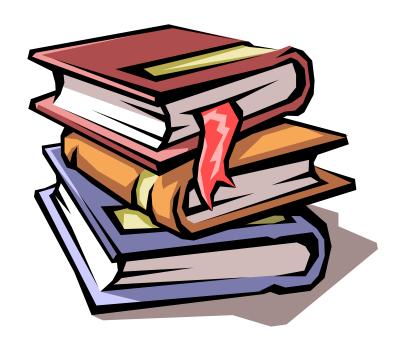
Customizing Strategies for Disciplinary Literacy



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Doug Buehl
Adolescent Literacy Consultant
Madison, Wisconsin

Comprehension Processes of Proficient Readers

Comprehension Process	Description
Making Connections to	Reading comprehension results when readers can match what they already know
Prior Knowledge	(their schema) with new information and ideas in a text. Proficient readers activate
	prior knowledge before, during, and after reading and they constantly evaluate how
	a text enhances or alters their previous understandings.
Generating Questions	Comprehension is, to a significant degree, a process of inquiry. Proficient readers
	pose questions to themselves as they read. Asking questions is the art of carrying
	on an inner conversation with an author, as well as a n internal dialogue within
	one's self.
Creating Mental Images	Comprehension involves breathing life experiences into the abstract language of
	written texts. Proficient readers use visual, auditory, and other sensory connections
	to create mental images of an author's message.
Making Inferences	Much of what is to be understood in a text must be inferred. Authors rely on read-
	ers to contribute to a text's meaning by linking their background knowledge to in-
	formation in the text. In addition to acknowledging explicitly stated messages, pro-
	ficient readers "read between the lines" to discern implicit meanings, make predic-
	tions, and read with a critical eye.
Determining Importance	Our memories quickly overload unless we can pare down a text to its essential ide-
	as. Texts contain key ideas and concepts amidst much background detail. Proficient
	readers strive to differentiate key ideas, themes, and information from details so
	that they are not overwhelmed by facts.
Synthesizing	Proficient readers glean the essence of a text (determine importance) and organize
	these ideas into coherent summaries of meaning. Effective comprehension leads to
	new learning and the development of new schema (background knowledge). Profi-
	cient readers make evaluations, construct generalizations, and draw conclusions
	from a text.
Monitoring Reading and	Proficient readers "watch" themselves as they read and expect to make adjust-
Applying Fix-Up Strategies	ments in their strategies to insure that they are able to achieve a satisfactory un-
	derstanding of a text.

From Buehl, D. (2007). A Professional Development Framework for Embedding Comprehension Instruction into Content Class-rooms. In J. Lewis & G. Moorman (Eds.), *Adolescent Literacy Instruction: Policies and Promising Practices* (p. 200). Newark, DE: International Reading Association.

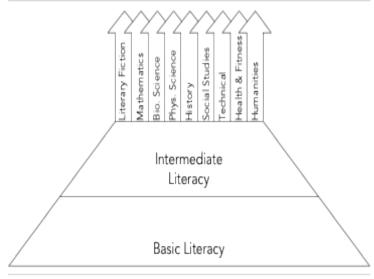
Buehl, D. (2009). Classroom Strategies for Interactive Learning, ^{3rd} Edition. Newark, DE: International Reading Association.

Buehl, D. (2011). *Developing Readers in the Academic Disciplines*. Newark, DE: International Reading Association.

Irvin, J., Buehl, D., & Klemp, R. (2007) Reading and the High School Student: Strategies to Enhance Literacy, 2nd Edition. Boston: Allyn & Bacon.

Irvin, J., Buehl, D., & Radcliffe, B. (2007)

Strategies to Enhance Literacy and Learning in Middle School Content Area Classrooms, 3rd Edition. Boston: Allyn & Bacon.



Buehl (2011). Developing Readers in the Academic Disciplines, IRA.

Reading Comprehension & the Common Core Standards

	Anchor Standards for Reading—	
Focus	Key Ideas and Details	Comprehension Processes
Explicit/Implicit Meanings	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	 Make inferences Make connections to prior knowledge Determine importance
Main Ideas	2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	Generate questionsDetermine importanceSynthesize
Text Relationships	3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	 Make connections to prior knowledge Generate questions Make inferences Determine importance Synthesize
Focus	Anchor Standards for Reading— Craft and Structure	Comprehension Processes
Vocabulary	4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	 Make connections to prior knowledge Make inferences Create mental images
Text Structure	5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	Generate questionsDetermine importanceSynthesize
Author Purpose/ Perspective	6. Assess how point of view or purpose shapes the content and style of a text.	Generate questionsMake inferences
	Anchor Standards for Reading—	
Focus	Integration of Knowledge and Ideas	Comprehension Processes
Visual Literacy/ Technology	7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	 Generate questions Create mental images Synthesize
Argument & Support	8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.	Generate questionsDetermine importanceSynthesize
Multiple Texts	9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	 Make connections to prior knowledge Generate questions Determine importance Synthesize
	Anchor Standards for Reading—	
Focus	Range of Reading and Level of Text Complexity	Comprehension Processes
Text Complexity	10. Read and comprehend complex literary and informational texts independently and proficiently.	• All

Questioning the Author—(QtA) "Queries"

- · What is the author telling you?
- · What does the author assume you already know?
- · Why is the author telling you this?
- · What is the point of the author's message?
- · What does the author want you to understand?
- What does the author apparently think is most important?
- How does the author signal what is most important?
- How does this follow with what the author has told you before?
- How does what the author tells you connect with your previous knowledge or experience?
- What does the author say that you need to clarify?
- · What can you do to clarify what the author says?
- · Does the author explain why something is so?

Adapted from Beck, McKeown, Hamilton, Kucan (1997)

Elaborative Interrogation—Asking "Why"

The European invention of printing appears to have been independent of the Chinese process. Scholars believe that in about 1450, Johannes Gutenberg of Mainz, Germany, became the first European to use movable type to print books. Gutenberg used his printing press to print copies of the Bible. Not all Europeans were enthusiastic about Gutenberg's invention. Some complained that books printed on paper would not last long. Others noted that hand-copied manuscripts were far more beautiful than printed books. Scribes, who made a living by handcopying manuscripts, realized that the printing press threatened their profession. The impact of Gutenberg's work was economical as well as social and technological. (Holt World History, 2003 pp. *359)*

Taxonomy Self-Questioning Chart

Level of Thinking	Comprehension Self	Focusing Question	Comprehension Process
	Assessment		
Creating	I have created new knowledge.	How has this author changed	Synthesizing
· ·		what I understand?	Creating Visual/
			Sensory Images
Evaluating	I can critically examine this	What perspective or authori-	Inferring
	author's message.	ty does the author bring to	Creating Visual/
		what he/she tells me?	Sensory Images
Analyzing	I can explore deeper relation-	How is this similar to (or	Making Connections
	ships of the author's message.	different from) other texts	Determining Importance
		I've read?	
Applying	I can use my understanding in a	How can I connect what this	Making Connections
	meaningful way.	author is telling me to under-	Inferring
		stand something better?	_
Understanding	I can understand what the au-	What does this author want	Determining Importance
-	thor is telling me.	me to understand?	Inferring
			Creating Visual/
			Sensory Images
Remembering	I can recall specific details, in-	What do I need to remember	Determining Importance
-	formation, and ideas from this	to make sense of this text?	
	text.		

Buehl, D. (2009) Classroom Strategies for Interactive Learning, 3rd Ed. Newark: DE: International Reading Association

Self-Questioning Taxonomy for History Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge	How has this author changed what I understand?
	about the past.	Why does this matter to the author? To me?
Evaluating	I can critically examine this author's conclusions/interpreta-	Who is the author and how has author perspective influenced the telling of this history?
	tions/ explanations.	What conclusions/interpretations/explanations does the author provide?
		How did the author find out? What is the evidence? How can we evaluate this evidence?
		What other conclusions/interpretations/explanations could be justified by the evidence?
		Does the author have an attitude, and if so, about what?
		Whose viewpoints are not presented? What might be their perspective?
Analyzing	I can understand why.	What happened? What caused it to happen?
	,	What changed and what remained the same? Who benefitted from the changes? Who didn't?
		How does the author talk about the effect of past decisions or actions on future choices?
Applying	I can use my understanding to	How can I connect my experiences and knowledge to what this author is telling
	better understand how the past	me?
	influences my life and world.	How does studying the past help me understand my life and my world?
Understanding	I can understand what the author	What does this author want me to understand about the past?
_	is telling me about the past.	What questions does the author ask of the past?
		How did people in this time period view their lives and world?
Remembering	I can recall specific details, in-	What do I need to remember to make sense of the past?
_	formation, and ideas from this	·
	text.	

Buehl, D. (2009) Thinking Like An Insider. The Exchange: Newsletter of the IRA Secondary Reading Interest Group. Vol. 22, No. 1 (December), p. 5.

Self-Questioning Taxonomy for Literary Fiction

Level of Thinking	Comprehension Self-Assessment	Focusing Questions
Creating	I have developed an interpreta-	Why is the author telling me this story?
	tion of what this story means.	What theme or idea might the author be exploring in this story?
		What does this story to mean to me?
		How has the author changed what I understand?
Evaluating	I can critically examine this au-	Who is the author and how has author perspective influenced the telling of this
	thor's story.	story?
		What does the author's choice of words indicate about what the author might be
		thinking?
		What emotions is the author eliciting?
		Does the author have an attitude, and if so, about what?
Analyzing	I can notice how the author wrote	What literary techniques does the author use?
	this story.	What seems to be the purpose for using these literary techniques?
Applying	I can use my life experiences to	How can I connect this story to my life and experiences?
	understand the author's story.	Why might the author have the characters say, or do this?
		What point might the author be making about the characters' actions?
		Why might the author place the story in this setting?
Understanding	I can understand what the author	How does the author have the characters interact with each other?
	is telling me.	How do the characters feel about each other?
		How do character feelings and interactions change?
		How does the author use conflict in this story?
		How does the author resolve this conflict?
Remembering	I can follow what happens in this	Who are the characters?
	story.	Where does the story take place?
		What are the major events of the story?
		What is the sequence of these events?
		What event initiates the action of the story?

Buehl, D. (2009) Classroom Strategies for Interactive Learning, 3rd Ed. Newark: DE: International Reading Association

Self-Questioning Taxonomy for Music Performance

Level of Thinking	Comprehension Self- Assessment	Focusing Question
Creating	I have created an interpretation of this music.	What might the composer be telling listeners through this music? How can my performance communicate this music to my listeners?
Evaluating	I can critically examine my performance of this music	What expectations does the composer have for the musicians playing (or singing) this piece? How have I met the composer's expectations?
Analyzing	I can understand how the composer created the musical effects of this composition.	How does the composer use the elements of music (form, rhythm, melody, harmony, timbre, texture, and expression)? Why did the composer make these particular musical choices?
Applying	I can use my understanding to perform & appreciate this music.	How can I connect my experiences to performing this music? What emotional responses to the music does the composer seem to be indicating?
Understanding	I can understand the back- ground of this composition.	When did the composer write this piece and how might the times have influenced this music? Why did the composer write this piece, and for whom? What do we know about the composer, and was the piece characteristic of this individual's work?
Remembering	I can follow the composer's instructions.	How has the composer indicated that this piece should be performed? What attention do I need to pay to time signatures, key signatures, note values, dynamics, tempo markings, and pitches?

Buehl, D., & Buehl, W. (2008, October). Connecting music to literacy. Paper presented at the Wisconsin School Music Association Conference, Madison, WI.

Self-Questioning Taxonomy for Technical Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created a product or com-	What have I been able to create or accomplish?
	pleted a task.	How can I use my understanding in future applications?
Evaluating	I can critically examine my com-	To what extent have I been able to apply my understanding to complete the task?
	pletion of this task.	To what extent have I been able to meet the author's expectations?
		To what extent does my application of the author's instructions achieve the intended final outcome?
Analyzing	I can examine the text & deter-	What is not clear to me? What can I do to problem-solve lack of understanding?
	mine what I need to do to accom-	What visual information does the author provide?
	plish the task.	How does the visual information help me visualize (create a mental model) of what I need to do?
		How do the visuals connect to written portions of the text? To unfamiliar vocabulary?
		What might happen if I do not follow specified procedures?
Applying	I can use my previous experienc-	How can I connect my previous experiences to performing this task?
	es to understand procedures &	What must I read especially carefully?
	instructions.	What help does the author provide for understanding key terms?
		What can I do to develop an understanding of unfamiliar terms?
Understanding	I can understand how to follow	What is the task I need to accomplish?
	the procedures & complete the	What should the final outcome look like?
	task.	Can I imagine myself completing the procedures the author describes?
Remembering	I can follow the author's instruc-	What steps do I need to follow?
	tions.	What key terms are used?
		What do I remember about these key terms?

Buehl, D. (2011). Developing Readers in the Academic Disciplines. Newark, DE: International Reading Association.

Self-Questioning Taxonomy for Biological Science Texts

Level of Thinking	Comprehension Self- Assessment	Focusing Question
Creating	I have created new knowledge	How has this author changed what I understand?
	about the biological world.	How has this author corrected previous misunderstandings?
Evaluating	I can critically examine this	What conclusions/theories/explanations does the author provide?
	author's conclusions/theories/	How do we know? What is the evidence?
	explanations.	What other conclusions/theories/explanations could be justified by the evidence?
Analyzing	I can understand why.	What happened? Why did it happen? How did it happen?
		How does this [biological concept] "work"?
		Why does this [biological concept] "work" the way it does?
		What are the defining characteristics?
		How is this similar to (or different from) other related biological concepts?
Applying	I can use my understanding to	How can I connect my experiences to what this author is telling me?
	better understand the biological	How can I use what this author is telling me to better understand living things?
	world.	How is what the author is telling me different from what I previously understood?
Understanding	I can understand what the au-	What does this author want me to understand about living things?
	thor is telling me about the bio-	How does the visual information help me understand what the author is telling me?
	logical world.	What do I currently understand about what the author is telling me?
Remembering	I can recall specific information	What biological concepts do I need to remember for future understandings?
	and ideas from this text.	What biological vocabulary do I need to become comfortable using?

Buehl, D. (2009) Reader Like An Insider. The Exchange: IRA Secondary Reading Interest Group, Vol. 22, No. 1, 2-5.

Self-Questioning Taxonomy for Physical Science Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge	How has this author changed what I understand?
	about the physical world.	How has this author corrected previous misunderstandings?
		How do I "see" the world I live in differently now?
Evaluating	I can critically examine this au-	What conclusions/theories/explanations does the author provide?
	thor's conclusions/theories/	How do we know? What is the evidence?
	explanations.	How can we test these scientific principles? How can we collect our own evidence?
		What do our observations tell us?
		Are our observations consistent with the scientific principles we are examining?
		What are possible limitations of our investigations?
		What other conclusions/theories/explanations could be justified by the evi-
		dence?
Analyzing	I can understand why.	What happened (or happens)? Why does it happen? How does it happen?
	,	What process do objects go through? What happens at each stage of the process?
		What are the relationships that cause each effect in this process?
		How can we model this process?
		How can these scientific principles be demonstrated?
Applying	I can use my comprehension to	How can I connect my experiences to what this author is telling me?
	better understand the physical	How do these scientific principles explain the world I live in?
	world.	Where might I encounter these scientific principles "in action"?
		How is what the author is telling me different from what I previously under-
		stood?
Understanding	I can understand what the author	What does this author want me to understand about the physical world?
	is telling me about the physical	What do I currently understand about what the author is telling me?
	world.	Can I use my imagination to "see" what the author wants me to understand?
Remembering	I can recall specific information	What scientific principles do I need to remember for future understandings?
-	and ideas from this text.	What science vocabulary do I need to become comfortable using?

Buehl, D. (2011). Developing Readers in the Academic Disciplines. Newark, DE: International Reading Association.

Self-Questioning Taxonomy for Mathematical Concepts Text

Level o Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge.	What do I understand now that I didn't understand before about mathematics? How does this concept help me "think mathematically"?
Evaluat- ing	I can critically examine this mathematics concept.	Why is this definition needed? What can we do with this concept? How does the author use the concept in mathematics problem solving? What kinds of problems can I solve using my understanding of this concept?
Analyzing	I can follow the logic of what the author tells me.	What are the defining characteristics of this concept? How can I explain why this concept makes sense? How does this concept relate to other mathematics concepts I have learned?
Applying	I can use my mathematics under- standing in some meaningful way.	Where in my life might I encounter this mathematics concept? What are some examples of this mathematics concept from my life? How can I use this concept to describe, inform, or explain some part my life?
Under- standing	I can understand what the author is telling me.	How can I explain the mathematics concept? In mathematics language? In everyday language? How can I use visual information (diagrams or pictures or graphs) of the concept to understand its definition? What examples of this mathematical concept does the author provide?
Remem- bering	I can recall specific terms and mathematics concepts presented by the author.	What mathematics vocabulary does the author introduce? What definitions does the author provide for new mathematics concepts? What are the undefined terms (such as whole number, point, line, plane, group operation, set) in the definitions? What previous mathematics learning do I need to review to make sense of the definitions? What do the symbols and notation mean in the definitions?

Buehl, D. (2011). Developing Readers in the Academic Disciplines. Newark, DE: International Reading Association.

Self-Questioning Taxonomy for Mathematics Problem Solving Text

Level of Thinking	Comprehension Self- Assessment	Focusing Question
Creating	I have created new knowledge.	How can my understanding be used to describe, inform, or explain information, objects, or situations in a mathematical way? How have I expanded my ability to create solutions using mathematics?
Evaluating	I can monitor my effectiveness in applying this problem-solving procedure.	Do the example problems make sense when I examine them? What results have I obtained from applying the problem-solving procedure? How close is the result to what I predicted or estimated? What confusions did I encounter during problem-solving? What actions can I take to overcome any confusions?
Analyzing	I can follow the logic of what the author tells me.	What is the logical reasoning justifying the mathematics statement? How can I use this statement to explain mathematical facts that I already know to be true? How can I use this statement as "proof"? How can I link this statement to similar mathematics statements I have learned? Is the converse of the statement ("if B then A") true? What predictions or estimations do I have when I am problem-solving?
Applying	I can use my understanding for solving mathematical problems.	What kinds of problems can I solve using this mathematics statement? How can I apply this problem-solving procedure to a variety of problems? What are similar mathematics statements that I have previously learned?
Understanding	I can understand what the author is telling me.	How can I explain the mathematics statement in the form "if A then B"? How can I rephrase the statement using other symbols or other notation, without changing its meaning?
Remembering	I can recall specific terms and mathematics procedures presented by the author.	What mathematics vocabulary does the author use? What are the symbols, notations, and definitions of the terms used? What mathematics statement (formula, theorem, rule, principle) does the author introduce? What problem-solving procedure does the author introduce? What are the steps I need to follow in this problem-solving procedure?

Buehl, D. (2011). Developing Readers in the Academic Disciplines. Newark, DE: International Reading Association.

Interactive Reading Guide: World History "The Middle Ages"

THE MIDDLE AGES

1. **Both** read the paragraphs on page 320 "the Big Picture " silently.



Summarize: What did the Roman Empire leave behind as its legacy?



<u>Determine Importance</u>: Discuss all of the changes Europe felt after the fall of the Roman Empire. List at least five of the changes you discussed below:

- 1.
- 2.
- 3.
- 4.
- 5.

THE FRANKISH EMPIRE

2. **Partner A** read the first paragraph on page 321 aloud.

<u>Visual Representation</u>: Draw a time line from 600-1400 in the area below. Add the date and the event-700s The Frankish Empire rises to power (You will add 5 other events to this timeline as you continue this assignment.)

Partner B read "A Powerful Ruler" on page 321



Add Charlemagne's biggest achievement to your previous timeline as well as the year it occurred.

3. **Partner A** read "The Growth of Towns" on 324. Add the events of 1000 and 1200's to your timeline.



<u>Creating Mental Images</u>: Draw three changes in Europe's economy below: Provide captions for each drawing.

Chemistry Think Marks

When you read a chemistry text, you should constantly be asking yourself questions. As you read, track questions that surfaced for you about the material. Write them in the space below. Classify each question according to these "think marks":

- C Clarifying—A segment that is confusing and needs clarification
 - > What is the author saying here about..?
- V Explaining Vocabulary—A chemistry term that is unclear
 - > How can I explain the meaning of ...?
- P Predicting—Implications of the information being considered
 - > What does the author mean ...?
 - > Does this happen because ...?
- T <u>Tying Ideas Together</u>—Connecting this section of the text with something learned earlier in the year
 - > Is this related to ...?
 - > What did we learn before that relates to this?
- Q Questioning—Wondering how this material connects to some aspect of one's life and world
 - > I wonder if...?
 - > I wonder whether...?

Chemistry Think Marks

C—Clarifying	
V—Explaining Vocabulary	
P—Predicting	
T—Tying Together Ideas	
Q—Wondering Questions	

Adapted from Katie Johnson, Madison (WI) East High School, in Buehl, D. (2011) Developing Readers in the Academic Disciplines, IRA.

Mathematics Review/New Chart

<u>Individually</u> Use the following key to highlight the math text as you read. You will find that a sentence may be highlighted with several colors.

Yellow = Review material (the author assumes I have already learned this)

Pink = New Material (the author is introducing new mathematics concepts & procedures)

Orange = I thought of a connection outside of math class (personal or academic)

<u>In your groups of 3</u> Start with items that are highlighted in yellow (review material). Compare items and agree as a group that each item represents previous mathematics learning. Then write each item in the Review column of the Review/New Chart.

Repeat this process for the pink statements (new material). Then write each item in the New column of the Review/New Chart. You may decide after discussion that some "pink" items are really review and need to be switched to the Review column on the chart.

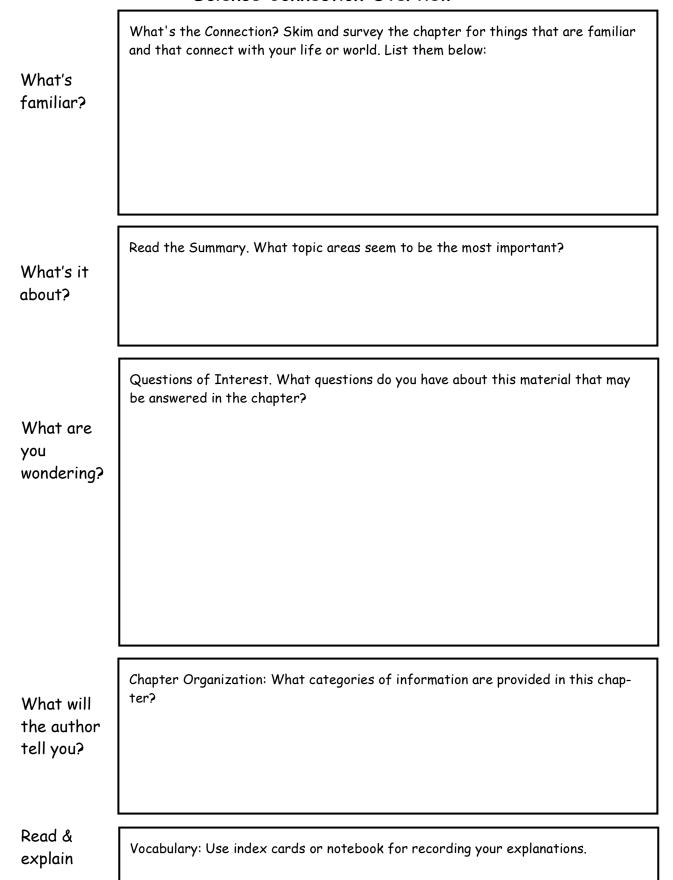
Take turns. Each member thoroughly explains a math concept in the review column. Group members: add to and clarify each explanation. Continue until all review items are explained. It is the group's responsibility to make sure all review items are thoroughly understood. Be prepared to share your explanation with the entire class.

Repeat the explanations with the New Column: explain your understanding of each new math concept. Finally, discuss the oranges (any connections you had with the written text and past experiences or knowledge).

Review	New

Buehl (2011) Developing Readers in the Academic Discipines, IRA. Adapted from Rita Crotty, Hempstead High School, Dubuque, IA

Science Connection Overview



Confirming: What we know or have heard	Revising: What the author stated
Inquiring: What we are wondering	Resolving: What the author stated
Extending: What else is important to know	

History KQR Chart

	Knowledge	Questions	Response
CE			
СН			
TP			
TE UP			
CE			
СН			
TP			
TE UP			
CE			
СН			
TP			
TE UP			
OP .			
CE			
СН			
TP			
TE			
UP			
CE			
СН			
TP			
TE			
UP			
CE			
СН			
TP			
TE			
UP			

CE = Cause Effect CH = Changes TP = Turning Point
TE = Through Their Eyes UP = Using the Past

Buehl (2011) Developing Readers in the Academic Discipines, IRA.

History Change Frame

Who? Group	What problems did they face?	What changes affected these people? What did they do to solve their [Pop Tech Envr Econ Pol Blfs] problems?	What did they do to solve their problems?

Buehl, D. (2009) Classroom Strategies for Interactive Learning, 3rd Edition. Newark, DE: International Reading Association.