CHAPTER 13

Using Scale Anchoring to Interpret the PIRLS and ePIRLS 2016 Achievement Scales

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Introduction

As described in Chapter 12: Scaling the PIRLS 2016 Achievement Data, the PIRLS 2016 achievement results are summarized using item response theory (IRT) scaling and reported on achievement scales, with most achievement scores ranging from 300 to 700. Countries' average scores provide users of the data with information about how achievement compares among countries and whether scores are improving or declining over time.

To provide as much information as possible for policy and curriculum reform, however, it is important to understand the reading competencies associated with different locations within the range of scores on the achievement scales. For example, in terms of levels of student understanding, what does it mean for a country to have average achievement of 513 or 426, and how are these scores different?

The PIRLS 2016 International Benchmarks provide information about what students know and can do at different points along the PIRLS achievement scale. More specifically, PIRLS has identified four points along the PIRLS achievement scale to use as international benchmarks of achievement—Advanced International Benchmark (625), High International Benchmark (550), Intermediate International Benchmark (475), and Low International Benchmark (400).

The TIMSS & PIRLS International Study Center worked with the expert international committee, the Reading Development Group (RDG), to conduct two scale anchoring analyses to describe student competencies at each of the benchmarks for PIRLS 2016 and ePIRLS 2016, respectively.

This chapter details the scale anchoring procedures that were followed to describe student performance at the international benchmarks for PIRLS and ePIRLS 2016. In brief, scale anchoring

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involved identifying items that students scoring at an international benchmark answered correctly, and then having experts examine the content of each item to determine the reading comprehension skills and strategies demonstrated by students who responded correctly to the item. The experts then summarized the detailed list of item competencies in a brief description of achievement at each international benchmark. Thus, the scale anchoring procedure yielded a content-referenced interpretation of the achievement results that can be considered in light of the PIRLS 2016 frameworks for assessing reading. The first scale anchoring analysis was conducted for the PIRLS and PIRLS Literacy items to benefit from the whole range of PIRLS items (see Chapter 1). The second analysis was for the ePIRLS items, which measure online informational reading.

PIRLS and PIRLS Literacy

PIRLS Literacy was introduced in 2016 to provide an extension of PIRLS for countries where most children in the fourth grade are still developing fundamental reading skills (see the *PIRLS 2016 Assessment Framework*). The PIRLS Literacy passages are shorter with less complex syntax than the PIRLS passages, and the questions are presented side by side to support the location of information. So that PIRLS Literacy could be reported on the PIRLS achievement scale, the two versions (PIRLS and PIRLS Literacy) have four passages in common.

In order to take full advantage of the information offered by PIRLS Literacy, items from both versions of the assessment were included in the scale anchoring process. PIRLS items and items from the four passages common to PIRLS and PIRLS Literacy were considered at all four benchmarks using data from the students who participated in PIRLS. Passages and items that appeared only in PIRLS Literacy were considered only for the Low and Intermediate benchmarks. Because the PIRLS Literacy items were developed to improve measurement at the lower end of the PIRLS scale, their inclusion in the scale anchoring process provided necessary information about the abilities of students reaching the Low and Intermediate benchmarks.

ePIRLS

PIRLS was extended during the 2016 cycle to include ePIRLS, which uses a simulated Internet environment to measure online informational reading. The five ePIRLS tasks asked students to navigate through interconnected webpages containing both textual and visual information to complete school-like assignments about science and social studies topics. Because ePIRLS assesses reading comprehension skills that are specific to informational reading in an Internet environment, the scale anchoring process for ePIRLS was conducted separately from the scale anchoring process for the informational items included in PIRLS. This resulted in benchmark descriptions that were specific to the complex demands of online reading.

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Classifying the Items

As the first step, students scoring at the four benchmarks were identified for analysis. For PIRLS 2016, students scoring within 5 scale-score points of each benchmark (i.e., the benchmark point plus or minus 5) were identified for the benchmark analysis. This 10-point range provided an adequate sample of students scoring at the benchmark, and yet was small enough so that performance at one international benchmark was still distinguishable from the next. For passages and items that were included in both PIRLS and PIRLS Literacy, scale anchoring was conducted using data from the students who participated in PIRLS. For passages and items included only in PIRLS Literacy, the range was expanded to students scoring within 10 scale-score points of each benchmark in order to obtain a sufficiently large sample. The 10-point range (the benchmark point plus or minus 5) was used for ePIRLS, including the students that had participated in both PIRLS and ePIRLS. The score ranges around each international benchmark and the number of students scoring in each range are shown in Exhibit 13.1.

Exhibit 13.1: Range Around Each International Benchmark and Number of Students Within Each Range

	Low (400)	Intermediate (475)	High (550)	Advanced (625)
PIRLS (including passages also in PIRLS Literacy)				
Range of Scale Scores	395–405	470–480	545–555	620–630
Number of Students	3,556	8,198	12,905	6,882
PIRLS Literacy (only)				
Range of Scale Scores	390–410	465–485	540–560	615–635
Number of Students	2,305	1,765	925	232
ePIRLS				
Range of Scale Scores	395–405	470–480	545–555	620–630
Number of Students	1,000	2,229	3,711	2,189

The second step involved computing the percentage of those students scoring in the range around each international benchmark that answered each item correctly. To compute these percentages, students in each country were weighted proportionally to the size of the student population in the country. For multiple-choice items and constructed response items worth 1 point, it was a straightforward matter of computing the percentage of students at each benchmark who answered each item correctly. For constructed response items and compound multiple-choice items scored for partial and full credit, percentages were computed for students receiving partial credit (1 point or 2 points) as well as for students receiving full credit (2 points or 3 points).

Third, the criteria described below were applied to identify the items that anchored at each benchmark. An important feature of the scale anchoring method is that it yields descriptions of the

performance demonstrated by students reaching each of the international benchmarks on the scale, and that the descriptions reflect demonstrably different accomplishments by students reaching each successively higher benchmark. Because the process entails the delineation of sets of items that students at each international benchmark are likely to answer correctly and that discriminate between one benchmark and the next, the criteria for identifying the items that anchor considers performance at more than one benchmark.

For multiple-choice items, 65 percent was used as the criterion for anchoring at each benchmark being analyzed, since students would be likely (about two thirds of the time) to answer the item correctly. A somewhat less strict criterion was used for the constructed response items, because students had much less scope for guessing. For constructed response items, the criterion of 50 percent was used for the benchmark without any discrimination criterion for the next lower benchmark. In addition, a criterion of less than 50 percent was used for the next lower benchmark, because with this response probability, students were more likely to have answered the item incorrectly than correctly.

Using a multiple-choice item as an example, the criteria for each benchmark are outlined below:

- A multiple-choice item anchored at the Low International Benchmark (400) if at least 65 percent of students scoring in the range answered the item correctly. Because this was the lowest benchmark described, there were no further criteria.

- A multiple-choice item anchored at the Intermediate International Benchmark (475) if at least 65 percent of students scoring in the range answered the item correctly, and less than 50 percent of the students at the Low International Benchmark answered the item correctly.

- A multiple-choice item anchored at the High International Benchmark (550) if at least 65 percent of students scoring in the range answered the item correctly, and less than 50 percent of students at the Intermediate International Benchmark answered the item correctly.

- A multiple-choice item anchored at the Advanced International Benchmark (625) if at least 65 percent of students scoring in the range answered the item correctly, and less than 50 percent of students at the High International Benchmark answered the item correctly.

To include all of the multiple-choice items in the anchoring process and provide information about comprehension processes that might not otherwise have had many anchor items, the concept of items that "almost anchored" was introduced. These were items that met slightly less stringent criteria for being answered correctly. The criteria to identify multiple-choice items that "almost

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anchored" were that 60 to 65 percent of students scoring in the range answered the item correctly and less than 50 percent of students at the next lowest benchmark answered the item correctly. To be completely inclusive for all items, items that met only the criterion that 60 to 65 percent of the students answered correctly (regardless of the performance of students at the next lower point) were also identified. The categories of items were mutually exclusive, and ensured that all of the items were available to inform the descriptions of student achievement at the anchor levels. A multiple-choice item was considered to be "too difficult" to anchor if less than 60 percent of students at the advanced benchmark answered the item correctly. A constructed response item was considered to be "too difficult" to anchor if less than 50 percent of students at the advanced benchmark answered the item correctly.

Exhibit 13.2 presents the number of PIRLS 2016 items that anchored at each international benchmark.

Exhibit 13.2: Number of Items Anchoring and Almost Anchoring at Each International Benchmark*

	Low (400)	Intermediate (475)	High (550)	Advanced (625)
PIRLS Literary	62	39	48	17
PIRLS Informational	54	35	48	29
ePIRLS	15	24	36	22

*   Item counts for PIRLS Literary and PIRLS Informational include items that appeared only in PIRLS Literacy that anchored at the Low and Intermediate International Benchmarks.

Preparing the Scale Anchoring Documentation

The scale anchoring for PIRLS and ePIRLS 2016 was conducted in the spring of 2017 at a four-day meeting in Lübeck, Germany. To prepare documentation for use by the RDG, staff at the TIMSS & PIRLS International Study prepared short descriptions of the student competencies demonstrated by a correct (or partially correct) response to each item. The descriptions were updated for trend items from previous assessment cycles, and new descriptions were drafted for the items assessed for the first time in 2016. Complete documentation provided for each item included the description, framework classification, answer key or scoring guide, secure status, scale anchoring data, and international mean. An example scale anchoring page for an item at the Intermediate Benchmark is presented in Appendix 13A.

The items, scoring guides, and documentation were grouped by reading purpose (for the PIRLS scale anchoring analysis) and then by international benchmark. The final categorization was by the anchoring criteria the items met—items that anchored, followed by items that almost anchored, then by items that met only the 60 to 65 percent criteria.

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At the scale anchoring meeting, the expert committee 1) worked through each item to finalize the description of the student competencies demonstrated by a correct (or partially correct) response, 2) summarized the proficiency demonstrated by students reaching each international benchmark for publication in reports, and 3) selected example items that supported and illustrated the benchmark descriptions to publish together with the descriptions.

Following the scale anchoring meeting, the descriptions and example items published in the PIRLS 2016 reports were reviewed by National Research Coordinators at their 8th meeting in Riga, Latvia. Appendix 13B contains the scale anchoring descriptions for the PIRLS literary items, Appendix 13C contains the scale anchoring descriptions for the PIRLS informational items, and Appendix 13D contains the scale anchoring descriptions for the ePIRLS items. Scale anchoring considered partial credit and full credit responses separately. Because of this, a partial credit item can anchor more than once, typically at a higher benchmark for full credit, and a lower benchmark for partial credit. If they both anchored at the same level, the full credit results were used for the analysis.

Appendix 13A: Sample Scale Anchoring Page for Item at Intermediate Benchmark

ID: R41H11M	Why does Macy make white wings on a pole	Block_Seq: H_11

11.   Why does Macy make white wings on a pole?

    Ⓐ   to look like hen's feathers

    Ⓑ   to make a decision

    Ⓒ   to look like an owl

    Ⓓ   to impress Sam

Purpose
Literary Experience

Process
Make Straightforward Inferences

Points
1

Format
MC

Key
C

Secure Status
Restricted Use

Proposed 2016 Scale Anchoring Description
Infer and recognize the reason for a character's action

Weighted Percent Correct at International Benchmark Levels

Low (400)	Intermediate (475)	High (550)	Advanced (625)	Intermediate
42	75	92	100	International % Correct: 79

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Appendix 13B: PIRLS 2016 Literary Item Descriptions Developed During the PIRLS 2016 Benchmarking

		Items at Low International Benchmark (400)
P/PL	F_10	Recognize and reproduce a character's feeling that is clearly suggested at a specified point in the story
P/PL	B_01	Retrieve and reproduce explicitly stated information about the central character
P/PL	B_02	Retrieve the explicitly stated reason for a character's action
P/PL	B_03	Retrieve the explicitly stated reason for a character's action
P/PL	B_04	Make a straightforward inference about a reason for a character's action
P/PL	B_06	Make a straightforward inference about the reason for an event
P/PL	B_07	Retrieve and reproduce an explicitly stated detail about the reason for an event
P/PL	B_08	Make a straightforward inference about the purpose of a character's action
P/PL	B_12	Make an inference to recognize the purpose of a character's action
P/PL	B_13	Interpret story events to determine the cause of one of a character's stated feelings
P	M_09	Reproduce a straightforward reason for an action
P	H_01	Locate an explicitly stated character action from the beginning of the text
PL	M_01	Locate explicitly stated information at the beginning of the text
PL	M_03	Locate and reproduce an explicitly stated action of a character
PL	M_04	Locate and reproduce an explicitly stated detail
PL	M_05	Recognize and retrieve an explicitly stated detail
PL	M_06	Recognize and reproduce explicitly stated information
PL	M_08	Locate and reproduce explicitly stated information
PL	M_09	Make an inference about the reason for an event
PL	M_10	Locate and reproduce 2 explicitly stated feelings of a character
PL	M_12	Locate and reproduce an explicitly stated detail
PL	M_13	Locate and make a straightforward inference about a character's action
PL	M_16	Locate and reproduce an explicitly stated action
PL	O_01	Locate explicitly stated information at the beginning of the text
PL	O_03	Locate and recognize explicitly stated information
PL	O_04	Retrieve an explicitly stated character trait

P: PIRLS passage   PL: PIRLS Literacy passage   P/PL: Passage in PIRLS and PIRLS Literacy

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PL	O_05	Locate and reproduce a character's idea
PL	O_06	Make a straightforward inference about a character's words
PL	O_07	Make a straightforward inference about the purpose for a character's action
PL	O_08	Make a straightforward inference about a character's feeling
PL	O_09	Locate and reproduce explicitly stated information
PL	O_10	Locate and reproduce explicitly stated information
PL	O_11	Make a straightforward inference about a character's reaction
PL	O_12	Make a straightforward inference about a character's reaction
PL	O_14	Locate and reproduce explicitly stated information
PL	U_01	Locate and reproduce explicitly stated information at the beginning of the text
PL	U_02	Locate and recognize an explicitly stated action
PL	U_03	Make a straightforward inference about the reason for a situation
PL	U_04	Locate and reproduce the reason for a situation
PL	U_05	Locate and recognize an explicitly stated reason for a character's action
PL	U_06	Locate and recognize the explicitly stated reason for a situation
PL	U_09	Make a straightforward inference about the reason for a character's action
PL	U_11	Locate and reproduce 1 (of 2) pieces of explicitly stated information
PL	U_11	Locate and reproduce 2 pieces of explicitly stated information
PL	U_12	Determine the sequence of events of the whole story
PL	U_13	Evaluate the whole story and recognize a central idea
PL	L_01	Make a straightforward inference about a detail from the beginning of the story
PL	L_03	Locate and reproduce an explicitly stated reason for a character's words
PL	L_04	Locate and reproduce the reason for a character's words
PL	L_05	Make a straightforward inference and reproduce 1 (of 2) of a character's actions
PL	L_06	Retrieve and reproduce explicitly stated information
PL	L_07	Retrieve and recognize explicitly stated explanation of a character's action
PL	L_09	Integrate ideas to show understanding of how a character develops
PL	L_12	Retrieve an explicitly stated reason for a character's action
PL	L_13	Locate and reproduce 1 (of 2) explicitly stated detail

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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PL	L_14	Locate and recognize an explicitly stated idea
PL	L_15	Show understanding of a character's trait by 1 (of 2) example of a character's actions
P	O_01	Retrieve and recognize a character's expectations about a future event
P/PL	B_05	Locate and recognize an embedded detail
P/PL	B_11	Retrieve and recognize an explicitly stated cause of a character's action

Items at Intermediate International Benchmark (475)

P/PL	F_01	Identify the narrator (in a first person story) from a range of clues in the text and confirmed by the pictures
P/PL	F_04	Retrieve and recognize explicitly stated information
P/PL	F_06	Make an inference to explain a character's reaction to an event
P/PL	F_09	Reproduce 1 (of 2) explicitly stated character action
P	O_02	Recognize and reproduce explicitly stated information
P	O_07	Infer 2 physical characteristics from a description
P	Y_09	Locate a central event and make a straightforward inference to provide 1 (of 2) character action
P	Y_13	Interpret and integrate story events and character actions to describe or illustrate a character trait
P/PL	B_09	Locate and reproduce an explicit action from a sequence
P/PL	B_16	Locate and reproduce 1 (of 2) action to give a reason for a character's change in thinking
P/PL	B_17	Integrate ideas across the text to provide a character description or action
P	M_02	Locate and reproduce an explicit detail embedded in the introductory paragraph
P	M_08	Locate and retrieve an explicit action from a sequence
P	M_11	Locate and retrieve an explicitly stated feeling
P	M_13	Make a straightforward inference about a character's reaction to a situation
P	M_17	Locate and reproduce a straightforward story event as the cause of 1 (of 3) feeling
P	H_02	Recognize how an author demonstrates a character's traits
P	H_06	Locate and reproduce 1 (of 2) action that leads to a specified result
P	H_11	Infer and recognize the reason for a character's action
PL	M_07	Make a straightforward inference about a character's reaction
PL	M_14	Integrate evidence to make a causal inference
PL	M_18	Evaluate the whole story and recognize the central idea
PL	O_02	Make a straightforward inference about the reason for a character's reaction

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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PL	O_13	Integrate evidence and recognize the reason for a character's reaction
PL	O_15	Integrate evidence and reproduce either a character's reaction or an explanation for this reaction
PL	U_08	Make a straightforward inference about the reason for a character's action
PL	L_05	Make a straightforward inference and reproduce 2 of a character's actions
PL	L_13	Locate and reproduce 2 explicitly stated details
P/PL	B_10	Recognize the meaning of a simile
P/PL	B_14	Locate and integrate evidence to recognize a character's reaction
P	M_07	Recognize the reason for characters' actions
P	H_12	Integrate evidence to recognize the reason for a character's action
P/PL	F_02	Retrieve, combine, and visualize concrete descriptive information and identify matching picture
P/PL	F_03	Infer reason for an opinion from a dialogue
P	Y_07	Retrieve and recognize a character's plan of action
P	M_01	Recognize explicit central information from the introductory paragraph
PL	L_08	Locate and recognize an explicitly stated piece of information
PL	L_10	Locate and recognize an explicitly stated reason for a character's opinion

Items at High International Benchmark (550)

P/PL	F_07	Give a simple interpretation of a character's feelings about the setting
P/PL	F_08	Infer the significance of a character's action from subsequent events
P/PL	F_09	Reproduce 2 explicitly stated character actions from different parts of the text
P/PL	F_12	Interpret the narrator's feelings at either the beginning or the end of the story
P	O_05	Locate and reproduce 1 (of 2) explicitly stated physical attribute of a character embedded in a longer description
P	O_08	Integrate ideas across text to interpret the reasons for a character's feelings
P	O_09	Interpret the reason for a character's reaction
P	O_10	Interpret and integrate a character's actions, including at least 1 character trait and 1 supporting action
P	O_13	Interpret and integrate story events to do 1 of the following: determine the reason for a character's inability to perform an action, identify another character's action that changes this, and show understanding of how this action changes another character's feelings
P	Y_01	Infer from complex imagery how a character's appearance suggests her name
P	Y_04	Locate and retrieve an embedded detail
P	Y_06	Locate and retrieve information from a dialogue within a description of a character's actions

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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P	Y_09	Locate a central event and make a straightforward inference to provide 2 character actions
P	Y_10	Interpret the motivation for a character's words by providing an example from the story
P	Y_11	Locate a relevant part of the text and recognize the meaning of a metaphor
P	Y_12	Integrate story events to support a chosen character description with evidence
P	Y_14	State a title preference based on evaluating story events and characters' actions and explain the choice in terms of the significance or central role of the character
P/PL	B_13	Interpret story events to determine the cause of two contradictory stated feelings
P/PL	B_15	Interpret the reason for a character's words
P/PL	B_17	Integrate ideas across the text to provide a character description and supporting action
P	M_03	Recognize the meaning of a metaphor central to the story
P	M_06	Show understanding of a character by examining a series of the character's actions
P	M_12	Interpret a character's hidden motivation in the context of the whole story
P	M_14	Integrate evidence from across the text to interpret the reason for a situation
P	M_15	Evaluate a character's actions across the text to interpret his underlying values
P	M_16	Show understanding of the story plot by interpreting a character's hidden intention
P	M_17	Locate and reproduce events from different parts of the story as the cause of 2 (of 3) feelings
P	H_03	Infer the reason for a character's feelings
P	H_06	Locate and reproduce 2 actions that lead to a specific result
P	H_10	Locate and recognize the inspiration for a character's idea
P	H_13	Interpret ideas from across the text to identify a character trait
P	H_14	Integrate evidence from across the text to describe a central idea
P	H_15	Integrate events across the text to predict a character's future behavior
P	H_09	Make a straightforward inference about the reason for a character's words
P/PL	F_05	Make an inference to recognize the main character's feelings
P/PL	F_11	Evaluate the tone of the story and recognize that a humorous ending fits the story
P/PL	F_13	Evaluate the whole story to recognize a central idea
P	O_06	Locate and retrieve dialogue that results in a given character emotion
P	O_11	Understand the meaning of figurative language
P	O_12	Make a straightforward inference to recognize the reason for a character's action
P	Y_02	Interpret and generalize to recognize a summary of a character's attributes

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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P	Y_05	Infer a character trait from a character's action
P	Y_08	Locate a relevant point in the story and make an inference about an event
P	M_05	Retrieve, combine, and visualize a procedural sequence and recognize matching diagram
P	H_05	Make an inference to explain a character's action

Items at Advanced International Benchmark (625)

P/PL	F_07	Integrate ideas across text to interpret the character's feelings about the setting
P/PL	F_12	Interpret the change in the narrator's feelings between the beginning and the end of the story
P	O_03	Recognize that the author's choice of words raises suspense
P	O_05	Locate and reproduce 2 explicitly stated physical attributes of a character embedded in a longer description
P	O_10	Interpret and integrate a character's actions, including at least 1 character trait and 2 supporting actions
P	O_13	Interpret and integrate story events to fully explain the implications of the central character's problem and its resolution
P	Y_03	Infer an explanation by examining description and imagery
P	Y_13	Interpret and integrate story events and character actions to describe a character with two supporting details from the text
P/PL	B_16	Locate and reproduce 2 actions to give a reason for a character's change in thinking
P	M_04	Make an inference from a specified point in the story to find evidence to support a given description of a character
P	M_10	Interpret a possible motivation for characters' advice
P	M_17	Locate and reproduce events from different parts of the story as the cause of each of 3 feelings
P	H_07	Locate, determine, and recognize the reason for a character's point of view
P	H_13	Interpret ideas from across the text to identify and support a character trait with 1 (of 2) example
P	H_16	Evaluate story events and character actions to explain why an alternative, given title would be appropriate

Items Above the Advanced International Benchmark (625)

P	O_04	Evaluate and reproduce 2 examples of character's words that convey an emotion
P	M_09	Contrast two situations in the story to give a reason for characters' actions
P	H_04	Interpret story events to determine the implicit reason for a character's actions
P	H_08	Evaluate and determine the implicit meaning of a character's statement
P	H_13	Integrate ideas from across the text to identify a character trait and support it with 2 examples

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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Appendix 13C: PIRLS 2016 Informational Item Descriptions Developed During the PIRLS 2016 Benchmarking

		Items at Low International Benchmark (400)
P/PL	K_01	Retrieve and reproduce 1 (of 2) piece of explicitly stated information when directed to the beginning of the text
P	I_01	Locate explicitly stated information at the beginning of the text
P	L_01	Locate explicitly stated information at the beginning of the text
P/PL	E_01	Locate and reproduce explicitly stated information from the beginning of the text
P/PL	E_02	Locate and reproduce explicitly stated information from the beginning of the text
P/PL	E_05	Retrieve and recognize an explicitly stated reason for an action
P/PL	E_06	Retrieve and recognize an explicitly stated detail
P/PL	E_07	Locate and reproduce 1 (of 2) explicitly stated detail
P/PL	E_10	Retrieve and reproduce an explicitly stated detail
P/PL	E_12	Retrieve and reproduce an explicitly stated detail
P/PL	E_15	Retrieve and reproduce an explicitly stated detail
P	W_01	Retrieve and reproduce 1 (of 2) piece of information from the beginning of the text
PL	H_01	Retrieve and reproduce an explicitly stated detail from the beginning of the text
PL	H_02	Retrieve and recognize an explicitly stated detail from the beginning of the text
PL	H_04	Make a straightforward inference about the relationship between two actions
PL	H_05	Retrieve and recognize an explicitly stated detail
PL	H_06	Retrieve and reproduce an explicitly stated detail
PL	H_11	Retrieve and reproduce an explicitly stated detail
PL	H_12	Make a straightforward inference about an expectation
PL	H_14	Retrieve and reproduce an explicitly stated detail
PL	P_03	Identify and reproduce essential information from the beginning of the text
PL	P_04	Retrieve and reproduce an explicitly stated detail
PL	P_05	Locate and infer an explanation from explicitly stated information
PL	P_06	Retrieve and reproduce explicitly stated information
PL	P_09	Locate and recognize an explicitly stated detail
PL	P_10	Locate and integrate information to recognize the significance of an action

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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PL	P_11	Locate and reproduce 1 (of 2) explicitly stated piece of information
PL	A_01	Retrieve and recognize an explicitly stated detail from the beginning of the text
PL	A_02	Retrieve and reproduce an explicitly stated detail
PL	A_03	Locate and recognize an explicitly stated detail
PL	A_04	Make a straightforward inference to reproduce a detail
PL	A_06	Retrieve and reproduce an explicitly stated detail
PL	A_07	Retrieve and reproduce 2 explicitly stated details
PL	A_08	Make a straightforward inference about a description
PL	A_09	Make a straightforward inference about a description
PL	A_10	Make a straightforward inference about an action
PL	A_12	Integrate details from across the text to complete a table (2 of 3)
PL	A_13	Locate and decide the accuracy of 3 (of 4) details from a description
PL	C_01	Retrieve and reproduce a detail from the beginning of the text
PL	C_04	Retrieve and reproduce a detail from a chart
PL	C_05	Retrieve and reproduce a detail from a chart
PL	C_07	Retrieve and reproduce an explicitly stated detail
PL	C_09	Interpret information to provide a partial explanation
PL	C_10	Locate and recognize an explicitly stated detail from a text box
PL	C_11	Retrieve and reproduce an explicitly stated detail
PL	C_12	Retrieve and reproduce 2 explicitly stated details
PL	C_14	Retrieve and reproduce an explicitly stated detail
PL	H_07	Make a straightforward inference about an explanation
PL	H_09	Retrieve and recognize an explicitly stated detail
PL	P_08	Retrieve and recognize an explicitly stated detail
PL	C_06	Make a straightforward inference about an action

Items at Intermediate International Benchmark (475)

P/PL	K_02	Locate and reproduce 3 pieces of explicitly stated information
P/PL	K_12	Interpret and integrate information from across different sections to partially complete a table (3/6 entries)
P	I_08	Retrieve and recognize an explicitly stated definition

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

P	L_04	Locate and reproduce 1 or 2 (of 4) pieces of explicitly stated information
P	L_09	Retrieve and recognize an explicitly stated detail embedded in continuous text
P/PL	E_08	Interpret and recognize the significance of an invention
P/PL	E_11	Make a straightforward inference to recognize an explanation
P/PL	E_14	Make a straightforward inference to provide 1 (of 2) comparison
P/PL	E_16	Integrate information across text to order a set of events
P	W_04	Locate and reproduce 2 pieces of explicitly stated information from a text box
P	T_02	Locate and reproduce 1 (of 2) action that is part of a sequence of events
P	T_06	Make a straightforward inference about the cause of a situation
PL	H_16	Interpret the whole text to recognize the reason for its title
PL	P_07	Make a straightforward inference to provide an explanation
PL	P_11	Locate and reproduce 2 explicitly stated pieces of information
PL	P_12	Retrieve and reproduce an explicitly stated detail
PL	P_13	Retrieve and reproduce an explicitly stated detail
PL	P_14	Integrate information to order a set of events
PL	A_12	Integrate details from across the text to complete a table (3 of 3)
PL	A_13	Locate and decide the accuracy of 4 (of 4) details from a description
PL	C_02	Recognize the purpose of a magnification in an image
PL	C_09	Interpret information to provide a full explanation
PL	C_15	Make a straightforward inference to recognize an explanation
PL	C_16	Retrieve and reproduce an explicitly stated detail
P/PL	E_04	Make a straightforward inference about an event
PL	H_08	Make a straightforward inference to recognize an explanation
P	W_06	Locate and recognize an explicitly stated detail
P	T_01	Recognize the main idea of a specified section of the text
PL	H_10	Recognize the reason for an author's use of simile
PL	H_13	Retrieve and recognize an explicitly stated detail
PL	P_01	Make a straightforward inference about the cause of a reaction
PL	P_02	Interpret the effect of the author's word choice

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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PL	A_14	Locate a given idea and identify its section header
PL	C_08	Make a straightforward inference to recognize an explanation
PL	C_13	Make a straightforward inference to recognize an explanation

Items at High International Benchmark (550)

P/PL	K_01	Retrieve and reproduce 2 pieces of explicitly stated information when directed to the beginning of the text
P/PL	K_03	Make straightforward inferences to recognize an explanation of a metaphor
P/PL	K_05	Locate a text box with a heading and make a straightforward inference to provide an explanation
P/PL	K_06	Locate a text box with a heading and make an inference to recognize the best explanation
P/PL	K_07	Locate 1 (of 2) specified text box with a heading and make an interpretation to provide an explanation
P/PL	K_09	Evaluate how the format and content of a diagram convey information
P/PL	K_11	Locate and distinguish information from different sections of the text to make an inference
P/PL	K_12	Interpret and integrate information across different sections to nearly complete a table (5 of 6 entries)
P	I_03	Make a straightforward inference to provide 1 (of 2) explanation
P	I_04	Integrate information to provide 1 (of 2) geographic characteristic
P	I_05	Evaluate how the format of section headers conveys information
P	I_07	Interpret and integrate information to provide a causal explanation
P	I_09	Make a straightforward inference about the purpose of an action
P	I_11	Integrate information to provide a characteristic
P	I_13	Locate and reproduce an explicitly stated detail
P	L_03	Recognize a synonym to locate and reproduce explicitly stated information
P	L_05	Recognize an explanation of a metaphor
P	L_06	Make an inference to explain that historical documents communicate ideas
P	L_08	Make a straightforward inference to identify and reproduce explicitly stated information
P	L_10	Interpret an abstract idea by providing an example
P	L_12	Evaluate textual elements and content to provide author's point of view
P/PL	E_07	Locate and reproduce 2 explicitly stated details
P/PL	E_13	Locate and reproduce 1 characteristic
P	W_01	Retrieve and reproduce 2 pieces of information from the beginning of the text
P	W_02	Locate and interpret 1 (of 2) beneficial action

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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P	W_03	Make a straightforward inference to recognize an explanation
P	W_07	Locate information to connect 1 (of 3) action to its significance
P	T_02	Locate and reproduce 2 actions that are part of a sequence of events
P	T_03	Make a straightforward inference to provide 2 explanations
P	T_04	Make a straightforward inference to provide an explanation
P	T_05	Locate and recognize an explicitly stated action that is part of a sequence of events
P	T_07	Integrate ideas to provide an explanation
P	T_08	Locate and reproduce an explicitly stated detail
P	T_10	Locate and reproduce an explicitly stated explanation
P	T_11	Distinguish and integrate information from across different sections to nearly complete a table (4 of 5 entries)
P	T_12	Make a straightforward inference about an event
P	T_14	Evaluate the content of a diagram and interpret its meaning
P/PL	K_08	Distinguish relevant information to make an inference about a scientific explanation
P	I_10	Recognize the meaning conveyed by an image
P	I_12	Distinguish relevant information to recognize an explicitly stated reason
P	T_16	Evaluate the headings of different sections and show understanding of how the sections are divided
P	L_11	Evaluate content and generalize to recognize the most appropriate title
P/PL	E_03	Make an inference to recognize the reason for a situation
P/PL	E_09	Evaluate how the use of an image conveys information
P/PL	E_17	Integrate ideas across text to determine the main idea
P	W_08	Make an inference to recognize the purpose for an action

Items at Advanced International Benchmark (625)

P/PL	K_07	Locate 2 specified text boxes with headings and make interpretations to provide an explanation for each
P/PL	K_10	Integrate information from 3 text boxes to provide a sequence, or use information from fewer text boxes with supporting explanation
P/PL	K_10	Integrate information from 3 text boxes with headings to provide a sequence with supporting explanation
P/PL	K_12	Interpret and integrate information across different sections to fully complete a table (5 of 6 entries)
P	I_03	Make a straightforward inference to provide 2 explanations
P	I_07	Interpret and integrate information to provide 2 causal explanations
P	I_11	Interpret and integrate information to identify a characteristic and link it to its effect

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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P	I_14	Evaluate textual elements and content to show how they exemplify the writer's point of view
P	I_15	Interpret and integrate information to provide a causal explanation
P	L_04	Locate and reproduce 2 pieces of explicitly stated information and explain the significance of 1 piece of information
P	L_10	Interpret an abstract idea by providing an example and explaining why it illustrates the abstract idea
P	W_02	Locate and interpret 2 mutually beneficial actions
P	W_07	Locate and integrate information to connect 2 actions (of 3) to their significance
P	W_07	Locate and integrate information to connect 3 actions to their significance in a sequence
P	W_11	Locate and interpret relevant information in the context of the whole text
P	W_12	Locate and interpret information to recognize the reason for a situation
P	W_13	Evaluate ideas and information across the text to make a prediction
P	T_09	Distinguish relevant information to make an inference about an action
P	T_11	Distinguish and integrate information from across different sections to fully complete a table (5 of 5 entries)
P/PL	K_04	Locate and distinguish relevant information from among several text boxes
P	I_02	Make an inference about the reason for an action
P	I_06	Make an inference about the reason for a situation
P	L_02	Distinguish relevant information across several parts of a text to recognize a possible causal inference
P	L_07	Integrate information across several parts of text to infer and recognize an explanation
P	W_05	Distinguish and recognize a paraphrase from the end of a specified text box
P	W_09	Recognize the main message of a short narrative from a specified part of the text
P	W_10	Make an inference about the reason for an action
P	T_13	Distinguish relevant information and make an inference about a scientific question
P	T_15	Evaluate textual elements and content to recognize how they exemplify the writer's point of view

Items Above the Advanced International Benchmark (625)

P	I_04	Interpret and integrate information to provide 2 geographic characteristics
P	L_04	Locate and reproduce 2 pieces of explicitly stated information and explain the significance of both pieces of information
P	L_08	Make a straightforward inference to identify and reproduce explicitly stated information and connect this information to a later part of the text
P	L_12	Evaluate textual elements and content to provide author's point of view and support with evidence from the text
P	T_07	Integrate ideas to provide 2 explanations

P: PIRLS passage   **PL: PIRLS Literacy passage**   **P/PL: Passage in PIRLS and PIRLS Literacy**

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Appendix 13D: ePIRLS 2016 Item Descriptions Developed During the PIRLS 2016 Benchmarking

		Items at Low International Benchmark (400)
E	M_02	Retrieve and reproduce 3 pieces of explicitly stated information from the text or the diagram
E	M_09	Retrieve and reproduce the definition of a term from a pop-up text box
E	R_02	Retrieve and reproduce explicitly stated information
E	R_06	Check the contents of 3 pop up boxes to locate and reproduce an explicitly stated detail
E	R_10	Retrieve an explicitly stated detail embedded in continuous text
E	B_01	Make a straightforward inference from a list of Internet search results to recognize the most relevant website
E	B_02	Locate and recognize explicitly stated information in a timeline
E	Z_01	Make a straightforward inference from a list of Internet search results to recognize the most relevant website
E	Z_11	Locate and recognize an explicitly stated detail
E	Z_14	Make a straightforward inference to provide 1 (of 2) aspect of a situation
E	T_02	Make a straightforward inference about a reason
E	M_05	Locate and recognize an explicitly stated reason
E	R_13	Make a straightforward inference from a list of Internet search results to recognize the most relevant website
E	Z_08	Locate and recognize an explicitly stated reason
		Items at Intermediate International Benchmark (475)
E	M_03	Make a straightforward inference to provide a reason
E	M_08	Locate and reproduce an explicitly stated reason
E	M_11	Integrate complex information in text and an animated graphic to provide a partial explanation
E	M_15	Make a straightforward inference to provide a reason
E	R_03	Integrate information from a web page to recognize 3 (of 4) connections
E	R_05	Evaluate the use of a map with interactive features to convey information
E	B_04	Locate and reproduce explicitly stated information by scrolling through a timeline
E	B_06	Make a straightforward inference about an opinion
E	B_08	Locate and reproduce an explicitly stated reaction
E	B_09	Make a straightforward inference to provide a reason
E	Z_04	Locate and recognize a reason for an action

E: ePIRLS task

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E	Z_20	Integrate evidence from the text to match 3 (of 4) defense strategies with the animal(s) that uses it
E	T_16	Retrieve explicitly stated information by navigating to a labeled section of an interactive diagram
E	R_12	Make a straightforward inference to recognize a reason
E	Z_03	Evaluate the use of fact boxes containing both text and images to convey information
E	Z_05	Evaluate the use of an animated graphic to convey information
E	Z_07	Make a straightforward inference to recognize an action
E	T_04	Interpret and integrate events to recognize the cause of an outcome
E	T_11	Locate and recognize an explicitly stated detail
E	R_01	Make a straightforward inference from a list of Internet search results to recognize the most relevant website
E	Z_13	Locate and recognize explicitly stated information embedded in continuous text
E	T_12	Locate and recognize information from a map

Items at High International Benchmark (550)

E	M_04	Locate and reproduce an explicitly stated scientific detail embedded in text
E	M_16	Interpret and integrate textual and visual information from a web page to recognize 3 (of 4) functions by navigating across interactive images
E	M_16	Interpret and integrate textual and visual information from a web page to recognize 4 functions by navigating across interactive images
E	M_17	Evaluate the writer's use of a comparison by providing 1(of 2) specific example
E	R_07	Interpret and integrate information across a web page to recognize 3 (of 4) characteristics
E	R_09	Integrate information to provide an explanation
E	R_11	Make a straightforward inference to provide 1 (of 2) piece of supporting evidence
E	R_14	Evaluate content to draw a conclusion and support it with evidence
E	R_15	Locate and reproduce 2 pieces of explicitly stated information
E	R_16	Integrate information from multiple web pages to provide a causal outcome
E	B_13	Interpret and integrate information to draw a conclusion and support it with evidence
E	B_15	Locate and compare information to provide 1 (of 2) similarity
E	B_16	Interpret and integrate information to provide 3 actions
E	B_17	Interpret and integrate information from multiple web pages to provide 2 (of 3) achievements
E	Z_02	Locate and reproduce 1 (of 2) explicitly stated similarity
E	Z_06	Make a straightforward inference to provide a prediction
E	Z_10	Evaluate the author's word choice to recognize its meaning

E: ePIRLS task

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E	Z_12	Interpret and integrate visual and textual information across web pages to provide a contrast
E	Z_14	Make an inference to provide 2 contrasting aspects of a situation
E	Z_19	Interpret information to provide 1 (of 2) explanation
E	T_03	Evaluate the text to recognize how the author conveys meaning through repetition
E	T_05	Interpret and integrate information from across a web page to provide contrasting views of an event
E	T_06	Make an inference to provide support for a claim
E	T_08	Make a straightforward inference to provide a comparison
E	T_10	Make a straightforward inference about a reason
E	T_17	Evaluate how the design of an interactive diagram supports content
E	T_01	Make an inference from a list of Internet search results to distinguish the most relevant website
E	M_10	Evaluate the use of an animated diagram to determine its purpose
E	M_12	Make a straightforward inference to recognize a definition from text and images
E	B_07	Evaluate the use of punctuation to convey meaning
E	Z_15	Locate and recognize an explicitly stated detail by navigating to a pop-up box
E	Z_18	Make an inference from a list of Internet search results to distinguish the most relevant website

Items at Advanced International Benchmark (625)

E	M_07	Evaluate textual elements to recognize the meaning of a phrase
E	M_13	Integrate information from a web page to provide an explanation
E	M_18	Make an inference to provide an explanation
E	M_20	Evaluate textual elements and content to show how they exemplify the writer's point of view
E	R_03	Integrate information from a web page to recognize 4 connections
E	R_07	Interpret and integrate information across a web page to recognize 4 characteristics
E	R_08	Evaluate the purpose of the structure of a visual display of information
E	R_11	Make a straightforward inference to provide 2 pieces of supporting evidence
E	B_05	Evaluate the use of a timeline to convey information
E	B_06	Make inferences about the opinion of two groups of people
E	B_12	Interpret and integrate information to provide a cause for an outcome
E	B_14	Locate and reproduce textual evidence to support an inference
E	Z_16	Integrate information by navigating to 2 pop-up boxes to compare and contrast actions

E: ePIRLS task

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E	Z_17	Evaluate the substantive contribution of words relative to images across pages of a website
E	Z_21	Integrate information from across a web page to compare 4 actions
E	T_14	Evaluate language choices to show how they exemplify the writer's point of view
E	T_18	Integrate information from multiple web pages to order events chronologically
E	M_06	Make an inference from a list of Internet search results to distinguish the most relevant website
E	R_04	Evaluate a web page to recognize why the title fits the content
E	T_13	Interpret an integrate information to recognize how actions exemplify a principle
E	T_15	Integrate information to recognize a fact

Items Above the Advanced International Benchmark (625)

E	M_01	Make an inference from a list of Internet search results to distinguish the most relevant website
E	M_11	Integrate complex information in text and an animated graphic to provide an explanation
E	M_14	Integrate information from across multiple web pages to provide 3 objects matched to their functions
E	M_17	Evaluate the writer's use of a comparison by providing 2 specific examples
E	M_19	Evaluate an article to determine the meaning of its title
E	B_03	Locate explicitly stated information by navigating to a pop up box via a hyperlink
E	B_10	Integrate information from multiple web pages to provide 2 actions
E	B_11	Evaluate the author's description of a family to determine her reason for the description
E	B_15	Locate and compare information to provide 2 similarities
E	B_17	Interpret and integrate information from multiple web pages to provide 3 achievements
E	Z_02	Integrate information from across a web page to compare 3 (of 4) actions
E	Z_09	Make a straightforward inference about the information provided in an animated graphic
E	Z_19	Interpret information to provide 2 explanations
E	T_07	Make a straightforward inference to identify an example of a defined term
E	T_09	Integrate information from the text to explain a phrase from the text

E: ePIRLS task

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