

# Appendix A

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## The Scientifically-Based Reading Research (SBRR) Behind Grade 5 ITRI

Grade 5 ITRI is based on scientifically-proven reading comprehension strategies identified by the National Reading Panel in their 2000 report.

The National Reading Panel identified proven reading comprehension strategies.

- **Question Answering** is a strategy in which teachers pose questions and guide students to the appropriate answers. It has been proven effective in increasing comprehension in grades three through eight.

*Grade 5 ITRI models this strategy through the use of Guided Reading Boxes which pose questions and guide students to analyze appropriate parts of the text or text features. Teachers facilitate this process through the in-class discussion session which follows each Grade 5 ITRI lesson.*

- **Question Generating** encourages students to ask who, what, where, when, and why and how questions as they read.

*The Guided Reading Boxes that appear in all Grade 5 ITRI lessons model this strategy by asking students the kinds of questions that proficient readers ask themselves. In | the Inference lessons, the Guided Reading Boxes and Concluding Project ask students to generate their own questions as well. Grade 5 ITRI is designed so that students will internalize the process of generating questions and begin to employ it independently when reading.*

- **Summarization** involves identifying the main idea of a passage and analyzing the degree of importance of the supporting details. This skill is a critical part of Indiana's Academic Standards for English/language arts in grade 5.

*Students will see the main idea identified in the text features of many of the lessons. Grade 5 ITRI's Guided Reading Boxes often point out this main idea, helping students realize its importance. Other Guided Reading Boxes, activities, and concluding projects ask students to put ideas into "their own words," list important steps, and identify key details in an effort to help them summarize effectively.*

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- **Comprehension Monitoring** involves making students aware of the text and text features so that they can use appropriate comprehension strategies. It asks students to engage in “thinking about thinking.” Comprehension monitoring has been proven to improve performance on standardized tests of reading comprehension.

*Comprehension monitoring is the core of Grade 5 ITRI. ITRI teaches students to think about their own thinking as they work. Teachers model this strategy and Guided Reading Boxes probe students to identify why they answered a question a particular way, teach text structure, and draw student attention to the features of informational text.*

- **Cooperative Learning** encourages students to work together to increase comprehension. Cooperative learning has been scientifically-proven to increase comprehension and to boost performance on standardized tests.

*Each Grade 5 ITRI lesson begins with a large group discussion aimed at activating prior knowledge and closes with a group self-checking session and discussion in which students share their answers and reading strategies and learn from each other.*

- **Graphic Organizers** help students visualize the relationships between important ideas. They have been proven to improve memory and to boost performance in social studies and science.

*The Grade 5 ITRI teacher’s manual includes a graphic organizer idea for each unit. These graphic organizers are designed to enhance the reading skills which are the focus of the unit.*

- **Multiple Strategies** approaches encourage students to employ a variety of comprehension strategies simultaneously. Studies have shown that students whose teachers use demonstrations, guiding, modeling, and scaffolding show improvement on standardized tests. Understanding when to employ specific strategies is key to student success in informational text.

*Grade 5 ITRI’s Reading Skill introductions give students clues about what to look for when assessing text so they will know what strategy or strategies to employ. Grade 5 ITRI lessons also demonstrate multiple strategies through the variety of Guided Reading Boxes which help mediate student reading of the text.*

Source: National Reading Panel (2000), Report of the National Reading Panel, Washington, D.C.

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## **ITRI promotes reading skills identified as most important to elementary school students.**

Research shows that students' comprehension of expository material is impeded by lack of familiarity with vocabulary, concepts, and text structures. Elementary students thus often have trouble comprehending informational text. The most successful readers are those who ask themselves questions about content, are aware of organization and page design, think about what they do and do not know about a subject, and actively apply what they read to their own experiences. These skills can be directly taught.

*Grade 5 ITRI models effective reading strategies through Guided Reading Boxes, which focus student attention on text organization by emphasizing signal words and common text structures. The lessons in Grade 5 ITRI encourage students to think critically about text features such as graphics, headings, boldface print, etc. Students practice helpful techniques such as previewing vocabulary, retelling, and summarizing. Teacher-led in-class grading discussions improve comprehension and reinforce these skills by encouraging students to share reading strategies and learn from one another.*

### **Sources:**

Bakken, J. P., and C. K. Whedon. 2002. Teaching text structure to improve reading comprehension. *Intervention in School and Clinic* 37:229-33.

Olson, M. W., and T. C. Gee. 1991. Content reading instruction in primary grades: perception and strategy. *The Reading Teacher* 45:298-307.

Pressley, M., and R. Wharton. 1997. Skilled comprehension and its development through instruction. *School Psychology Review* 26:448-67.

## **ITRI uses methods proven to help students improve vocabulary acquisition.**

Major differences between vocabulary in reading lessons and content area lessons require students to shift their thinking and teachers to adjust their instruction. Students learn vocabulary better when they are instructed on how to use the text itself to make sense of challenging words.

*Grade 5 ITRI includes a unit designed to promote word knowledge acquisition. These lessons focus on strategies to help students make sense of challenging words and encourage students to develop an appreciation for vocabulary. Guided Reading Boxes throughout this unit as well as other units ask students to think about the vocabulary and model questions that good readers ask themselves.*

*Grade 5 ITRI was designed to model the vocabulary structure of Indiana's adopted textbooks. Lessons follow the same number of vocabulary terms per page, the placement and identification of vocabulary terms on the page, the number of difficult words not identified as vocabulary terms per page, and syntactical difficulty. Therefore, skills learned through Grade 5 ITRI are easily transferable to the textbook.*

### **Sources:**

Armbruster, B., and W. Nagy. 1992. Vocabulary in content area lessons. *The Reading Teacher* 45:550-51.

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## **ITRI helps students connect what they read to their own experiences.**

Research indicates that while elementary students infer in their daily activities, they have a difficult time spontaneously drawing inferences between what they read in school and what they experience. Studies have shown that students rarely practice their inference skills enough in the classroom to sufficiently enhance their performance on standardized tests. Making predictions prior to reading has been shown to help students integrate what they read with their prior knowledge.

*The Inference unit in Grade 5 ITRI models thought processes to help students develop and practice their inference skills during their school-related tasks. The Guided Reading Boxes ask students to access their prior knowledge about a subject before they begin the lesson, think critically about why something may have happened, make connections between words they already know and words they are learning, think about how they made their inferences, and understand why the author provides specific information. Beyond the Inference unit, each lesson is preceded with a background prompt in which the teacher asks a question or set of questions to spark discussion and activate prior knowledge, experiences, or infer about possible or fantastical situations. By practicing inference skills in these lessons, students will transfer them to their own content texts.*

### **Sources:**

Hansen, J. and Pearson, P.D. 1983. An Instruction Study: Improving the inferential comprehension of good and poor fourth grade readers. *Journal of Educational Psychology* 75:821-829.

Hansen, J. 1981. The effects of inference training and practice on young children's reading comprehension. *Reading Research Quarterly* 16:391-417.

## **Grade 5 ITRI builds foundations for a future of enhanced critical thinking skills.**

The distinction between fact and opinion is a difficult concept for students to master and it becomes increasingly complicated as informational texts become more complex. Being able to distinguish between the two is an essential skill for better reading and critical thinking. It allows students to identify incorrect or misleading information and accurately articulate opinions and facts in their own oral and written communication.

*Grade 5 ITRI has an entire unit in which students distinguish between facts and opinion as well as assess how each is constructed. Guided Reading Boxes prompt students to identify target words, reiterate facts and opinions within texts, write their own opinions, restructure opinions into facts, research to check facts and opinions, and understand differing opinions. The concluding project of this unit allows students to work independently to identify facts and opinions in primary resource material.*

### **Sources:**

Dow, C. 1987. Lecture 'step-asides' illustrate difference in opinions, facts. *Journalism Educator* 42:48-50.

Graney, J. M. 1990. Determination of fact and opinion: A critical reading problem. *Journal of Psycholinguistic Research* 19:147-166.

ITRI Instructional Tool	Standards in English/ Language Arts	Standards in Social Studies	Standards in Science	Standards in Mathematics	Standards in Health
Mississippian Culture at Cahokia	5.2.3	5.1.1, 5.3.3, 5.3.7, 5.5.1	5.1.2		
American Indians	5.2.3	5.1.1, 5.1.3, 5.3.7, 5.3.9, 5.3.11, 5.4.1, 5.5.1	5.1.2, 5.4.4, 5.6.2		
Symmetry in Art: Navajo Rugs	5.2.3	5.1.1, 5.5.5	5.1.2	5.4.6	
Chief Pontiac: A Great Ottawa Leader	5.2.3	5.1.1, 5.1.7	5.1.2, 5.6.2		
Algonquin Snow Goggles	5.2.3	5.1.1	5.1.2, 5.2.4, 5.2.7, 5.5.1		5.3.6
How does the Inventor Work	5.2.2	5.4.3, 5.5.6	5.1.1, 5.1.3, 5.1.7, 5.2.6, 5.2.7, 5.5.8		
Algebra: Make a Scale Model	5.2.2		5.2.2, 5.2.7	5.2.4, 5.3.1, 5.7.1	
Make a Polygraph	5.2.2	5.1.12, 5.5.6	5.1.1, 5.1.3, 5.2.6, 5.2.7, 5.5.1	5.4.1, 5.7.1	
Thomas Jennings	5.2.2	5.1.10, 5.1.19, 5.4.3, 5.5.6	5.1.3, 5.1.3		
The Cotton Gin and the Steamboat	5.2.2	5.1.10, 5.3.8, 5.4.3, 5.4.7, 5.5.6	5.1.3, 5.1.5, 5.3.4, 5.3.8		
Mapping a Trail	5.2.1	5.1.12, 5.1.20, 5.3.1, 5.3.2, 5.3.9, 5.3.11	5.6.2		
Colonial Trade	5.2.1	5.1.8, 5.3.2, 5.3.9	5.6.2		
Farming in the United States	5.2.1	5.1.8, 5.3.2, 5.3.8, 5.3.9, 5.3.11, 5.4.2, 5.4.5, 5.5.1	5.4.4, 5.6.2	5.1.4, 5.3.7, 5.6.1	
Ellen Semple and the Study of Human Geography	5.2.1	5.3.2, 5.3.3, 5.3.9	5.1.3, 5.6.2		
Measuring Temperature	5.2.1	5.3.2, 5.3.5	5.1.3, 5.2.1, 5.5.1, 5.6.2	5.2.1, 5.5.6	
Early Navigational Tools	5.2.4	5.1.4, 5.5.1	5.2.4, 5.2.7	5.3.7	
Christopher Columbus	5.2.4	5.1.4, 5.1.6	5.2.4		5.1.5
Using Angles	5.2.4		5.1.4, 5.2.4	5.1.4, 5.4.2, 5.4.7	
The Northwest Passage	5.2.4	5.1.4, 5.3.6, 5.3.9	5.2.4, 5.6.2		
The Exchange of Goods and Cultures	5.2.4	5.1.4, 5.1.6, 5.1.7, 5.4.1	5.4.4		
Anne Hutchinson	5.2.5	5.1.6, 5.1.9	5.1.2		
Writing Factual Reports	5.2.5	5.1.7, 5.1.9, 5.1.21, 5.5.3	5.1.2, 5.2.7		
Measurement: Perimeter of Polygons	5.2.5	5.5.1, 5.5.5	5.1.2, 5.2.1, 5.5.3		
Yankee Doodle	5.2.5	5.1.12, 5.1.20, 5.1.21, 5.1.22	5.1.2		
The Stamp Act	5.2.5	5.1.12, 5.1.22	5.1.2		
Beaver Pelts	5.1.3	5.4.7	5.4.4, 5.4.5		
Making a Budget	5.1.2, 5.1.3	5.4.8	5.5.2		
How Does a Market Economy Work?	5.1.3	5.4.2, 5.4.6			
Adam Smith	5.1.3	5.1.12, 5.1.22, 5.2.4, 5.4.2			
Copper: The Great Conductor	5.1.3	5.4.4, 5.4.5	5.3.10		



# Appendix C

## Scoring Sheet: ITRI Assessments

### Diagnostic

### Follow-Up

CLASS Average						
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Student Name	Multiple Choice Question Numbers	Main Idea & Details		Sequential Order		Interpreting Graphics		Making Inferences		Fact & Opinion		Word Knowledge	
		#1	#7	#2	#8	#3	#9	#4	#10	#5	#11	#6	#12
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												







# Appendix E

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## Preparing Students for Research Projects

Because there are numerous sources where students can turn to find information, students need to be taught how to carefully evaluate their sources. Primarily, students should be taught to look for three things:

### 1 Reliability

Who is the author and what is his or her background in the subject?

Is the author someone who would know about the subject? Is it a pediatric doctor talking about diseases in dogs? Is it a third grader's report on the web?

### 2 Timeliness

When was the text written? Have inventions or events happened that would change the facts in the text? Is it an article about someday having computers in people's homes? Is it about a country that no longer exists? Are the maps up to date?

### 3 Validity

If the author comes to a conclusion, does it make sense with the facts presented or is it more of an opinion? When the author uses words such as *thus*, *therefore*, and *in conclusion*, are the facts supported?



# Appendix F

## ITRI Acknowledgments

Abbreviations used to describe placement on the page are as follows: (T) top, (B) bottom, (INS) inset, (C) center, (L) left, and (R) right.

### Diagnostic Assessment

**The Search for Vinland** 1 L clip art illustration R photo courtesy of Sarah Endres 2 T Center for Innovation in Assessment B photo courtesy of the Canadian Department of National Defence **Pesticides: Two Views** 1 L clip art illustration B clip art illustration/Center for Innovation in Assessment 2 clip art illustration

### Main Idea and Supporting Details

**Mississippian Culture at Cahokia** 2 Cahokia Mounds State Historic Site, painting by William R. Iseninger 3 Center for Innovation in Assessment **American Indians** 1 Center for Innovation in Assessment 2 photo courtesy of Smithsonian Institution, Gertrude Kasebier, "Portrait of Native American" 3 T permission to use granted by Center for Bison Studies B public domain **Symmetry in Art: Navajo Rugs** 2 Center for Innovation in Assessment **Chief Pontiac: A Great Ottawa Leader** 1 Alfred Bobbet, National Archives of Canada, C-11250 2 image courtesy of the Burton Historical Collection, Detroit Public Library **Algonquin Snow Goggles** 1 Center for Innovation in Assessment

### Sequential Order

**How Does an Inventor Work?** 1 photo courtesy of The National Inventors Hall of Fame 2 photo courtesy of A'Lelia Bundles/Walker Family Collection 3 courtesy of Smithsonian Institution Neg#NMAH2002-27377 **Algebra: Make a Scale Model** 1 photo courtesy of Jeff Zody, Timber Framers Guild 2 stock photo **Thomas Jefferson and the Polygraph** 1 Thomas Jefferson Polygraph, Special Collections, University of Virginia Library; image provided by Monticello/Thomas Jefferson Foundation, Inc. **Thomas Jennings: An African American Inventor** 1 public domain 2 public domain **The Cotton Gin and the Steamboat: Changing Life in the 1800s** 1 public domain 2 image courtesy of Culver-Union Township Public Library 3 T public domain B Center for Innovation in Assessment

### Interpreting Graphics

**Mapping a Trail** 1 photo courtesy of T.K. Sharp 2 Center for Innovation in Assessment 3 Center for Innovation in Assessment **Colonial Trade** 2 T Center for Innovation in Assessment B Center for Innovation in Assessment 3 Center for Innovation in Assessment **Farming in the United States** 1 Center for Innovation in Assessment 3 Center for Innovation in Assessment **Ellen Semple and the Study of Human Geography** 1 ©University of Kentucky, all rights reserved, Ellen Semple, Special Collections and Digital Programs, University of Kentucky Libraries. 2 T1 permission granted to use by Matthew Trump T2 public domain C Center for Innovation in Assessment B1 stock photos B2 public domain **Measuring Temperature** 1 Center for Innovation in Assessment 2 C Center for Innovation in Assessment 2 BL public domain BR public domain 3 Center for Innovation in Assessment

# Appendix F

## Making Inferences

**Early Navigational Tools** 1 Center for Innovation in Assessment **Christopher Columbus** 1 public domain 2 picture of Santa Maria, Columbus, OH courtesy of Columbus Santa Maria, Inc. **Using Angles** 1 Center for Innovation in Assessment **The Northwest Passage** 1 Center for Innovation in Assessment 2 public domain 3 image of Giovanni da Verrazano: public domain; image of Verrazano bridge: ©2004 Metropolitan Transportation Authority **The Exchange of Goods and Cultures** 1 permission granted to use under GFDL by Kurt Stueber 2 stock photo 3L image courtesy of dirtbrothers.org/Bob Wishoff 3R stock photo

## Fact and Opinion

**Anne Hutchinson: A Colonial Dissenter** 1 public domain **Writing Factual Report** 1 stock photo **The Stamp Act** 2 public domain **Yankee Doodle** 1 public domain 2 clip art illustration 3 public domain **Measurement: Perimeter of Polygons** 3 C Center for Innovation in Assessment

## Word Knowledge

**Beaver Pelts** 1 photo courtesy of thelastbestwest.com 2 clip art illustration 3 stock photo **Making a Budget** 1 stock photo 2 clip art illustration **How Does a Market Economy Work?** 1 stock photo **Adam Smith: Father of Economics** 1 public domain **Copper: The Great Conductor** 1 T 2 stock photo B image courtesy of Landscape Structures Inc. 2 stock photo 3 image obtained from Wikimedia Commons

## Follow Up Assessment

**The Rights of All Americans** 1 L illustration by Greg Harlin - Wood Ronsaville Harlin, Inc. 2 T stock photo **Who Were the First Americans?** 1 L clip art illustration B Center for Innovation in Assessment 2 public domain

We would like to thank the following fifth grade teachers who participated in the 2005-2006 field test of the Grade 5 ITRI materials, and whose detailed feedback has been invaluable in improving these materials for classroom use:

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