (IEA) conducts a regular cycle of studies of children's reading literacy and the factors associated with its acquisition in countries around the world. IEA's Progress in International Reading Literacy Study (PIRLS) focuses on the achievement of young children in their fourth year of schooling and the experiences they have at home and at school in learning to read. Designed to measure trends in reading literacy achievement, PIRLS is conducted every five years. The first PIRLS assessment took place in 2001; the next assessment after the 2006 assessment is planned for 2011.

Throughout the framework, various sources that have provided a research and scholarly basis for the framework are referenced. These references are only a sample of the volumes of literature and research that have informed the PIRLS framework, including considerable research by countries participating in PIRLS.

IEA's 1991 Reading Literacy Study (Elley, 1992, 1994; Wolf, 1995) served as a foundation for PIRLS. It provided a basis for the PIRLS definition of reading literacy and for establishing the framework and developing the assessment instruments. Although the 1991 study provided the groundwork for PIRLS, the PIRLS Framework and Specifications were newly developed for the first assessment in 2001 (Campbell, Kelly, Mullis, Martin, & Sainsbury, 2001) and updated for the 2006 assessment. The PIRLS Framework and Specifications for 2006 and the instruments developed to assess the framework reflect the IEA's commitment to be forward-thinking and incorporate the latest approaches to measuring reading literacy.

Many of the countries participating in PIRLS 2006 also participated in the 2001 study. These countries will be able to measure trends in reading achievement across the five-year period from 2001 to 2006.

A Definition of Reading Literacy

In naming its 1991 study, the IEA decided to join the terms *reading* and *literacy* to convey a broad notion of what the ability to read means – a notion that includes the ability to reflect on what is read and to use it as a tool for attaining individual and societal goals. "Reading literacy" has been maintained for PIRLS, as it remains the appropriate term for what is meant by "reading" and what the study is assessing.

In developing a definition of reading literacy to serve as the basis for PIRLS, the IEA looked to its 1991 study, in which reading literacy was defined as "the ability to understand and use those written language forms required by society and/or valued by the individual." The Reading Development Group for 2001 elaborated on this definition for PIRLS, so that it applies across ages yet makes explicit reference to aspects of the reading experience of young children. For 2006, the Reading Development Group refined the last sentence to highlight the widespread importance of reading in school and everyday life. The definition follows.

> For PIRLS, reading literacy is defined as the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment.

This view of reading reflects numerous theories of reading literacy as a constructive and interactive process (Anderson & Pearson, 1984; Chall, 1983; Ruddell & Unrau, 2004; Walter, 1994). Readers are regarded as actively constructing meaning and as knowing effective reading strategies and how to reflect on reading (Clay, 1991; Langer, 1995; Thorndike, 1973). They have positive attitudes toward reading and read for recreation. Readers can learn from a host of text types, acquiring knowledge of the world and themselves. They can enjoy and gain information from the many multi-modal forms in which

text is presented in today's society (Greaney & Neuman, 1990; Organization for Economic Cooperation and Development, 1999; Wagner, 1991). This includes traditional written forms such as books, magazines, documents, and newspapers. It also encompasses electronic presentations such as the Internet, email, and text messaging as well as text included as part of various video, film and television media, advertisements, and labeling.

Meaning is constructed through the interaction between reader and text in the context of a particular reading experience (Rosenblatt, 1978). The reader brings a repertoire of skills, cognitive and meta-cognitive strategies, and background knowledge. The text contains certain language and structural elements and focuses on a particular topic. The context of the reading situation promotes engagement and motivation to read, and often places specific demands on the reader.

Discussing what they have read with different groups of individuals allows students to construct text meaning in a variety of contexts (Guice, 1995). Social interactions about reading in one or more communities of readers can be instrumental in helping students gain an understanding and appreciation of texts. Socially constructed environments in the classroom or school library can give students formal and informal opportunities to broaden their perspectives about texts and seeing reading as a shared experience with their classmates. This can be extended to communities outside of school as students talk with their families and friends about ideas and information acquired from reading.

Overview of Aspects of Student's Reading Literacy

PIRLS focuses on three aspects of student's reading literacy:

- ❚❚ processes of comprehension;
- ❚❚ purposes for reading; and
- ❚❚ reading behaviors and attitudes

Processes of comprehension and purposes for reading are the foundation for the PIRLS written assessment of reading comprehension.

Figure 1 shows the reading processes and purposes assessed by PIRLS and the percentages of the test devoted to each. It should be noted that the four processes are assessed within each purpose for reading. The reading purposes and the processes for comprehension are described in Chapter 2.

The reading purposes and comprehension processes will be assessed using test booklets containing five literary and five informational passages. Each passage will be accompanied by approximately 12 questions, with about half multiple-choice and half constructed-response item format. The design of the written assessment is discussed in detail in Chapter 4 and sample reading passages and questions from the PIRLS 2001 assessment are presented in Appendix B.

Figure 1
Percentages of Reading Assessment
Devoted to Reading Purposes and Processes

Purposes for Reading	
Literary Experience	**50%**
Acquire and Use Information	**50%**

Processes of Comprehension	
Focus on and Retrieve Explicitly Stated Information	**20%**
Make Straightforward Inferences	**30%**
Interpret and Integrate Ideas and Information	**30%**
Examine and Evaluate Content, Language, and Textual Elements	**20%**

Reading Literacy Behaviors and Attitudes

Reading literacy involves not only the ability to construct meaning from a variety of texts, but also behaviors and attitudes that support lifelong reading. Such behaviors and attitudes contribute to the full realization of the individual's potential within a literate society.

A positive attitude toward reading may be among the most important attributes of a lifelong reader. Children who read well typically display a more positive attitude than do children who have not had a great deal of success with reading (Mullis, Martin, González, & Kennedy, 2003). Children who have developed positive attitudes and self-concepts regarding reading are also more likely to choose reading for recreation. When children read on their own time they are not only demonstrating a positive attitude, they are also gaining valuable experience in reading different types of texts that further their development as proficient readers.

In addition to reading for enjoyment, reading for knowledge and information is a hallmark of reading literacy acquisition. Using informational texts to learn more about a topic may help children develop their interests and gain confidence in their reading abilities. Furthermore, the knowledge gained through such reading enhances subsequent reading, broadening and deepening the reader's interpretation of texts.

Discussing one's reading, orally or in writing, establishes the reader as a member of a literate community. Readers can further develop their understanding of texts and explore various perspectives and interpretations by talking with other readers. These exchanges of ideas sustain a literate community, which can promote intellectual depth and openness to new ideas within society.

A student questionnaire will address students' attitudes towards reading and their reading habits. In addition, questionnaires will be given to students' parents, teachers, and school principals to gather information about students' home and school experiences in developing reading literacy. To provide information about national

contexts, countries will complete questionnaires about reading goals and curricula and a profile of reading education in each country will be compiled. Chapter 3 describes the reading contexts addressed by the PIRLS questionnaires.

Student Population Assessed

PIRLS assesses the reading literacy of children in their fourth year of formal schooling. The target population is defined as follows.

> The target grade should be the grade that represents four years of schooling, counting from the first year of ISCED Level 1.

ISCED stands for the International Standard Classification of Education developed by the UNESCO Institute for Statistics. Level 1 corresponds to primary education or the first stage of basic education. The first year of Level 1 should mark the beginning of "systematic apprenticeship of reading, writing and mathematics (UNESCO, 1999)." Four years later would be the target grade, which is the fourth grade in most countries. However, given the linguistic and cognitive demands of reading, PIRLS would not want to assess very young children. Thus PIRLS also tries to ensure that students do not fall under the minimum average age at the time of testing for PIRLS 2001, which was 9.5 years old.

This population was chosen for PIRLS because it is an important transition point in children's development as readers. Typically, at this point, students have learned how to read and are now reading to learn. By assessing the fourth grade, PIRLS is providing data that will complement TIMSS, IEA's Trends in International Mathematics and Science Study, which regularly assesses achievement at fourth and eighth grades. By participating in PIRLS and TIMSS, countries will have information at regular intervals about how well their students read and what they know in mathematics and science. PIRLS also complements another international study of student achievement, the OECD's Programme for International Student Assessment (PISA),

which assesses the reading literacy of 15-year-olds. In Appendix C, the similarities and differences between PIRLS and PISA are discussed in more detail.

2 PIRLS Reading Purposes and Processes of Reading Comprehension

PIRLS examines the processes of comprehension and the purposes for reading, however, they do not function in isolation from each other or from the contexts in which students live and learn. The first two aspects of reading literacy addressed by PIRLS, processes of comprehension and purposes for reading, form the basis of the written test of reading comprehension. The last aspect, behavior and attitudes, will be addressed by the student questionnaire (see Chapter 3).

Processes of Comprehension

Readers construct meaning in different ways. They focus on and retrieve specific ideas, make inferences, interpret and integrate information and ideas, and examine and evaluate text features. Transcending these processes are the metacognitive processes and strategies that allow readers to examine their understanding and adjust their approach (Jacobs, 1997; Paris, Wasik, & Turner, 1996; VanDijk & Kintsch, 1983). In addition, the knowledge and experiences that readers bring to reading equip them with an understanding of language, texts, and the world through which they filter their comprehension of the material (Alexander & Jetton, 2000; Beach & Hynds, 1996; Clay, 1991; Hall, 1998).

Four types of comprehension processes are used in the PIRLS assessment to develop the comprehension questions for the passages presented to students. Across the assessment, a combination of questions, each dealing with one of the processes, enables students to demonstrate a range of abilities and skills in constructing meaning from written texts. Along with each process and its components, examples of questions that may be used to assess that process are discussed. The types of comprehension processes are described below.

In thinking about assessment questions, there is, of course, a substantial interaction between the length and complexity of the text and the sophistication of the comprehension processes required. It may initially seem that locating and extracting explicitly stated information would be less difficult than, for example, making interpretation across an entire text and integrating those with external ideas and experiences. All texts are not equal, however, varying enormously in numerous features such as length, syntactic complexity, abstractness of ideas, and organizational structure.

Focus on and Retrieve Explicitly Stated Information

Readers vary the attention they give to explicitly stated information in the text. Some ideas in the text may elicit particular focus and others may not. For example, readers may focus on ideas that confirm or contradict predictions they have made about the text's meaning or that relate to their general purpose for reading. In addition, readers often need to retrieve information explicitly stated in the text, in order to answer a question they bring to the reading task, or to check their developing understanding of some aspect of the text's meaning.

In focusing on and retrieving explicitly stated information, readers use various ways to locate and understand content that is relevant to the question posed. Retrieving appropriate text information requires that the reader not only understand what is stated explicitly in the text, but also how that information is related to the information sought.

Successful retrieval requires a fairly immediate or automatic understanding of the text. This process needs little or no inferring or interpreting. There are no "gaps" in meaning to be filled – the meaning is evident and stated in the text. The reader must, however, recognize the relevance of the information or idea in relation to the information sought.

Focus on the text typically remains at the sentence or phrase level in this type of text processing. The process may require the reader to focus on and retrieve several pieces of information; but in each case the information is usually contained within a sentence or phrase.

Reading tasks that may exemplify this type of text processing include the following:

- identifying information that is relevant to the specific goal of reading
- looking for specific ideas
- searching for definitions of words or phrases
- identifying the setting of a story (e.g., time, place)
- finding the topic sentence or main idea (when explicitly stated)

Make Straightforward Inferences

As readers construct meaning from text, they make inferences about ideas or information not explicitly stated. Making inferences allows the reader to move beyond the surface of texts and to fill in the "gaps" in meaning that often occur in texts. Some of these inferences are straightforward in that they are based mostly on information that is contained in the text: the reader may merely need to connect two or more ideas or pieces of information. Although the ideas may be explicitly stated, the connection between them is not, and thus must be inferred. Straightforward inferences are very much text-based. Although not explicitly stated in the text, the meaning remains relatively clear.

Skilled readers often make these kinds of inferences automatically. They may immediately connect two or more pieces of information, recognizing the relationship even though it is not stated in the text. In many cases, the author has constructed the text to lead readers to the obvious or straightforward inference. For example, the actions of a character across the story may clearly point to a particular character trait, and most readers would come to the same conclusion about that character's personality or viewpoint.

With this type of processing, the reader typically focuses on more than just sentence- or phrase-level meaning. The focus may be on local meaning, residing in part of the text, or on more global meaning, representing the whole text. In addition, some straightforward inferences may call upon readers to connect local and global meanings.

Reading tasks that may exemplify this type of text processing include the following:

- inferring that one event caused another event
- concluding what is the main point made by a series of arguments
- determining the referent of a pronoun
- identifying generalizations made in the text
- describing the relationship between two characters

Interpret and Integrate Ideas and Information

As with the more straightforward inferences, the reader engaging in this process may focus on local or global meanings, or may relate details to overall themes and ideas. In any case, the reader is processing text beyond the phrase or sentence level.

As readers interpret and integrate ideas and information in the text, they often need to draw on their understanding of the world. They are making connections that are not only implicit, but that may be open to some interpretation based on their own perspective. When they interpret and integrate text information and ideas, readers may need to draw on their background knowledge and experiences more than they do for straightforward inferences. Because of this, meaning that is constructed through interpreting and integrating ideas and information is likely to vary among readers, depending upon the experiences and knowledge they bring to the reading task.

By engaging in this interpretive process, readers are attempting to construct a more specific or more complete understanding of the text by integrating personal knowledge and experience with meaning that resides in the text. For example, the reader may draw on experience to infer a character's underlying motive or to construct a mental image of the information conveyed.

Reading tasks that may exemplify this type of text processing include the following:

- discerning the overall message or theme of a text
- considering an alternative to actions of characters
- comparing and contrasting text information
- inferring a story's mood or tone
- interpreting a real-world application of text information

Examine and Evaluate Content, Language, and Textual Elements

As readers examine and evaluate the content, language, and elements of the text, the focus shifts from constructing meaning to critically considering the text itself. In terms of content, readers draw on their interpretations and weigh their understanding of the text against their understanding of the world – rejecting, accepting, or remaining neutral to the text's representation. For example, the reader may counter or confirm claims made in the text or make comparisons with ideas and information found in other sources.

In reflecting on text elements, such as structure and language, readers examine how meaning is presented. In doing so, they draw upon their knowledge of text genre and structure, as well as their understanding of language conventions. They may also reflect on the author's devices for conveying meaning and judge their adequacy, and question the author's purpose, perspective, or skill.

The reader engaged in this process is standing apart from the text and examining or evaluating it. The text content, or meaning, may be examined from a very personal perspective or with a critical and objective view. Here the reader relies on knowledge about the world or on past reading.

In examining and evaluating elements of text structure and language, readers draw upon their knowledge of language usage and general or genre-specific features of texts. The text is considered as a way to convey ideas, feelings, and information. Readers may find weaknesses in how the text was written or recognize the successful use of the author's craft. The extent of past reading experience and familiarity with the language are essential to this process.

Reading tasks that may exemplify this type of text processing include the following:

- evaluating the likelihood that the events described could really happen
- describing how the author devised a surprise ending
- judging the completeness or clarity of information in the text
- determining an author's perspective on the central topic

Purposes for Reading

Reading literacy is directly related to the reasons why people read. Broadly, these reasons include reading for personal interest and pleasure, reading to participate in society, and reading to learn. For young readers, emphasis is placed on reading for interest or pleasure and reading to learn.

The PIRLS assessment of reading literacy will focus on the two purposes that account for most of the reading done by young students both in and out of school:

- reading for literary experience; and
- reading to acquire and use information

Because both types of reading are important at this age, the PIRLS assessment contains an equal proportion of material assessing each purpose. Although the assessment distinguishes between purposes for reading, the processes and strategies readers use for both purposes are perhaps more similar than different.

Each of these purposes for reading is often associated with certain types of texts. For example, reading for literary experience is often accomplished through reading fiction, while reading to acquire and use information is generally associated with informative articles and instructional texts. However, purposes for reading do not align strictly with types of texts. For example, biographies or autobiographies can be primarily informational or literary, but include characteristics of both purposes. Because people's tastes and interests are so varied, almost any text could meet either purpose.

The content, organization, and style that may be typical of a particular text genre have implications for the reader's approach to understanding the text (Graesser, Golding, & Long, 2000; Kirsch & Mosenthal, 1989; Weaver & Kintsch, 1996). It is in the interaction between reader and text that meanings are made and purposes are achieved. For the assessment, passages will be classified by their primary purposes and by the kinds of questions asked. That is, passages classified as informational will be accompanied by questions about the information contained in the passages and those classified as literary will have questions addressing theme, plot events, characters, and setting.

The early reading of most young children centers on literary and narrative text types. In addition, many young readers also enjoy acquiring information from books and other types of reading material. This kind of reading becomes more important as students develop their literacy abilities and are increasingly required to read in order to learn across the curriculum (Langer, 1990).

Within each of the two purposes for reading, many different text forms can be identified. Texts differ in the way in which ideas are organized and presented and elicit varying ways of constructing meaning (Goldman & Rakestraw, 2000). Text organization and format can vary to a great degree, ranging from sequential ordering of written material to snippets of words and phrases arranged with pictorial and tabular data. In selecting texts for the PIRLS assessment, the aim is to present a wide range of text types within each purpose for reading. Texts will be selected only from sources typical of those available to students in and out of school. The goal is to create a reading experience for students participating in the assessment that, as much as possible, is similar to authentic reading experiences they may have in other contexts.

The two purposes for reading and the different types of texts included within each are described in the following sections.

Reading for Literary Experience

In literary reading, the reader engages with the text to become involved in imagined events, setting, actions, consequences, characters, atmosphere, feelings, and ideas, and to enjoy language itself. To understand and appreciate literature, the reader must bring to the text his or her own experiences, feelings, appreciation of language and knowledge of literary forms. For young readers, literature offers the opportunity to explore situations and feelings they have not yet encountered. The main form of literary texts used in the PIRLS assessment is narrative fiction. Given differences in curricula and cultures across the participating countries, it is difficult for PIRLS to include some types of literary texts. For example, poetry is difficult to translate and plays are not widely taught in the primary grades.

Events, actions, and consequences depicted in narrative fiction allow the reader to experience vicariously and reflect upon situations that, although they may be fantasy, illuminate those of real life. The text may present the perspective of the narrator or a principal character, or there may be several such viewpoints in a more complex text. Information and ideas may be described directly or through dialogue and events. Short stories or novels sometimes narrate events chronologically, or sometimes make more complex use of time with flashbacks or time shifts.

Reading to Acquire and Use Information

In reading for information, the reader engages not with imagined worlds, but with aspects of the real universe. Through informational texts, one can understand how the world is and has been, and why things work as they do. Readers can go beyond the acquisition of information and use it in reasoning and in action. Informational texts need not be read from beginning to end; readers may select the parts they need. Different organizations make different demands on the reader, although there are no hard and fast distinctions. It also can be noted that despite their organization, informational texts may or may not have headings or other types of textual organizers.

Informational texts ordered chronologically present their ideas as a sequence ordered in time. Such texts may recount events, for example as historical facts or as diary entries, personal accounts, or letters. Biographies and autobiographies, detailing the events of real lives, are a major group of texts of this type. Other chronologically organized texts are procedural, for example recipes and instructions. Here, the imperative form is often used and the reader is expected not just to understand but also to act in accordance with what is read.

Sometimes information and ideas are organized logically rather than chronologically. For example, a research paper may describe cause and effect, articles can compare and contrast such things as societies or the weather, and editorials may present arguments and counter arguments or put forth a viewpoint with supporting evidence. Persuasive texts aim directly at influencing the reader's view as in the presentation of a problem and recommended solution. In discussion and persuasion, the reader must follow the development of ideas and bring to the text a critical mind in forming his or her own opinion.

Sometimes informational texts are expository, presenting explanations or describing people, events, or things. In a thematic organization, aspects of a topic are clustered and described together in the text. Finally, it should be observed that presentation of information need not be in the form of continuous text. Such forms include brochures, lists, diagrams, charts, graphs, and those that call for actions on the part of the reader like advertisements or announcements. It should be emphasized that a single informational text often uses one or more ways of presenting information. Even informational pieces that are primarily text, often are documented with tables or illustrated with pictures and diagrams.

3 Contexts for Learning to Read

Young children acquire reading literacy
through a variety of activities and experi-
ences within different contexts. At fourth
grade, children develop the skills, behaviors,
and attitudes associated with reading literacy
mainly at home and in school. There, various
resources and activities foster reading literacy.
Some of the experiences are very structured,
particularly those that occur in classrooms as
part of reading instruction. Others, less struc-
tured, occur as a natural and informal part of
the child's daily activities. Both are critical in
helping young children develop reading lit-
eracy. Moreover, each environment supports

the other, and the connection between home and school is an impor-
tant element in learning.

Beyond the direct home and school influences on children's read-
ing are the broader environments in which children live and learn.
Children's schools and homes are situated in communities with dif-
ferent resources, goals, and organizational features. These aspects
of the community will likely influence children's homes and schools
and thus their reading literacy. Even broader, yet as important, is the
national context in which children live and go to school. The resourc-
es available in a country, government decisions about education,
and the curricular goals, programs, and policies related to reading
education will influence the school and home contexts for learning
to read.

Figure 2 shows the relationships among the home, school, and
classroom influences on children's reading development and how
this interaction is situated within and shaped by the community and
country. The figure illustrates how student outcomes, including both
achievement and attitudes, are a product of instruction and experi-
ences gained in a variety of contexts. Also, it is noted that achieve-
ment and attitudes can be reinforcing. Better readers may enjoy and
value reading more than poorer readers, thus reading more and
further improving their skills. Indeed, the model in its entirety can
be viewed as a system of reciprocal influences as student outcomes
also feed back into the home, school, and classroom environments
to some degree.

To provide information about the national contexts in which chil-
dren's homes and schools are situated, PIRLS 2001 published the
PIRLS 2001 Encyclopedia (Mullis, Martin, Kennedy, & Flaherty, 2002),
a collection of essays on reading education in the participating
countries. Expanding upon the structure of the 2001 encyclopedia,
PIRLS 2006 will develop the *PIRLS 2006 Encyclopedia*. This volume will
incorporate responses from a new curriculum questionnaire, which
will focus on the national context for the support and implementa-
tion of reading curriculum and policy in a country. To gather informa-
tion about the home, school, and classroom factors associated with

the development of reading literacy, PIRLS 2006 will use question-naires completed by the students tested, their parents or caregivers, their school principals, and their teachers.

Figure 2
Contexts for the Development of Reading Literacy

National and Community Contexts

Home

School

Classroom

Instruction and Experiences

Student Reading Achievement and Attitudes and Behaviors
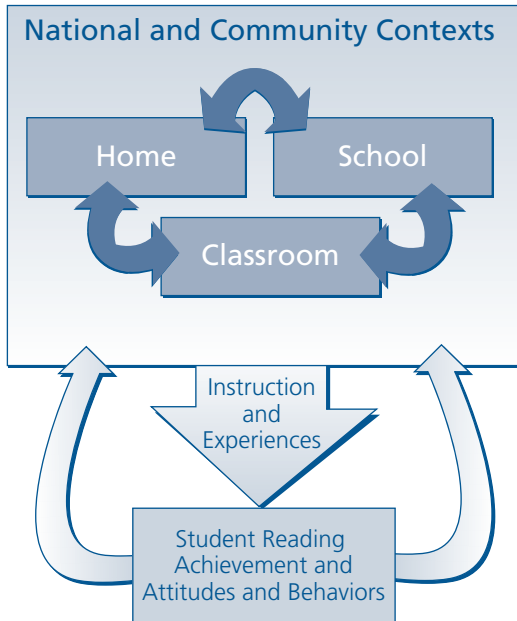
National and Community Contexts

Cultural, social, political, and economic factors all contribute to the backdrop of children's literacy development within a country and community. The success a country has in educating its children and producing a literate population depends greatly on the country's emphasis on the goal of literacy for all, the resources it has available, and the mechanisms it can assemble for providing effective pro-grams and incentives that foster reading and improve achievement.

Emphasis on Literacy. The value that a country places on literacy and literacy activities affects the commitment of time and resources

necessary for a literature-rich environment. A country's decision to make literacy a priority is influenced in part by people's backgrounds and beliefs about the importance of literacy for success both within and outside of school (Bourdieu, 1986; Street, 2001). Even without extensive economic resources, countries can promote literacy through national and local policies on reading education. Outside of school, parents and others within the community can foster an environment that values reading by inviting and sharing experiences with text.

Demographics and Resources. The characteristics of a country's population and the national economy can have a tremendous impact on the relative ease or difficulty of producing high rates of literacy among its people and on the availability and extent of the resources required. Countries with a large and diverse population and few material and human resources generally face greater challenges than those with more favorable circumstances (Greaney, 1996). Nationally and locally, the diversity of languages used, levels of adult literacy, and other social and health demographics can influence the difficulty of the educational task. Changing populations due to migration within and across country borders also may affect priorities among literacy-related issues in education policy and require additional resources. Having economic resources enables better educational facilities and greater numbers of well-trained teachers and administrators. It also provides the opportunity to invest in literacy through widespread community programs and by making print materials and technology more readily available in community or school libraries, classrooms, and in homes (Neuman, 1999).

Governance and Organization of Education System. How educational policies are established and implemented can have a tremendous impact upon how schools operate. Some countries have highly centralized systems of education in which most policy-related decisions are made at the national or regional level and there is a great deal of uniformity in education in terms of curriculum, textbooks, and general policies. Other countries have much more decentralized systems in which many important decisions are made at the local and

school levels, resulting in greater variation in how schools operate and students are taught.

The way students proceed through school (also referred to as "student flow") is a feature of education systems that varies across countries. Particularly relevant for a study of fourth-grade reading achievement are the age of entry to formal schooling and the age when formal reading instruction begins. Students in countries that begin formal schooling at a younger age do not necessarily begin to receive formal reading instruction in their first year, due to the cognitive demands of reading. In addition, for a study of children at this level, the type of school that students generally attend during the early years and whether students will eventually move into a tracked or comprehensive program of study are of interest.

Curriculum Characteristics and Policies. Curricular policies are shaped in many different ways. At the highest level, they may be established in some detail by government and jurisdictional requirements. These may range from policies that govern the age or grade in which formal reading instruction begins to those that prescribe the types of material and the methods to be used in teaching reading. Even where external control over the curriculum is strong, the way the curriculum is implemented may be affected by local school characteristics and practices. Curricular aspects and governing policies particularly relevant to the acquisition of reading literacy include standards or benchmarks established for reading development, testing and promotion practices, policies for classroom assignment or grouping, instructional time, methods and materials, and ways of identifying students in need of remediation.

Home Contexts

Much research has provided insight into the importance of home environments for children's reading literacy. Long before children develop the cognitive and linguistic skills necessary for reading, early experiences with printed and oral language establish a foundation for learning (Adams, 1990; Ehri, 1995; Holdaway, 1979; Verhoeven, 2002). Particular home characteristics can create a climate that encourages children to explore and experiment with language and

various forms of texts. Parents and other family members impart their own beliefs about reading that shape the way that children are exposed to and experience text (Baker, Afflerbach, & Reinking, 1996; Cramer & Castle, 1994). As young children engage in more challenging and complex activities for play and recreation, both alone and with peers, the time devoted to literacy-related activities becomes critical. Throughout a child's development, the involvement of parents or caregivers remains central to the acquisition of reading literacy. The following discussion highlights some of the major aspects of the home that contribute to reading literacy development.

Activities Fostering Literacy. Central to the home environment are the literacy-related activities that parents or caregivers engage in with children or encourage and support (Gadsden, 2000; Leseman & de Jong, 2000; Snow & Tabors, 1996; Weinberger, 1996). As children develop their capacity for oral language, they are learning the rules of language use. This knowledge will be translated into expectations for printed language as well.

Perhaps the most common and important early literacy activity involves adults and older children reading aloud to young children. When children are read aloud to and encouraged to engage in the text and pictures in books, they learn that printed text conveys meaning and that being able to read is valuable and worthwhile.

Other encounters with print also help to establish children's awareness of and familiarity with text. Writing activities such as writing names or forming letters reinforces young children's developing awareness of text. Drawing, especially in connection with stories and storytelling, may also promote literacy. Research also indicates that children's play with books and other print material helps to lay the foundations of reading literacy (Taube & Mejding, 1996). Moreover, early associations of enjoyment with printed text establish a positive attitude toward reading that will motivate young readers (Martin, Mullis, & González, 2004).

Languages in the Home. Because learning to read is very much dependent on children's early experience with language, the language or

languages spoken at home, and how language is used, are important factors in reading literacy development. Children whose knowledge of the language used in formal reading instruction is substantially below that expected of children of that age are likely to be at an initial disadvantage. In addition, use of different languages or dialects at home and at school may cause problems for young students learning to read.

Economic Resources. As children mature, the support and guidance provided at home contributes to literacy development in many different ways. An important aspect of the home environment is the availability of reading material and educational resources. Research consistently shows a strong positive relationship between achievement and socioeconomic status, or indicators of socio-economic status such as parents' or caregivers' occupation or level of education. Research also shows that ready access to various types of printed material is strongly associated with literacy achievement (Purves & Elley, 1994). Homes that make such material available convey to children an expectation that learning to read is a desirable and worthwhile goal.

Social and Cultural Resources. Society and culture are inherent influences on the perceived importance of reading for academic and personal success. Parents and other family members convey their beliefs and attitudes in the way they teach their children to read and to appreciate text. Parents and caregivers engaging in many literacy activities fosters children's positive attitudes towards reading. For most children, the home provides modeling and direct guidance in effective literacy practices. Young children who see adults and older children reading or using texts in different ways are learning to appreciate and use printed material. Beyond modeling, parents or other caregivers can directly support reading development by expressing positive opinions about reading and literacy.

Home-School Connection. Across all of the home factors associated with acquiring reading literacy, parents' or caregivers' involvement in children's schooling may be key to literacy development (Christenson, 1992). Research shows that students who discuss their school studies and what they are reading with their parents or

caregivers are higher achievers than those who do not (Mullis, Martin, González & Kennedy, 2003). Involved parents or caregivers can reinforce the value of learning to read, monitor children's completion of reading assignments for school, and encourage children through praise and support.

Students' Out-of-School Literacy Activities. As children continue to develop reading literacy, the time they devote to reading and other recreational activities becomes significant. The child not only enjoys reading for recreation but also practices skills that are being learned. Reading for fun or to investigate topics of interest is the hallmark of lifelong reading. Thus, children may choose to spend their out-of-school time reading books or magazines, looking up information on the Internet, or going to a local library to read or take out books (Shapiro & Whitney, 1997).

Independent reading and discussing reading can be an integral part of the ongoing activities in the home. Children's parents and caregivers can encourage them to balance the time spent on literacy-related activities with that spent on perhaps less enriching pastimes such as playing video games or watching excessive amounts of television (National Reading Panel, 2000). Some research indicates a negative correlation between time spent watching television and reading achievement, while time spent reading for fun is positively correlated (VanderVoort, 2001).

Young readers and their friends also can be encouraged to take advantage of extracurricular activities promoting literacy skills provided through school and local libraries or other venues. The influence of peers can be helpful in making it desirable to participate in such activities. For example, students can share experiences and interpretations of text by going to see plays, joining book clubs, or performing their own skits. Discussing reading with their families, friends, and community members gives children the opportunity to participate in one or more communities of readers. These social interactions strengthen young readers' abilities to gain meaning from text and understand how different readers can make different interpretations.

School Contexts

Although the home can be a rich environment for developing reading literacy, for most children school remains the main location for formal learning and educational activities. By their fourth year of formal schooling, most students have acquired basic reading skills and are beginning to read more complex material with greater independence. This is due in part to the changed curricular demands placed on students at this level. At this point, children are transitioning from "learning to read" to "reading to learn" (Chall, 1983). Students' educational experiences may be especially significant at this point in their reading literacy development.

Many factors in school affect reading literacy acquisition, directly or indirectly. Some of the main school factors that contribute to the acquisition of reading literacy are discussed below.

School Policy and Curriculum. Literacy-related policy and curriculum at the school level establishes the context for the formal reading instruction children receive from the beginning of formal schooling. Such policies may include decisions about the emphasis on reading instruction in relation to other content areas. They also may include preferences of instructional approaches to be implemented at various stages of language development. In turn, such decisions help to shape the environment within the school and the resources that are required (Belanger, Winter, & Sutton, 1992).

School Environment and Resources. The school environment encompasses many factors that affect a student's learning. The sense of security that comes from having few behavior problems and little or no crime promotes a stable learning environment. School-wide programs that provide for the basic needs of students and their families (e.g., before- or after-school child care programs) may also be important. Other school-wide programs, which focus specifically on reading and literacy development, may directly support the acquisition of skills and attitudes toward reading literacy. The school environment is also enhanced when staff members show positive attitudes toward

students and collaborate in curricular and extracurricular activities that foster learning.

The extent and quality of school resources are also critical. These may include resources as basic as trained teachers or adequate classroom space, as well as less essential but beneficial resources like comfortable furniture and surroundings. The presence of a library or multi-media center may be particularly relevant for developing reading literacy. In addition, a reading specialist or language arts curriculum director can be important in strengthening the reading curriculum.

Classroom Contexts

Even though the curricular policies and resources of the school often set the tone for accomplishment in the classroom, students' day-to-day classroom activities are likely to have a more direct impact on their reading development than the school environment. The instructional approaches and materials used are clearly important to establishing teaching and learning patterns in the classroom, including the curriculum, the strategies employed to teach it, and the availability of books, technology, and other resources. The teacher, of course, is another very influential determinant of the classroom environment (Lundberg & Linnakyla, 1993). This can include his or her preparation and training, use of particular instructional approaches, and experience in teaching reading. Finally, the behaviors, attitudes, and literacy level of classmates may influence the teacher's instructional choices, thereby affecting a student's reading development (Kurtz-Costes & Schneider, 1994).

Teacher Training and Preparation. The qualification and competence of teachers can be critical. Much has been written about what makes a teacher effective. One issue is the nature, amount, and content of teachers' training and education. For example, whether or not a teacher has been extensively trained in teaching reading may be especially relevant for students' acquisition of reading literacy.

The extent of teachers' continuing education and exposure to recent developments within the field of teaching reading is also important. Professional development through seminars, workshops,

conferences, and professional journals can help teachers to increase their effectiveness and broaden their knowledge of reading literacy acquisition. In some countries and jurisdictions, teachers are required to participate in such activities. Moreover, it has been suggested that the profession of teaching is one that requires lifelong learning, and that the most effective teachers continue to acquire new knowledge and skills throughout their careers.

Classroom Environment and Structure. Young students spend many hours each day in one or more classrooms. Classroom environment and structure have a significant influence on reading literacy development. The classroom can vary greatly, from highly structured and teacher-centered to more open and student-centered. One fundamental characteristic that may dictate how teachers approach instruction is class size, or teacher-to-student ratio. Some research has indicated that smaller class sizes during the early years of schooling may benefit students' reading development.

Also related to reading development is the interaction among students, informally and in classroom discussion of reading and literacy-related activities (Baker, 1991; Baker, Dreher, & Guthrie, 2000; Gambrell & Almasi, 1997; Guthrie & Alvermann, 1999). Classrooms that encourage language development and establish a supportive environment for talking about reading may be especially effective.

Instructional Materials and Technology. Another aspect of the classroom that is relevant for reading literacy includes the extent of the reading material available to students. The reading material and technology that teachers use in reading instruction form the core of students' reading experience in school. The material can range from a single textbook or "reading series" containing a variety of text types, to several books and other print materials compiled by the teacher.

The presence of a classroom library or a special place for independent reading may foster positive reading habits and attitudes, in addition to giving students ready access to a wide variety of texts and text types. The use of electronic texts and other technologies is

emerging as an important part of students' literacy learning (Kamil, Intrator, & Kim, 2000; Labbo & Kuhn, 1998; McKenna, 1998) . Reading "on-line" is becoming an essential literacy skill as more and more diverse types of texts and information are made available to students through the Internet and other electronic modes of communication. Regardless of format, research has indicated that the students' exposure to a variety of texts and text types is associated with achievement in reading.

Instructional Strategies and Activities. There are innumerable strategies and activities that teachers may use for reading instruction (Creighton, 1997; Langer, 1995; Stieror & Maybin, 1994). Much research has been devoted to investigating which are most effective. Most educators and researchers agree that using elements of various approaches may be best, particularly when teachers tailor them to the needs of their students (Dole, Duffy, Roehler, & Pearson, 1991).

The activities most relevant for reading literacy development include those that pertain to word recognition, comprehension, cognitive and metacognitive reading strategies, writing activities such as story construction, and integrating all of the language processes – reading, writing, speaking, and listening (Shanahan & Neuman, 1997).

Homework and Assessment. Homework is a way to extend instruction and assess student progress. The types of homework assignments assigned in reading classes regularly include independent reading, comprehension questions about what students have read, or some combination of the two. The amount of homework assigned for reading varies both within and across countries. In some countries, homework is assigned typically to students who need the most practice – those who tend to have the most difficulty reading or understanding what they have read. In other countries, students receive homework as enrichment exercises. Time spent on homework generally has an inverse relationship with achievement. Those students for whom reading is difficult require more time to complete the assigned homework.

In addition to homework, teachers have a number of ways to monitor student progress and achievement. Informal assessment during instruction helps the teacher to identify needs of particular individuals, or to evaluate the pace of the presentation of concepts and materials (Lipson & Wixon, 1997). Formal tests, both teacher-made and standardized assessments, typically are used to make important decisions about the students, such as grades or marks, promotion, or tracking. The types of question included in tests and quizzes can send strong signals to students about what is important. For example, teachers can ask about a variety of textual information, such as facts, ideas, character motivations, and comparisons with other materials or personal experiences. Teachers also can use a variety of test formats ranging from multiple-choice questions to essays.

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Assessment Design and Specifications

As in 2001, the PIRLS 2006 assessment includes a written test of reading comprehension to measure fourth-grade students' reading literacy achievement and a series of questionnaires focusing on contexts for reading literacy development to gather information about the contexts for developing reading literacy.

Reporting Reading Achievement

PIRLS 2006 will report reading literacy achievement of fourth-grade students in each country as well as achievement by reading purpose and comprehension process. To keep the assessment burden on any one student to a minimum, each student is presented with only part of the assessment, as described below. Following data collection, student responses are placed on a common scale using item response theory methods that provide an overall picture of the assessment results for each country. As well as a scale for overall reading literacy, there will be separate scales for the two purposes for reading:

- reading for literary experience
- reading to acquire and use information.

To provide information on the processes of reading comprehension, PIRLS 2006 also will provide separate scales for two processes of comprehension (Mullis, Martin, & González, 2004):

- retrieval and straightforward inferencing
- interpreting, integrating, and evaluating.[*]

Test Booklet Design

Given the broad coverage and reporting goals of the PIRLS framework and its emphasis on the use of authentic texts, it was inevitable that the specifications for the item pool would include extensive testing time. The PIRLS 2006 Reading Development Group found that a valid assessment of two purposes for reading, reading for literary experience and reading to acquire and use information, with reliable measures of two processes of comprehension required nearly seven hours of testing time. While the assessment material that can be presented in that time should provide good coverage of the reading material children meet in their everyday lives, it is not reasonable to expect to administer the entire set of reading passages and test items to any one child. Because of the difficulties of scheduling student assessments and because young children cannot

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[*] Retrieval and straightforward inferencing will combine items from the Focus on and retrieve explicitly stated material and Make straightforward inferences comprehension processes. Similarly, Interpreting, integrating, and evaluating will be based on items from the Interpret and integrate ideas and information and Examine and evaluate content, language, and textual elements processes.

be subjected to long testing periods, the testing time is limited to 80 minutes per student, with an additional 15–30 minutes for a student questionnaire.

With a total testing time of nearly seven hours but just one hour and twenty minutes per student, the assessment material must be divided among students in some way. The PIRLS design uses a matrix sampling technique, whereby the passages and accompanying items are divided into groups or blocks, and individual student booklets are made up from these blocks according to a plan. In PIRLS 2006, the nearly seven hours of testing time is divided into ten 40-minute blocks of passages and items, labeled L1–L5 for the literary passages and I1–I5 for the informational texts (see Figure 3). Four of the ten blocks were retained from PIRLS 2001 to provide a foundation for measuring trends in reading achievement; the remaining six were developed specifically for the 2006 assessment.

Figure 3
PIRLS 2006 Matrix-Sampling Blocks

Purpose for Reading	Block				
Literary Experience	L1	L2	L3	L4	L5
Acquire and Use Information	I1	I2	I3	I4	I5

In the PIRLS 2006 design, the ten blocks are distributed across 13 booklets (see Figure 4). Each student booklet consists of two 40-minute blocks of passages and items. Each student responds to one assessment booklet and a student questionnaire. So as to present at least some passages in a more natural, authentic setting, two blocks (one literary and one informational) are presented in color in magazine-type format with the questions in a separate booklet. This booklet is referred to as the PIRLS "Reader."

To enable linking among booklets, at least some blocks must be paired with others. Since the number of booklets can become very large if each block is to be paired with all other blocks, it was necessary to choose judiciously among possible block combinations. In the 13-booklet design used in PIRLS 2006, 12 test booklets are derived by combining four literary (L1, L2, L3, and L4) and four informational (I1, I2, I3, and I4) blocks. The 13th booklet, the Reader, accounts for the remaining literary block, L5, and informational block, I5.

Figure 4
PIRLS 2006 Student Booklet Design

Booklet	Part 1	Part 2
1	L1	L2
2	L2	L3
3	L3	L4
4	L4	I1
5	I1	I2
6	I2	I3
7	I3	I4
8	I4	L1
9	L1	I1
10	I2	L2
11	L3	I3
12	I4	L4
Reader	L5	I5

In this design, each of blocks L1 through L4 and I1 through I4 appear in three of the 12 booklets, each time paired with another, different, block. For example, literary block L1 appears with literary block L2 in booklet 1 and with informational blocks I4 and I1 in booklets 8 and 9. Similarly, literary block L2 appears not only with L1 in booklet 1 but also with literary block L3 in booklet 2 and with informational block I2 in booklet 10.

The pairing of blocks in booklets 1 through 12 ensures that there are good links both among the literary and among the informational passages and also between the two purposes for reading. The blocks in the Reader, L5 and I5, are not linked to any other blocks directly. However, because booklets are assigned to students using a randomized procedure, the group of students responding to the Reader is equivalent to those responding to the other booklets, within the margin of error of the sampling process. The Reader will be distributed so that the same proportion of students will respond to blocks L5 and I5 as to each of the other literary and informational blocks.

Selecting Reading Passages for the Assessment

To reach the goal of approximating an authentic reading experience in the assessment, the reading passages presented to students must be typical of those read by students in their everyday experiences. Texts that exist for students to read in and outside school have typically been written by successful authors who understand writing for a young audience. These are more likely than passages written specifically for a test to elicit the full range of comprehension processes. Furthermore, they are more likely to engage students' interests, and to yield assessment questions that will elicit a range of responses to text that are similar to those elicited in authentic reading experiences. In the context of an international study, attaining authenticity in the assessment reading experience may be somewhat constrained by the need to translate a text into numerous languages. Thus, care is taken to choose texts that can be translated without loss in meaning or in potential for student engagement.

In selecting texts for use in an international survey of reading literacy, the potential for cultural bias must be considered. The set of texts used must range as widely as possible across nations and cultures. No country or culture should be over-represented in the assessment texts. Text selection thus involves collecting potential stimulus texts from as many countries as possible. The final selection of texts is based, in part, on the national and cultural representation of the entire set of assessment texts. Texts that depend heavily on culture-specific knowledge are excluded.

The appropriateness and readability of texts for assessing fourth-grade students is determined through review by educators and curriculum specialists from countries participating in the assessment. Among the criteria used to select texts are topic and theme appropriateness for the grade level; fairness and sensitivity to gender, racial, ethnic, and religious considerations; nature and level of linguistic features; and density of information. The Fry Readability Index results are also provided. In addition, the time constraints of the test situation place some limits on the length of texts. Generally, texts selected will be no longer than 1,000 words so students have time to read the entire passage and answer the comprehension questions. However, length will vary somewhat because other text characteristics also affect rate of reading.

As a basis for measuring trends from 2001, PIRLS retained four passages and items from the 2001 assessment – two literary and two informational – to be included in the PIRLS 2006 assessment. To complete the design, six new passages and associated items were developed – three literary and three informational.

Question Types and Scoring Procedures

Students' ability to comprehend text through the four comprehension processes is assessed via comprehension questions that accompany each text. Two question formats are used in the PIRLS assessment – multiple-choice and constructed-response. Each multiple-choice question is worth one point. Constructed-response questions are worth one, two, or three points, depending on the depth of understanding required. Up to half of the total number of points

represented by all of the questions will come from multiple-choice questions. In the development of comprehension questions, the decision to use either a multiple-choice or a constructed-response format is based on the process being assessed, and on which format best enables test takers to demonstrate their reading comprehension.

Multiple-Choice Questions. Multiple-choice questions provide students with four response options, of which only one is correct. Multiple-choice questions can be used to assess any of the comprehension processes. However, because they do not allow for students' explanations or supporting statements, they may be less suitable for assessing students' ability to make more complex interpretations or evaluations.

In assessing fourth-grade students, it is important that linguistic features of the questions be developmentally appropriate. Therefore, the questions are written clearly and concisely. The response options are also written succinctly in order to minimize the reading load of the question. The options that are incorrect are written to be plausible, but not deceptive. For students who may be unfamiliar with this test question format, the instructions given at the beginning of the test include a sample multiple-choice item that illustrates how to select and mark an answer.

Constructed-Response Questions. For this type of test item students are required to construct a written response, rather than select a response from a set of options. The emphasis placed on constructed-response questions in the PIRLS assessment is consistent with the definition of literacy underlying the framework. It reflects the interactive, constructive view of reading – meaning is constructed through an interaction between the reader, the text, and the context of the reading task. This question type is used to assess any of the four comprehension processes. However, it is particularly well suited for assessing aspects of comprehension that require students to provide support or that result in interpretations depending upon students' background knowledge and experiences.

In the PIRLS assessment, constructed-response questions will be worth one, two, or three points, depending on the depth of understanding or the extent of textual support the question requires. In these questions, it is important to provide enough information to help students understand clearly the nature of the response expected.

Scoring guides for each constructed-response question describe the essential features of appropriate and complete responses. They focus on evidence of the type of comprehension the question assesses. They describe evidence of partial understanding and evidence of complete or extensive understanding. In addition, sample student responses at each level of understanding provide important guidance to raters.

In scoring students' responses to constructed-response questions, the focus is solely on students' understanding of the text, not on their ability to write well. Also, scoring takes into account the possibility of various interpretations that may be acceptable, given appropriate textual support. Consequently, a wide range of answers and writing ability may appear in the responses that receive full credit to any one question.

Score Points. In developing the assessment, the aim is to create blocks that each provide, on average, at least 15 score points – made up of approximately seven multiple-choice items (1 point each), two or three short-answer items (1 or 2 points each), and one extended-response item (3 points). The exact number of score points and the exact distribution of question types per block will vary somewhat, as different texts yield different types of questions.

Releasing Assessment Material to the Public

PIRLS 2006 is the second of a regular five-year cycle of studies that will provide data on trends in reading literacy. Administered for the first time in 2001, PIRLS will be administered again in 2011, 2016, and so on into the future. The design provides for the release of many of the passages and items into the public domain as the international reports are published, while safeguarding the trend data by not releasing a substantial proportion of the items. As passages and

items are released, new assessment material will be developed to take their place.

According to the PIRLS design, two blocks of literary passages and two blocks of informational passages from the 2001 assessment were published after the data collection, including the literary and informational passages in the PIRLS Reader. These will be replaced with new passages and items for the 2006 assessment. Following the 2006 data collection, another four blocks will be released, two from the original 2001 assessment (L2 and I2) and two from those developed for 2006 (L5 and I5).

Background Questionnaires

An important purpose of PIRLS is to study the home and school factors associated with children's reading literacy by the fourth grade. To that end, PIRLS will administer questionnaires to students, their parents, their teachers, and the principals of their schools. The questions are designed to measure key aspects of students' home and school environments.

Student Questionnaire. This questionnaire will be completed by each student who takes the PIRLS reading test. It asks about aspects of students' home and school lives, including classroom experiences and reading for homework, self-perception and attitudes toward reading, out-of-school reading habits, computer use, home literacy resources, and basic demographic information. The questionnaire requires 15-30 minutes to complete.

Learning to Read Survey. This short questionnaire is addressed to the parents or primary caregivers of each student taking part in the PIRLS data collection. It investigates child-parent literacy interactions, home literacy resources, parents' reading habits and attitudes, and home-school connections. Also, it collects basic demographic and socioeconomic information. Together with information collected from the students, parents' responses will provide a more complete picture of an important context for learning to read. This questionnaire is designed to take 10–15 minutes to complete.

Teacher Questionnaire. The reading teacher of each fourth-grade class in PIRLS will be asked to complete this questionnaire, which is designed to gather information about classroom contexts for developing reading literacy. The questionnaire asks teachers about characteristics of the class tested, such as size, reading level and language ability of the students; instructional time, materials, and activities for teaching reading and promoting the development of students' reading literacy; grouping of students for reading instruction; classroom resources; assessment practices; and home-school connections. It also asks teachers their views on their opportunities for collaboration with other teachers and for professional development, and for information about themselves and their education and training. This questionnaire requires about 30 minutes of the teacher's time.

School Questionnaire. The principal of each school in PIRLS will be asked to respond to this questionnaire. It asks about enrollment and school characteristics, such as location, resources available in the surrounding area, and indicators of the socioeconomic background of the student body; instructional time; emphasis and materials used in reading instruction for students in primary grades; school resources, such as the availability of instructional materials and staff; home-school connections; and school climate. It is designed to take about 30 minutes.

Curriculum Questionnaire. To provide information about the goals of reading instruction, the national research coordinator in each country will complete a questionnaire about the country's reading curriculum, including national policy on reading, goals and standards for reading instruction, time specified for reading, and provision of books and other literary resources.

PIRLS 2006 Encyclopedia

The *PIRLS 2006 Encyclopedia* will provide a profile of each country's education system, with a particular focus on reading education for primary-school children. The volume will provide general data on economic and educational indicators and describe how the education system is organized and how decisions about education are made.

The reading curriculum, including goals, materials, and instruction, will be discussed, along with information on assessment of reading achievement.

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APPENDIX A

**PIRLS National Research
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Progress in International Reading Literacy Study National Research Coordinators Contributors to PIRLS Development

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APPENDIX B

Sample Passages, Questions, and Scoring Guides

Reading for Literary Experience
• PIRLS Example Passage and Questions •

Dolphin
Rescue
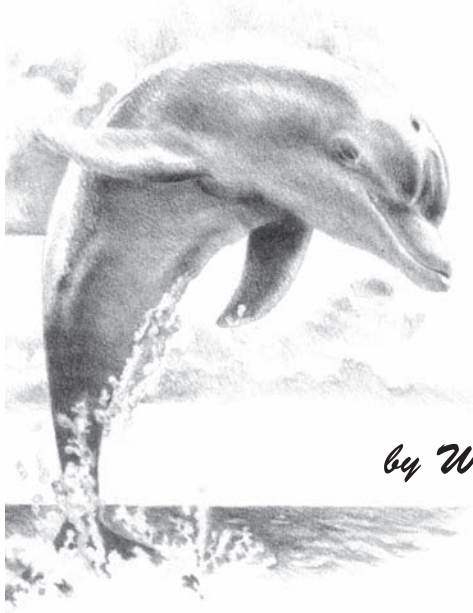
by Wayne Grover

Today, Amos and I almost decided not to go diving for treasure. The weather looked threatening even though the sun broke through clouds. Amos knows the coastal weather better than anyone, and he didn't like what he was seeing as he steered the boat out to the open sea.

I scanned the water in all directions, looking for my dolphin friend. I had saved his life by cutting a large fishhook from his tail when he was a baby. I named him Bobo and he has been my underwater companion ever since.

Bobo was swimming along at my side when I first discovered the wreck of an old Spanish ship. It was about three miles from shore and seventy feet deep. Bobo also was watching my every move when I found the first gold coin. I let out a bubbly "whoopee!" Bobo added his dolphin clicking sounds. We have found only a few gold coins so far, but it's an adventure!

"There's a big rain coming, and a good wind, too," said Amos, peering over the boat's rising and falling bow. I was wondering if my dolphin would come on a stormy day like this, but there were no fins to be seen in the rough sea. I felt the first twinge of uneasiness.

"This is it. Drop anchor," called Amos. I put on my wet suit, a scuba tank holding forty-five minutes of air, and dropped into the sea. Down, down I went until the ocean floor came into view. Nearly thirty minutes passed by, and all I had seen were rocks and more rocks. I missed Bobo's curious eyes watching me. Then, just as my air supply gauge indicated it was time to surface, I saw a glint of metal. It was several links of a gold chain! I pulled gently on the chain and it came slowly out of the sand, inch by inch, for only two feet. Then it caught tight.

My air tank was going dry. I had to go to the surface…now! I tried once more to pull the chain loose, but it was lodged tight.

When I broke the surface, Amos was waving his arms madly. Before I could tell him what I had found, he said, "We've got to pull anchor. There's warning of strong squalls. Let's move!"

"Amos, wait. I've found gold! There's a golden chain with jewels that must weigh five pounds, but it's stuck. I want to go back down and get it. It's worth a fortune!"

"Whoa," said Amos. "The squall waves will be up to fifteen feet. Gold or no gold, we've got to haul up and haul out." It did look pretty grim, with lightning and the sound of thunder rolling across the waves.

"Amos, you're right, but what about our treasure?" I argued. "I'll put on a fresh tank and go back down to free the chain."

The boat strained against the anchor ropes. The wind was roaring, and the driving rain stung our faces. "Okay," said Amos. "The ropes may hold the boat another five minutes, but no more."

I jumped into the water and dived straight to the bottom. There it was. The chain lay like a gold snake coiled on the seabed. Deeper and deeper I dug. There seemed to be no end. It was a race against time. I had to free the chain and get back. I looked at my watch. Four minutes had gone by. The huge waves may already have ripped the boat away.

Just then, my fingers touched something different, a ruby studded medallion at the end of the chain. The whole chain was about four feet long, with diamonds on every fifth link, and incredibly beautiful. My heart pounded with excitement as I wrapped it around my left arm. I probably was very close to more treasure, but my time was up. I had to surface.

When I surfaced, my body was immediately thrown back and forth by the waves. The boat was gone! I was lost and alone in a storm-tossed sea. The storm clouds were so black it was like night. A chill ran through me. The rain was so heavy I could not tell where the shore was.

For hours I struggled to keep afloat, fighting to breathe as each passing wave slapped me in the face.

Alone, tired, and cold, I realized this might be my last day on earth. And for what? A gold anchor to sink me to the bottom.

I was so tired I could barely move. Anguish swept over me. With my right hand I touched the heavy chain still wrapped around my left arm. Unwinding the chain and opening my fingers wide, I let it slowly slide downward, back to the seabed where it had lain for nearly 300 years.

"Help me!" I shouted into the blackness. "Someone, please help me!" I cried, knowing there was no one to hear.

Bump! Bump! Suddenly the water near me erupted in a loud WHOMP!

Then I heard the sweetest sound I'll ever hear. It was the chatter of a dolphin. "Is that you, Bobo?" I whispered. I was so exhausted I could hardly move my arms, but I managed to grab on to his dorsal fin with both hands. Bobo chirped and began slowly swimming, dragging me through the water hour after hour.

I kept thinking, Who will ever believe this? I didn't quite believe it myself, yet it was happening. We came closer and closer to shore until I could hear the

surf breaking. Bobo brought me up to the beach, and my legs dropped down. My feet touched the ground. I was safe.

Bobo floated close to me and chattered his happy dolphin song. I owed him my life, which I had foolishly endangered for a golden chain. He turned, swam toward the open sea, and dived out of sight. "Thank you, Bobo. Thank you for saving my life," I called out.

Questions Dolphin Rescue

1. What is an important purpose of the first
    paragraph?

    (A) to show that Amos could steer the boat

    * (B) to show there may have been trouble ahead

    (C) to show the weather was clearing

    (D) to show the diver knew about the treasure

2. What started the friendship between the diver
    who tells the story and Bobo the dolphin?

    * (A) The diver removed a fishhook from Bobo's tail.

    (B) Bobo helped the diver search for treasure.

    (C) The diver gave Bobo food every day.

    (D) Bobo freed the diver from an underwater net.

* correct answer

3. Find the part of the story by this picture of a rain cloud: 🌧 .
   What caused the diver to feel "the first twinge of uneasiness"?

   (A)   The boat was three miles from shore.

   (B)   Amos was peering over the bow.

* (C)   There was no sign of Bobo.

   (D)   He had no more air in the tank.

4. What did the diver see just as his air supply was running out?

   (A)   a sunken ship

   (B)   a gold coin

   (C)   a rusty cannon

* (D)   a gold chain

5. Find the part of the story by this picture of an anchor: ⚓ .
   Why did Amos want to "haul up and haul out"?

* (A)   A big storm was coming.

   (B)   He wanted to look for Bobo.

   (C)   The chain was too heavy.

   (D)   The air would last only 45 minutes.

   * correct answer

6. Do you think the diver should have dived the second time?
Please check your choice.

_____ Yes

_____ No

Give **two** reasons from the story to explain why you think this.

1. _____

_____

2. _____

_____

7. You are warned in the story that the boat might be gone when the diver surfaced the second time. Give **two** ways you know this from the story.

1. _____

_____

2. _____

_____

* correct answer

8. What did the diver realize when he called the chain a "gold anchor"?

   (A) It was holding the boat in place.

   (B) It was at the bottom of the sea.

* (C) It was going to cause him to drown.

   (D) It was going to make him rich.

9. At the end of the story, how did the diver get to the beach?

   (A) He swam ashore by himself.

* (B) Bobo pulled him along.

   (C) Amos took him in the boat.

   (D) Waves carried him to the shore.

10. Why was Amos important to the story?

   (A) He was friends with Bobo.

   (B) He knew where the treasure was.

   (C) He liked to go diving.

* (D) He pointed out the danger.

* correct answer

11. What were **two** important lessons the diver could have learned in this story?
Use what happened in the story to explain your answer.

\#3

_____

_____

_____

_____

Stop

End of this part of the booklet.
Please stop working.

• Scoring Guides for Constructed-response •

Dolphin, Question 6

Do you think the diver should have dived the second time?
Please check your choice.

___ Yes

___ No

Give two reasons from the story to explain why you think this.

Process: Interpret and Integrate Ideas and Information

2 – Complete Comprehension

The response provides a personal evaluation supported with two specific pieces of information from the text that are relevant to the diver's decision. See the list of acceptable reasons below. Students may provide any combination of these reasons. Note that students who provide support for yes and no should also receive full credit.

1 – Partial Comprehension

The response provides one reason from the list below that supports the yes or no choice. Note that this may be expressed as two separate statements, that make the same point.

0 – No Comprehension

The response may or may not provide a yes or no choice. The information provided in support of the personal evaluation is inaccurate or unrelated to the text, or restates the question without providing additional information. The response may also have appropriate information from the text, but the information is inconsistent or inappropriate for the response given.

Examples:

» Yes. It was exciting.

» Yes, he wanted to meet Bobo.

» He was curious to find something else.

» No, it was stupid.

Acceptable Reasons for Diving the Second Time

The gold chain was very valuable / the biggest treasure they had found/ He might find more treasure.

Amos said it was okay.

There was a chance that the diver could get the chain in 5 minutes.

Acceptable Reasons for Not Diving the Second Time

The boat might not stay in place / he might become stranded.

His air might not last.

Amos was alarmed

He would place Amos in danger.

A storm was coming (bad weather / big waves) / Bobo was not there.

It was dangerous / he might die (drown)/ Bobo might not have come to save him.

The chain would be difficult to get.

He could have come back another time.

Dolphin, Question 7

You are warned in the story that the boat might be gone when the diver surfaced the second time. Give two ways you know this from the story.

Process: Make straightforward inferences

2 – Complete Comprehension

The response demonstrates an understanding of the foreshadowing details up to the point in the story when the diver surfaces and finds the boat gone.

The response provides any combination of two of the details provided in the list below.

1 – Partial Comprehension

The response only provides one of the details in the list below.

0 – No Comprehension

The response may provide details from the story after the diver surfaced for the second time.

Example:

» The boat was gone.

Or, the response may provide details from the story that are inaccurate or unrelated.

Examples:

» His air was running low.

» Amos was steering the boat.

Details that Foreshadow the Disappearance of the Boat

There is a storm/strong squalls/waves up to 15 feet.

The boat strained against the anchor ropes.

"The ropes may hold the boat another five minutes, but no more".

Huge waves may already have ripped the boat away.

The ropes would not hold more than 5 minutes.

There is a storm with strong squalls.

The boat strained against the anchor ropes.

Amos says it. [Note that this is an acceptable response related to Amos' warning that the ropes may not hold the boat for more than 5 minutes.]

Dolphin, Question 11

What were two important lessons the diver learned in this story? Use what happened in the story to explain your answer.

Process: Interpret and integrate ideas and information

3 – Extensive Comprehension

The response provides one higher-level lesson and one story-level lesson from the story. Higher-level lessons focus on the concepts of greed, friendship, the value of life, or being rewarded for good deeds. Story-level lessons focus on concrete lessons that can be learned from the story. See the lists below for acceptable higher-level and story level lessons.

2 – Satisfactory Comprehension

The response may provide one higher-level lesson abstracted from the story action OR may provide two story-level lessons. See the lists below for acceptable lessons.

1 – Minimal Comprehension

The response provides 1 story-level lesson from the list below.

0 – Unsatisfactory Comprehension

The response may provide a generalized lesson that is based on the story but is not important to the overall theme or message of the story, or provides information that is inaccurate or is not text-based.

Examples:
» Don't neglect Bobo
» Never dive alone (general remark – not from this story)
» Bring tools with you when you dive.

Acceptable Higher-Level Lessons

No gold is worth your life. /Do not be eager for gold or material things.

Being good pays off in the end.

Don't endanger your own life or others lives (consider others).

Do not underestimate the powers of nature.

It isn't worth risking your life for gold.

Friendship can save your life.

Friends are more important than material things.

A good deed is rewarded with a good deed.

Acceptable Story-Level Lessons

You should always listen to someone who knows about things.

Make friends with a dolphin so it can help when there is trouble.

You should not go diving when the weather is bad.

Listen when someone tries to warn you.

Reading to Acquire and Use Information
• PIRLS Example Passage and Questions •

Spacewalking

Sally Ride was among the first women in space. Read what she wrote about putting on a spacesuit to work outside the space shuttle.

Getting Ready

In space, getting ready for work is not as easy as it is on Earth. Astronauts who travel into space on the space shuttle have all kinds of jobs to do. Most of their work can be done inside the space shuttle, but sometimes astronauts have to go outside, either to make repairs or to perform an experiment.

Being in a space shuttle isn't exactly like being on Earth. On Earth, the force of gravity keeps us from floating in the air. In space, the astronauts are weightless. The slightest touch can start them floating across the room or drifting over in a slow-motion somersault. The only way to stop moving is to take hold of something that's anchored in place.

People would not be able to survive in the outer space environment in everyday clothes. While they are inside the space shuttle, astronauts are protected from the emptiness of outer space, but outside there is no

air to breathe, and the temperature can be very high or very low. The sunlit side of objects in space can be as hot as 240° Fahrenheit, while the shaded side can cool down to minus 140° Fahrenheit!

To leave the protection of the space shuttle, astronauts have to put on spacesuits. On every spacewalk, two astronauts go outside together because it is easier and safer to work along with someone else in the strange environment. Those going outside begin getting dressed several hours ahead of time. Two spacesuits are carried into the airlock, a small room that can be sealed off from the main cabin on one side and opened into space on the other side.
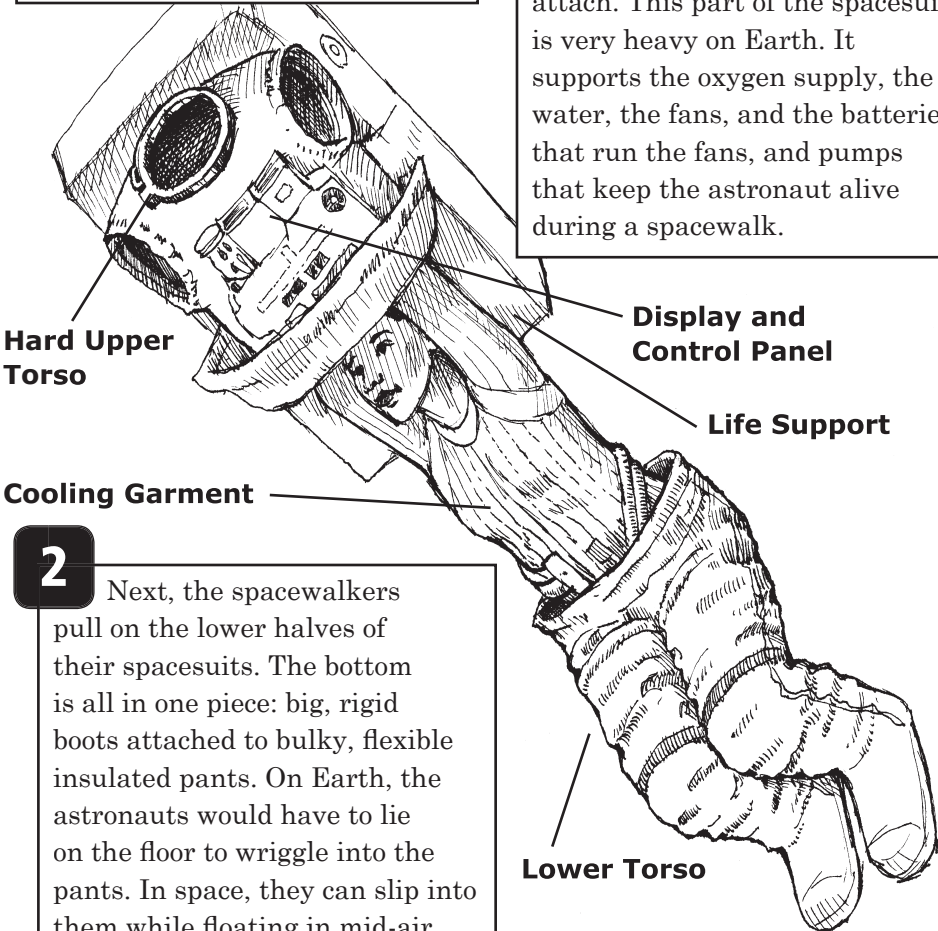
Putting on the Spacesuit

1 First, the spacewalkers put on something that looks like long underwear but is made of elastic with rubber tubes sewn into it. Water will flow through these tubes to keep the astronauts cool since their body heat has no way to escape once they are sealed into their spacesuits.

3 The spacewalkers float into the airlock and slide into the upper halves of their suits. The upper half is a hard shell with flexible arms. The astronaut's head sticks out through a metal ring at the neck, where the helmet will be connected, and the hands stick out through two metal rings where gloves will attach. This part of the spacesuit is very heavy on Earth. It supports the oxygen supply, the water, the fans, and the batteries that run the fans, and pumps that keep the astronaut alive during a spacewalk.

Hard Upper Torso

Display and Control Panel

Life Support

Cooling Garment

2 Next, the spacewalkers pull on the lower halves of their spacesuits. The bottom is all in one piece: big, rigid boots attached to bulky, flexible insulated pants. On Earth, the astronauts would have to lie on the floor to wriggle into the pants. In space, they can slip into them while floating in mid-air.

Lower Torso

4 When the spacewalking partners are inside their suits, another astronaut (one who will stay inside) helps lock the pieces of each suit together. Before putting on helmets, the astronauts put on caps that have radio speakers inside the earflaps and microphones that stick out in front of their mouths so that they can talk with each other and with the rest of the crew.

Helmet

Cap with microphone
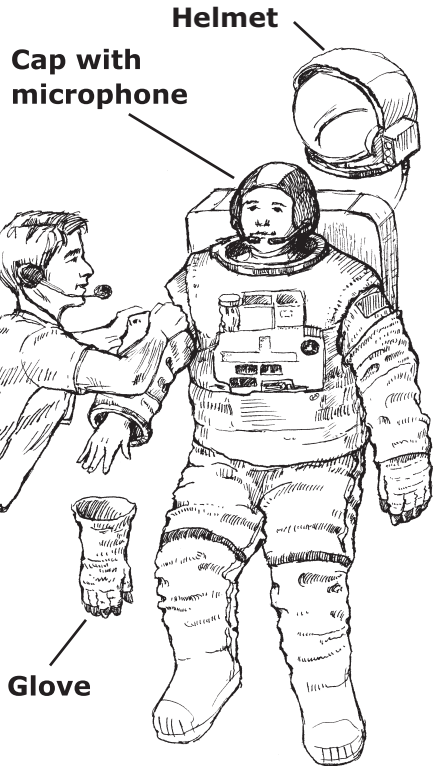
Glove

5 At last, they are ready to put on helmets and big, awkward gloves. They adjust their caps and scratch their noses one last time. They will not be able to do these things again until the spacewalk is over.

The astronaut who has been helping leaves the airlock and closes the hatch. In their bulky suits, the two spacewalkers almost fill the small space. They wait alone in the airlock for several minutes while the air is gradually pumped out. They can feel their ears popping as they wait for the pressure gauge to show that the air is gone.

Finally, they can open the hatch and reach out into space. Before they float out of the airlock, they have to hook thin wires between their suits and the

space shuttle. These wires keep the astronauts from drifting away from the space shuttle.

Out in Space

Floating out into space, the spacewalking astronauts become human satellites. *They* are orbiting Earth! They don't need the space shuttle, at least for a while, because their spacesuits have enough air and battery power to keep them alive for about seven hours. There is even a food stick and a drink bag of water inside each helmet.

They move into the shuttle's cargo bay, where the tools they need for a spacewalk are kept in a big tool chest. They remove the tools they want and hook them to their wrists or waists.
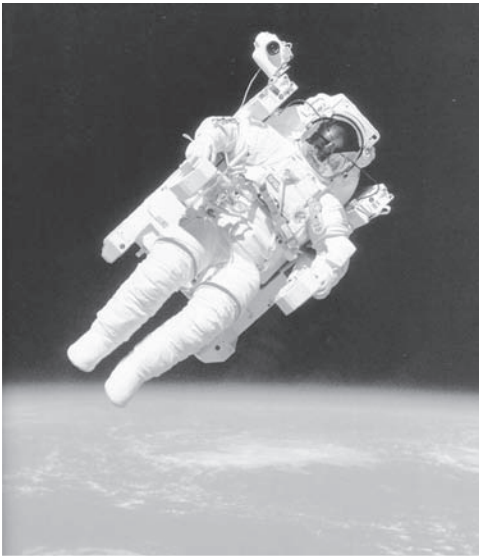
Working in a spacesuit is not easy. An astronaut's fingers, hands, and arms get tired because every move that is made requires pushing against part of the spacesuit from inside.

When it's time to rejoin the rest of the crew inside the space shuttle, after several hours outside, the spacewalkers float back into the airlock. But even though they may be tired, they pause to take one last look at the view of Earth and sky before they close the door on outer space.

Questions: Spacewalking

1. What is the article **mainly** about?

   Ⓐ why astronauts work in pairs

   Ⓑ what a space shuttle is like

   Ⓒ why astronauts go on shuttle missions

   * Ⓓ what it is like to work in outer space

2. What is one reason why astronauts go out of the space shuttle?

   * Ⓐ to make repairs

   Ⓑ to have a better view of Earth

   Ⓒ to keep cool

   Ⓓ to have an adventure

3. According to the article, what is the **main** difference between being in a space shuttle and being on Earth?

   ✏ 1 _____

   _____

   _____

   * correct answer

4. Why must the spacewalking astronauts wear spacesuits when they are outside the shuttle? Give **two** reasons from the article.

1. _____

_____

2. _____

_____

5. Why does it take the astronauts several hours to get ready to go outside the space shuttle?

_____

_____

6. Why do astronauts always go outside the shuttle in pairs?

*   (A) so they can help each other

    (B) so they can stay out longer

    (C) so they do not float away

    (D) so they will have more fun

* correct answer

7. Why does there need to be a third astronaut in the airlock?

✏ 1 _____

_____

_____

8. Number the parts of the spacesuit in the order in which the astronauts put them on.
    The first one has been done for you.

    _____ Upper half of suit

    _____ Helmet

    __1__ Elastic underwear

    _____ Bottom part

    _____ Cap with radio speakers

9. How do the rubber tubes under their spacesuits help the astronauts work in space?

    Ⓐ They keep the astronauts tied to the shuttle.

    Ⓑ They supply oxygen to the astronauts.

    * Ⓒ They keep the astronauts cool.

    Ⓓ They help them be able to talk to other crew.

    * correct answer

10. Why is the hard upper torso the most important part of the spacesuit?

_____

_____

11. Why did the author mention the astronauts "scratching their noses one last time" before they go into space?

_____

_____

12. Look at the section called *Putting on the Spacesuit.* Tell **one** way that the numbered boxes help the reader to understand the information.

_____

_____

13. What keeps the astronauts from floating away from the space shuttle when they are outside?

   Ⓐ battery packs

   Ⓑ space boots

* Ⓒ thin wires

   Ⓓ holding hands

* correct answer

14. Why is the airlock an important part of the space shuttle?

✏1 _____

_____

15. Imagine that you want to be an astronaut.
Use information from the article to describe **one** thing you might like and **one** thing you might **not** like about being an astronaut and explain why.

✏1 What you might like and why:

_____

_____

_____

✏1 What you might **not** like and why:

_____

_____

_____

Stop

End of this part of the booklet.
Please stop working.

• Scoring Guides for Constructed-response •

Spacewalking, Question 3

What is the main difference between being in a space shuttle and being on earth?

Process: Make straightforward inferences

1 – Acceptable Response

The response identifies the lack of gravity or air/oxygen in space, an example of the results of no gravity or air, or extreme temperatures, as the main difference between space and earth.

Examples:

» On Earth the force of gravity holds you on the ground.

» In space you can float.

» In space there is no air to breathe.

0 – Unacceptable Response

The response identifies a difference that is not a main difference or does not identify an appropriate or accurate difference.

Examples:

» In space you wear a spacesuit.

» You can't eat solid food in space.

» In space there is no oxygen to breathe.

Spacewalking, Question 4

Why must the spacewalking astronauts wear spacesuits when they are outside the shuttle? Give two reasons from the article.

Process: Make straightforward inferences

2 – Complete Comprehension

The response provides two reasons for needing to wear a spacesuit that address the following motivations:

There is no air (oxygen) to breathe; the temperatures can be extreme; the battery power keeps them alive.

Examples:

» The temperature can be very hot or very cold.

» They need them to help them keep cool.

» They protect them from the heat of the sun.

» The battery pack has oxygen and fans to keep them alive.

1 – Partial Comprehension

The response provides only one of the reasons mentioned above.

0 – No Comprehension

The response provides a reason that is vague, inaccurate, or inappropriate.

Examples:

» They would die.

» It keeps them alive.

» They need food and water.

» They need to talk to the people inside the space shuttle.

» They can't wear normal clothes.

Spacewalking, Question 5

Why does it take the astronauts several hours to get ready to go outside the space shuttle?

Process: Make straightforward inferences

1 – Complete Comprehension

The response provides a general understanding that the spacesuits are the reasons why getting ready takes several hours. The response may also recognize that this is because their spacesuits have many pieces, or because the suits are bulky or awkward.

Examples:

» Because they have to put on spacesuits.

» Because they have many pieces to put on.

» Because the suits are bulky/awkward.

0 – No Comprehension

The response provides a reason that is vague, circular, inaccurate, or inappropriate.

Examples:

» Their space suits are very heavy. [Note that this is inaccurate – the text states that spacesuits are heavy on Earth.]

» They have to scratch their noses.

» They have to wait for the air to be pumped out of the airlock.

Spacewalking, Question 7

Why does there need to be a third astronaut in the airlock?

Process: Focus on and retrieve explicitly stated information

1 – Acceptable Response

The response states that someone has to help the others lock pieces of their suits together (get dressed) or that someone has to close the hatch to the airlock before they leave.

Examples:

» They need someone to close the door to the airlock.

» They need help getting ready.

0 – Unacceptable Response

The response identifies a vague, inappropriate or inaccurate reason for the third astronaut to be in the airlock.

Examples:

» So someone can save them if they get into trouble in space.

» To help.

» Someone has to drive the shuttle.

Spacewalking, Question 8

Number the parts of the spacesuit in the order in which the astronauts put them on. The first one has been done for you.

___Upper half of suit
___Helmet
_1_ Elastic underwear
___Bottom part
___Cap with radio speakers

Process: Make straightforward inferences

1 – Acceptable Response

The response provides the correct sequence: 3, 5, 1, 2, 4

0 – Unacceptable Response

The response does not provide the correct sequence.

Spacewalking, Question 10

Why is the hard upper torso the most important part of the spacesuit?

Process: Make straightforward inferences

1 – Acceptable Response

The response demonstrates understanding that the hard upper torso contains the life support system.

Examples:

» It carries the life support.

» It keeps them alive.

» It supplies the oxygen, batteries and fans.

» It keeps them cool. [Note that this is an acceptable response since the upper torso contains fans.]

0 – Unacceptable Response

The response does not demonstrate understanding that the upper torso is related to keeping the astronauts alive.

Examples:

» The helmet attaches to it.

» It has the rubber tubes for keeping cool. [Note that this is not an acceptable response because it refers to the long underwear and not the upper torso.]

Spacewalking, Question 11

Why did the author mention the astronauts "scratching their noses one last time" before they go into space?

Process: Examine and evaluate content, language, and textual elements

1 – Acceptable Response

The response recognizes that the astronauts can't scratch without taking off their helmets.

Examples:

» Because if they take off their helmet in space they will die.

» Because they won't be able to scratch it until the spacewalk is over.

» They would have to take off their helmet and you can't do that while in space.

0 – Unacceptable Response

The response provides an inaccurate or inappropriate reason for scratching their noses one last time.

Examples:

» For luck.

» Because they can't move in space.

Spacewalking, Question 12

Look at the section called *Putting on the Spacesuit*. Tell one way that the numbered boxes help the reader to understand the information.

Process: Examine and evaluate content, language, and textual elements

1 – Acceptable Response

The response demonstrates understanding that the boxes make it easier to understand the steps of putting on a spacesuit.

Examples:

» The boxes tell you what you have to do first.

» You get a step by step description.

» Helps you know the order you should follow when reading about the parts of the spacesuit.

» It shows the order that they put the different pieces on.

0 – Unacceptable Response

The response provides a vague, inaccurate, or inappropriate description of the purpose of the boxes.

Examples:

» It tells you how to put on a spacesuit.

» So it is not so confusing.

» It helps to understand the information.

Spacewalking, Question 14

Why is the airlock an important part of the space shuttle?

Process: Make straightforward inferences

1 – Complete Comprehension

The response provides a reason why the airlock is important.

The reason may be related to the airlock as a gateway;

Examples:

» It opens out into space on one side.

» It is where the astronauts go when the come back from the spacewalk.

Or related to the airlock's environment;

Examples:

» It pumps out the air.

» It keeps the air in.

Or aspects of safety related to the airlock.

Examples:

» It keeps the people NOT going on a spacewalk safe.

» It keeps the astronauts inside the shuttle from being sucked out.

» It is where you hook the wires between the suit and the shuttle.

0 – No Comprehension

The response may provide a response that describes a function of the airlock that is not significant, or does not provide an accurate or appropriate reason for why the airlock is important.

Examples:

» It is where the astronauts get dressed.

» The airlock is important.

Spacewalking, Question 15

Imagine that you want to be an astronaut. Use information from the article to describe one thing you might like and one thing you might not like about being an astronaut and explain why.

Process: Interpret and integrate ideas and information

2 – Complete Comprehension

The response states an appropriate text-based description of one thing that the student might like and one thing that the student might not like about being an astronaut and must provide a reason to support each description. (Please note that the reasons may be implicit or grounded in personal opinion. Such a response is acceptable provided the reason given is accurate or does not contradict the text.)

See the list below for appropriate ideas for each description. The student may provide any combination of two of these ideas.

1 – Partial Comprehension

The response states an appropriate text-based description of a good and/or bad thing about being an astronaut with accurate support (implicit or explicit) of only one description.

See the list below for appropriate ideas for each description.

0 – No Comprehension

May or may not provide a description of either a good or bad thing about being an astronaut that includes only inaccurate information or information unrelated to the text.

Examples of Unacceptable Things You Might Like:

» I might like to learn about space.

» It would be fun/an adventure.

» I would like seeing space (because I've never seen it).

» It would be scary.

Examples of Unacceptable Things You Might Not Like:

» I could die/something might happen/it is dangerous.

» The spacesuit is too heavy.

» The spacesuit is too hot/cold.

» The food (tastes bad).

» I would miss my family.

Acceptable Things That You Might Like About Being An Astronaut

Having no gravity/floating/doing somersaults

Seeing earth from space/view of earth/see our planet from far away

Doing experiments

Wearing the cap and microphones (because I like to talk with my friends)

Wearing a spacesuit (because it would keep me safe in space)

Walking in space

Acceptable Things That You Might Not Like About Being An Astronaut

Wearing the suit (it is uncomfortable/bulky/takes a long time to put on/has too many parts/makes you not able to scratch an itch)

Having ears pop (in the airlock)

Having to repair things/working in space (could be dangerous/takes a lot of effort)

Running out of oxygen (because you can die)

Floating/drifting into space (because the thin wire might snap)

APPENDIX C

**Comparison of the
Progress in International
Reading Literacy Study (PIRLS)
and the Programme for
International Student
Assessment (PISA)**

Reading Assessment Frameworks

While PIRLS assesses reading at the fourth grade on a five-year cycle, the OECD's Programme for International Student Assessment (PISA) assesses the reading literacy, mathematics literacy, and science literacy of 15-year-olds on a three-year cycle. The first PISA survey was conducted in 2000, with a primary focus on reading. The primary focus shifted to mathematics in 2003, and to science in 2006. Because both studies assess reading internationally, it is important that participants and policymakers understand the relationship between the two studies, and in particular the policy-relevant characteristics that are unique to PIRLS.

PIRLS was designed to provide comparative information on the reading literacy of students in their fourth year of formal schooling, with a particular focus on the factors, at home and in the school, which facilitate the acquisition of literacy in young children. By targeting children of primary-school age and making the acquisition of literacy a principal study goal, PIRLS seeks to complement the work-oriented, across-the-curriculum perspective on literacy offered by PISA. While PISA is concerned with the literacy needs of students as they make the transition from the world of school to the world of work, PIRLS addresses progress at the equally important stage when students move from learning to read to reading to learn.

The skills that form the foundation for later literacy are learned at this time, so that improvements in curriculum or instruction at this stage can be expected to yield great dividends later on. PIRLS conducts extensive investigations into the reading curriculum and instructional practices used with fourth-grade students. This is in contrast to PISA, which collects little information about curriculum or instructional factors within schools. For countries participating in both studies, therefore, PIRLS will provide a wealth of information that can be used not only to improve the reading curriculum and instruction for younger students, but also to help in interpreting the results of PISA for 15-year-old students.

The central goal of both PIRLS and PISA is to inform participating countries about the reading literacy achievement of their students. However, differences in curricular demands and developmental expectations placed on students at the fourth grade compared to later in their schooling result in a slight difference in emphasis between the two studies. Since students at the fourth grade commonly have just reached the end of their early reading instruction, PIRLS focuses more on the acquisition of reading literacy. In contrast, 15-year-olds typically are preparing to enter the workforce or higher education; thus, PISA examines reading literacy as an indicator of civic and employment preparedness. This nuance of difference in focus demonstrates how the two programs complement each other by addressing the reading literacy development of students at two very different developmental milestones.

Central to both the PIRLS and the PISA assessment frameworks is the definition of the construct being assessed. For both programs, the definition is based on an expanded notion of reading – hence the term "reading literacy" in both cases, rather than simply "reading." Both definitions include not only the processes and skills of reading comprehension, but also the uses of and attitudes toward reading that characterize proficient readers. Both PIRLS and PISA view reading as an interactive, constructive process and emphasize the importance of students' ability to reflect on reading and to use reading for different purposes.

For the PIRLS assessment, reading literacy for fourth-grade students is defined as:

> ...the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment.

For the PISA assessment, reading literacy for 15-year-olds is defined as:

> ...understanding, using, and reflecting on written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society.

Both definitions take into account the range of material students choose and are required to read. By doing so, they suggest that reading is not a unitary skill, but rather a set of processes, approaches, and skills that vary across readers, text types, and purposes or situations for reading. While social, personal, and curricular elements of reading literacy are also emphasized in both definitions, the developmental differences between the two age groups are apparent here. For fourth-grade students, PIRLS emphasizes the typical environment in which they read. Furthermore, while PISA stresses students' readiness to participate in the larger society, PIRLS emphasizes students' ability to participate in "communities of readers...." (for example, home and classroom).

Reading Purposes/Situations and Text Types. In describing the purposes or situations for reading and the types of texts associated with each, the PIRLS and PISA reading frameworks diverge somewhat, reflecting the developmental differences of the two groups. For fourth-grade students, PIRLS emphasizes purposes for reading, describing two of the most common for this age group – reading for literary experience and reading to acquire and use information. For 15-year-olds, PISA describes situations for reading, reflecting the broader uses of reading at this age level – reading for private use, for public use, for work, and for education.

Processes/Aspects of Comprehension. Both frameworks describe ways of understanding or responding to texts that provide specifications for the type of comprehension questions posed to students. For PIRLS, these are described as four "processes of comprehension." The PISA framework distinguishes between "macro and micro aspects of understanding text." The five macro aspects are very similar to the PIRLS's four processes of comprehension. As an

Comparison of PIRLS Processes of Comprehension and PISA Macro Aspects of Understanding Text

PIRLS	PISA
Processes of Comprehension	Macro Aspects of Understanding Text

Focus on and Retrieve Explicitly Stated Information – locate and understand relevant information or ideas that are explicitly stated in text.

Make Straightforward Inferences – move beyond surface meaning to make straightforward, text-based inferences.

Interpret and Integrate Ideas and Information – draw on understanding of the world, experience, or other knowledge to find connections between ideas and information in the text.

Examine and Evaluate Content, Language, and Textual Elements – critical consideration of the text; reflect on and evaluate text content; consider and evaluate text structure, language use, literary devices, or author's perspective and craft.

Forming a Broad General Understanding – initial reading to determine whether text suits intended goals; consider texts as a whole, make predictions about text.

Retrieving Information – scan, search, locate, and select relevant information.

Developing an Interpretation – develop a more specific or complete understanding; understand interaction between local and global cohesion within text; use information and ideas activated during reading yet not explicitly stated in the text.

Reflecting on the Content of a Text – connect information found in text to knowledge from other sources; assess claims made in text against own knowledge.

Reflecting on the Form of a Text – stand apart from the text and consider it objectively; evaluate text's quality and appropriateness; understand text structure, genre, and register.

additional dimension of the PISA framework, the micro aspects are related specifically to the demands of the individual comprehension questions. The following table lists the four PIRLS reading processes and the comparable macro aspects of reading described in the PISA framework.

Content of the Assessments. The frameworks for both the PIRLS and PISA assessments call for both multiple-choice and constructed-response questions. Both use single-answer multiple-choice questions that are scored correct or incorrect. In addition, both use partial-credit scoring of at least some of the constructed-response questions, in which partial credit is given to answers that are partially complete and appropriate. For PIRLS, approximately half of the items are constructed-response; for PISA, it is 45 percent.

In addition to the assessment of comprehension that is central to the two programs, both frameworks discuss the use of questionnaires to collect information on students' exposure to various kinds of print, reading habits and attitudes, and instructional experiences, as well as school characteristics. The PIRLS framework contains a more extensive discussion of these questionnaires and the reasons for including them. This is appropriate, since one of the primary goals of PIRLS is to investigate the factors associated with the acquisition of reading literacy by the fourth year of formal schooling.

This comparison of the PIRLS and PISA frameworks for the assessment of reading literacy demonstrates how two different international consensus-building processes can result in somewhat similar approaches to assessment. At the core of any assessment framework is the definition of the construct being measured. Here the similarities and differences between the two frameworks seem developmentally appropriate. Both view reading as an interactive, constructive process. However, the different societal and curricular expectations for fourth grade students as compared to 15-year-olds are reflected in the discussions of materials, contexts,

and behaviors associated with reading literacy. In general, the two frameworks work together in a complementary fashion to illustrate the growth of reading literacy skills as students progress through school.