

# DISCIPLINARY LITERACY IN ELEMENTARY EDUCATION

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## DISCIPLINARY LITERACY

- Disciplinary literacy is a term used to refer to the unique or highly specialized ways that reading and writing are used in the various disciplines
- Mathematicians, scientists, historians, and literary critics create, disseminate, and evaluate knowledge differently—and, consequently, the texts they create are different
- Secondary schools are now required to help their students deal with these specialized text and to read and write like the specialists in those fields
- Elementary teachers have no such responsibility, but can do a lot to help prepare kids for later success

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## 1. BUILD BASIC SKILLS

- Phonemic awareness instruction ensures that children can perceive sounds within words, hold them in memory, and operate on them
- Phonics instruction enables children to translate letters and spelling patterns into sounds and pronunciations (translating written to oral language)
- Oral reading fluency instruction supports children's ability to decode accurately and with sufficient speed to make sense of text
- Reading comprehension instruction guides students to expect text to be meaningful and to think in ways, while reading, that support understanding and recall

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## PHONOLOGICAL AWARENESS

- PA is the ability to detect, manipulate, or analyze the auditory aspects of spoken language—independent of meaning (e.g., word separations, syllables, rhymes, phonemes)
- Instruction aims to teach students to perceive the sounds in spoken words (full segmentation)
- Students can be taught to perceive the phonemes in spoken words in preschool, kindergarten, and grade 1 and this has a positive impact on learning to read (Adams, 1990; National Reading Panel, 2000; National Early Literacy Panel, 2008)

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## DECODING

- English is an alphabetic language – that means word construction (the spelling of words) represents oral sounds, not meanings
- Decoding instruction teaches students to use the sounds of letters and the pronunciations of spelling patterns to decode words (without reliance on context, pictures, guessing) and to spell words
- Research shows that explicit and systematic decoding instruction in preschool, kindergarten, and Grades 1-2 leads to improved word reading, oral reading fluency, spelling, and reading comprehension (Adams, 1990; National Reading Panel, 2000; National Early Literacy Panel, 2008)

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## ORAL READING FLUENCY

- Oral reading fluency refers to the ability to read text accurately, with sufficient speed, and proper expression
- Oral reading fluency instruction focuses on repeated oral reading of challenging texts with feedback
- Research shows that oral reading fluency instruction in grades 1-4, and with struggling readers in grades 1-2 improves word reading, oral reading fluency, and reading comprehension (National Reading Panel, 2000; Kuhn & Stahl, 2003)

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## VOCABULARY

- Vocabulary refers to knowing the meanings of words (or of the meaningful parts of words)
- Vocabulary instruction teaches students the meanings of specific words and word parts, how to use context to infer word meanings, and how to use references like dictionaries
- Research shows that vocabulary instruction throughout the grades improves reading comprehension (National Reading Panel, 2000)

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## COMPREHENSION STRATEGIES

- Reading (and listening) comprehension strategies refer to intentional actions that readers take in order to better understand or remember the information from text
- Comprehension strategy instruction teaches the what, when, why, and how of several specific ways of thinking about text including summarization, self-questioning, visualizing, and using text structure
- Research shows that vocabulary instruction throughout the grades improves listening and reading comprehension (National Reading Panel, 2000; Shanahan, et al., 2010)

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## 2. DEVELOP EXTENSIVE CONTENT KNOWLEDGE

- Even before they become readers, kids can start learning about their social and natural worlds
- Disciplinary literacy depends heavily on disciplinary knowledge

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## DEVELOP EXTENSIVE CONTENT KNOWLEDGE

- Many schools reduce the amount of social studies, sciences, arts, etc. to try to enhance reading achievement
- Or, they provide such instruction but pay little attention to it because meeting the standards in those subjects “doesn’t count”
- But research shows that “prior knowledge” plays an important role in reading comprehension
- Opportunities lost in reading instruction in not having kids read texts that both support learning to read and learning content
- Some teachers don’t value the knowing of information since “anyone can look that up on Google”—big mistake, knowledge matters

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## DEVELOP EXTENSIVE CONTENT KNOWLEDGE

- Teach content subjects in the elementary grades and protect this instructional time
- Adopt content learning standards for your reading texts (not just your content texts)—that is specify what it is that kids are going to learn about the social or natural world from the texts that are to be read
- Engage students in project-based learning in their content classes

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## PROJECT-BASED LEARNING

- Project-Based Learning poses a challenging problem or question for students, encourages and supports sustained inquiry, that has some degree of authenticity, involving student voice and choice, reflection, and critique and revision (Buck Institute)
- Duke, et al., 2019: provided 80 PBL lessons (45 mins each) to second-grade social studies students—the units covered: (1) Producers and Producing in Our Community(economics); (2) Brochure about the Local Community (geography); (3) Postcards about the Community's Past (history); and (4) The Park/Public Space Proposal Project (civics and government)
- This approach increased both social studies knowledge and literacy significantly above traditional social studies instruction
- Inside Information by Nell Duke (2014)

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### 3. EXPOSE STUDENTS TO DISCIPLINARY TEXTS

- Students should have access to disciplinary texts in science, history, math, and literary texts
- Informational texts should have a wide range of text types, modalities, and purposes

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### EXPOSE STUDENTS TO DISCIPLINARY TEXTS

- Include informational texts in reading instruction itself
- Include informational texts in classroom libraries
- Don't be afraid of informational texts for read-alouds
- Many districts don't provide texts for the various subjects (for instance, they try to only teach "hands on science"—BIG MISTAKE)
- Use appropriate texts in science, social studies, etc.

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## INSTRUCTIONAL LEVEL FEARS

- Many teachers avoid content texts because of their relative difficulty
- In many classrooms, reading is taught in leveled-reader groups to ensure that students are reading at their “instructional level”
- Social studies or science texts are typically a single book and make no accommodations for reading levels—so teachers either don’t use them or have them read aloud

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## INSTRUCTIONAL LEVEL (CONT)

- Idea of instructional level originated with Emmett Betts (1946)
- He claimed everyone had three reading levels (independent, instructional, frustration)
- He came up with the way to determine levels—informal reading inventory
- He developed the operational criteria (95-98% word reading accuracy, 75-89% reading comprehension)

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## INSTRUCTIONAL LEVEL (CONT)

- Killgallon (1942): only looked at relationship of oral reading fluency and reading comprehension—not learning
- Powell (1968): same methodology as Killgallon, but more grade levels and different results
- Dunkeld (1971): students taught at frustration level made greatest learning gains
- Jorgensen, et al. (1977): no relation between placement and achievement gains

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## INSTRUCTIONAL LEVEL (CONT)

- Morgan, et al. (2000): frustration level placements led to greater learning gains
- Brown et al. (2017): replicates this result with third grade
- O'Connor et al (2002, 2010): only benefit was for students reading at grade 1 level, but this benefit went away if scaffolding was equated
- Kuhn et al (2006): frustration level placement led to greater learning gains
- Homan, et al., (2010): teaching 6th graders with instructional level text gave no advantage over teaching with text one year above instructional level

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## 4. GUIDE READING OF DISCIPLINARY TEXTS

- Require that students read disciplinary texts and hold them accountable for making sense of these
- Provide guidance to teach them how to read these texts independently
- A typical text-centered content lesson is done through round robin reading with the teacher elaborating on the text (a very weak introduction to disciplinary text!)

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## GUIDE READING OF DISCIPLINARY TEXTS

- Informational texts at these levels tend to describe, compare, or sequence or make causal connections or problem-solution connections
- Set purposes that are in line with what the text is going to provide
- Read the next page to find out about the similarities and differences between... read to find out about what causes... read to find out how the text describes... read to find out what solutions there are to this problem... read to find out the order in which these things occurs

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## GUIDE READING OF DISCIPLINARY TEXTS

- Review the text for Tier 2 words the students might not know
- Focus on academic words rather than content words
- Examples: however, next, because, first, since, etc.
- Only an introduction of these words is necessary (no guessing, tell them or show them)

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## GUIDE READING OF DISCIPLINARY TEXTS

- Set a reasonable amount of text for students to read and by Grade 2 have them read it silently
- This might be as little as a single page
- Over time expand the amount of reading you ask them to do silently (build stamina)

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## **GUIDE READING OF DISCIPLINARY TEXTS**

- Accountability can take many forms
- Easiest, perhaps, is a guided discussion—teacher asks questions about what the students found out
- This kind of work can also be done through writing
- Other outcomes possible too: completing a graphic that summarizes the text, or a project

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## **5. DEVELOP DISCIPLINARY VOCABULARY**

- Teach students the vocabulary of the subject areas
- Build their knowledge of morphemes relevant to those subject areas
- Develop their ability to make sense of vocabulary from text

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## DEVELOP DISCIPLINARY VOCABULARY

- Vocabulary is the intersection of content and language
- Teach students both the specialized vocabulary of the content that you teach and other key words that matter to comprehension
- Don't preteach all the words (for instance, most technical terms in science books are defined in the text—those should not be pretaught)

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## 6. WORK WITH MULTIPLE TEXTS

- Some subjects (e.g., social studies) depend upon the reading of multiple texts
- Students should have the opportunity to work with multiple texts in such subjects
- Other subjects (e.g., science) depend upon the reading of multi-modal text
- Students should have the opportunity to work with those "multiple" texts, too

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## WORK WITH MULTIPLE TEXTS

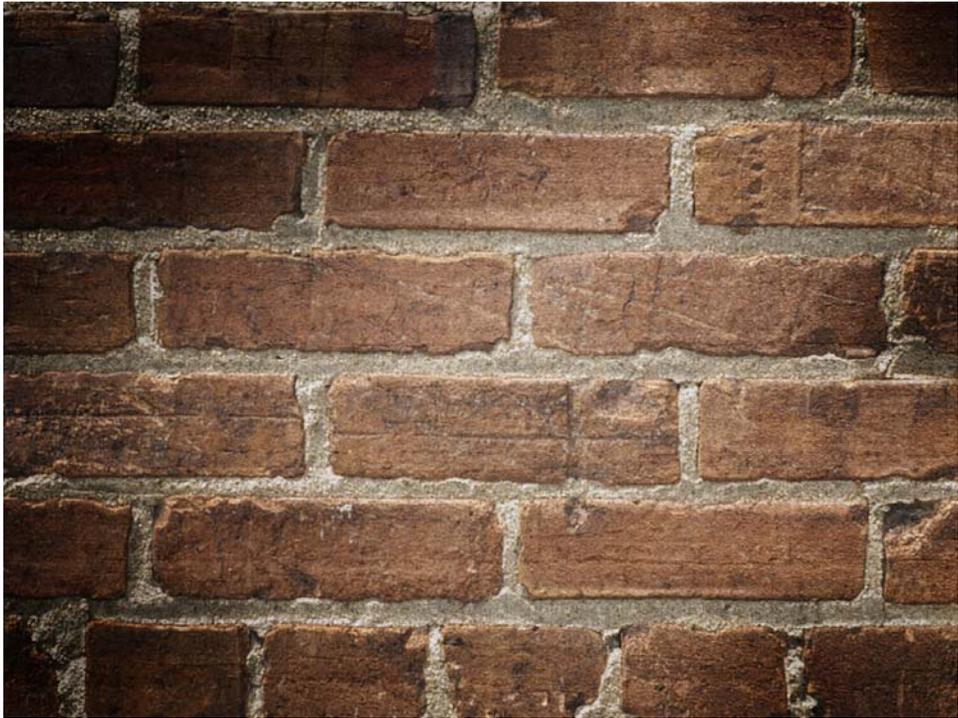
- History knowledge is not “factual,” but plausible
- Historians develop their plausible interpretations of what happened and why based on their analysis of evidence drawn from multiple perspectives
- Having students synthesizing texts—comparing them to determine their agreements and disagreements is valuable
- Historical Scene Investigation <https://hsi.wm.edu/>

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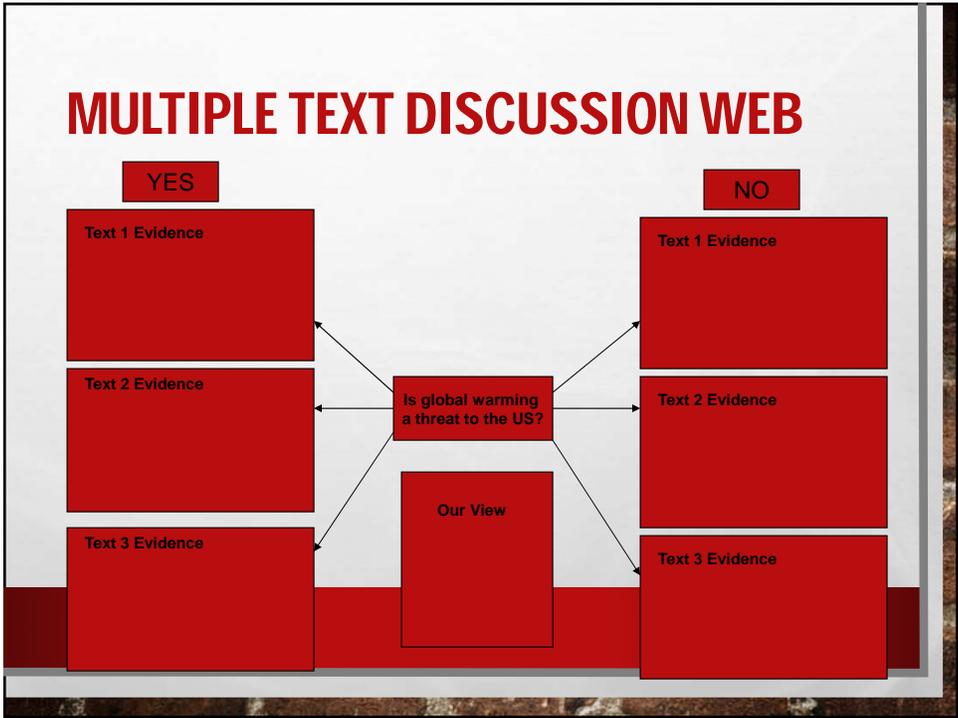
## WORK WITH MULTIPLE TEXTS

- Science attempts to describe phenomena and processes in the natural world
- Language is not sufficient for accurately summarizing scientific knowledge
- For this reason, scientific communication depends upon language, graphics, and mathematics
- Guiding students to identify the purpose of graphics, teaching them how to interpret graphics, and showing them how to compare graphics with the text all should have a place in the science class

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## 7. TEACH DISCIPLINARY WRITING, TOO

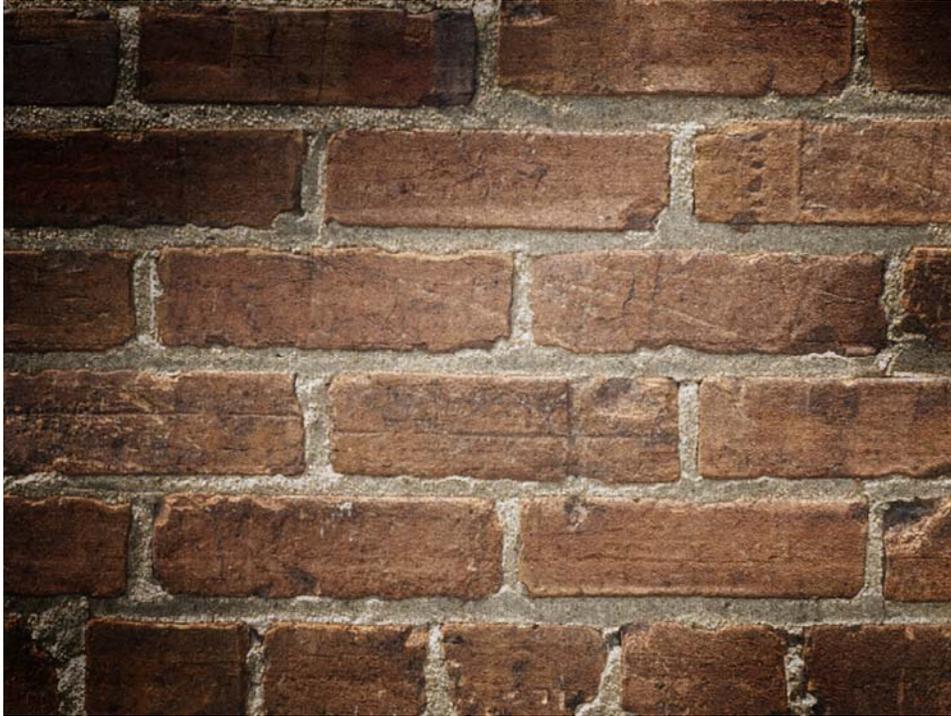
- One of the most effective ways of teaching text characteristics, formatting, and the like is to have students trying to use these features productively in their writing
- Students should have opportunities to write papers and to produce presentations that effectively communicate information about content

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## TEACH DISCIPLINARY WRITING, TOO

- Research shows that writing about text increases student learning (Graham & Hebert, 2010)
- Having students write summaries of text are particularly valuable in the elementary grades
- There are also benefits for having students write explanation in mathematics
- And, for having students synthesize information across texts

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## WRITING TO TEXT MODELS

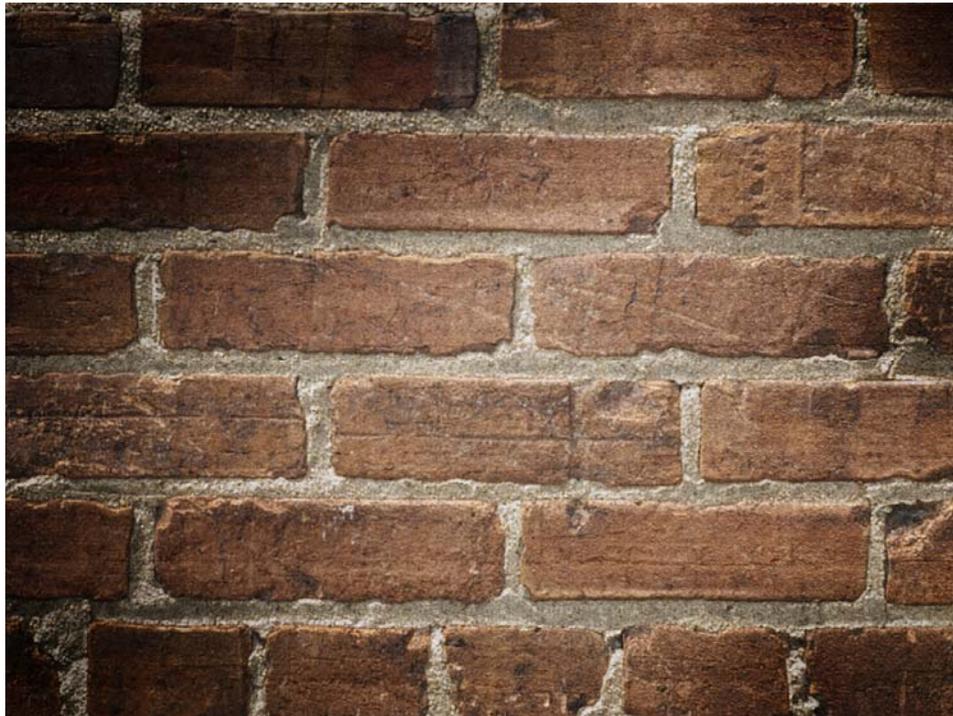
- Good writers usually become good writers because they imitate when they write
- They imitate structure, style, language
- Writing on the basis of models –that is trying to imitate features of what we read—can both improve reading and writing
- To do this requires analytical reading that looks carefully at how the text was composed
- And for the writer it provides valuable scaffolding

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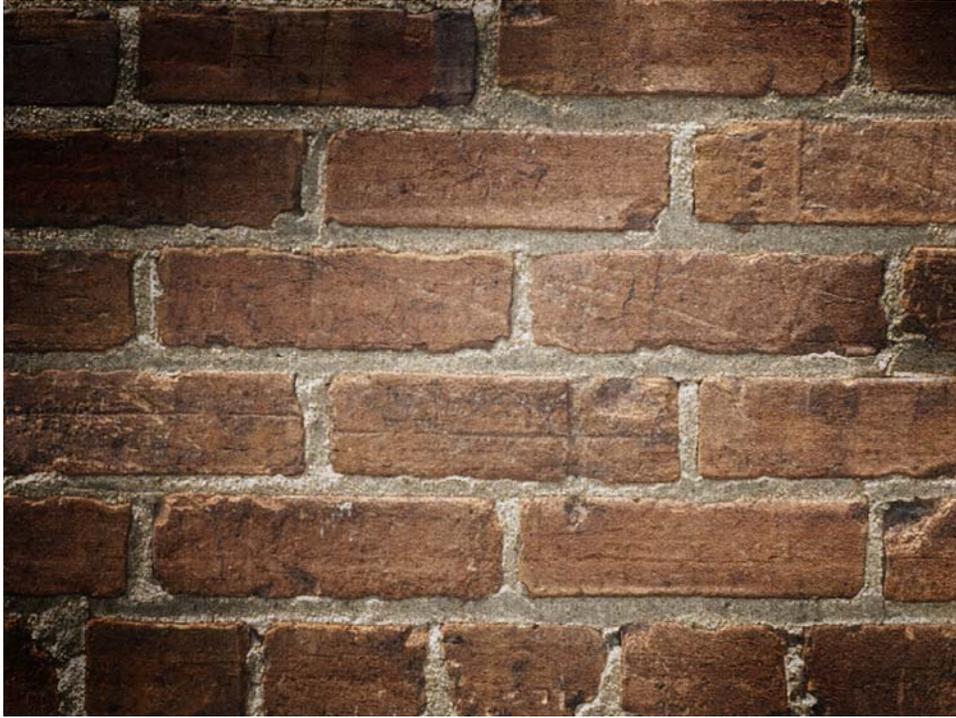
## TEXT MODELING

- Select strong text examples
- Read and reread the text trying to identify or describe its features
- Decide which features need to be repeated
- Then try to compose your own text by varying the key features
- Re-read the original text and revise

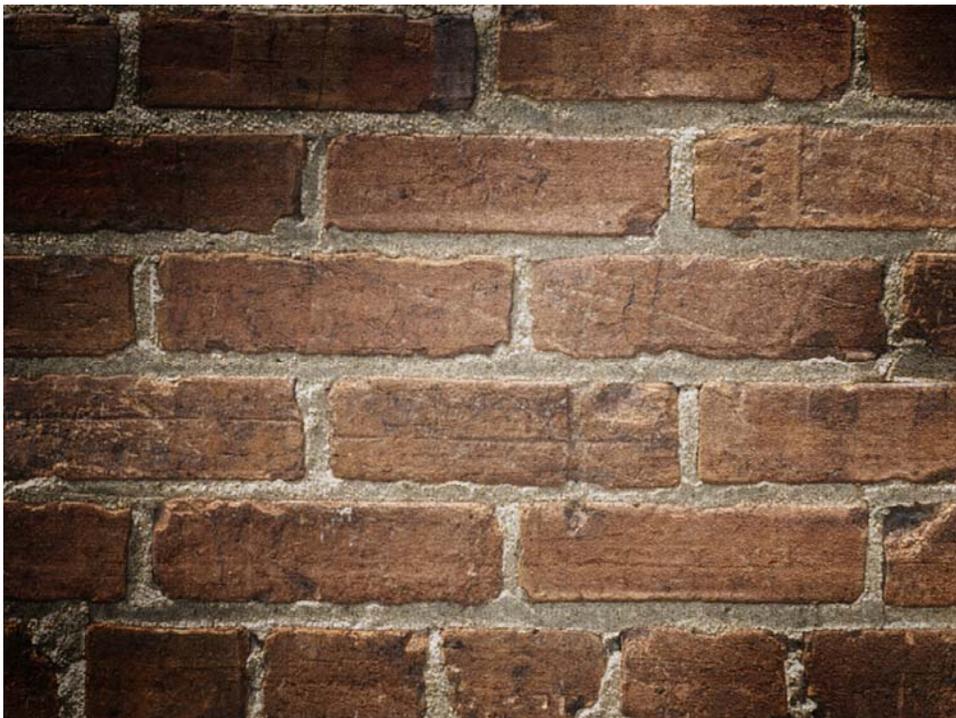
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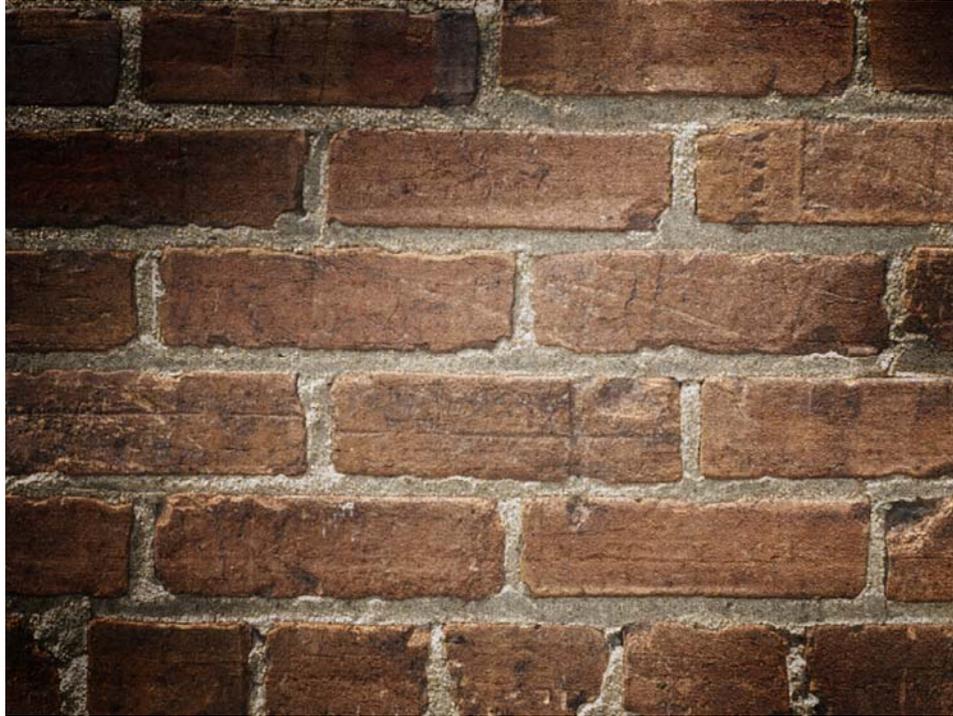
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## SUMMARIZATION

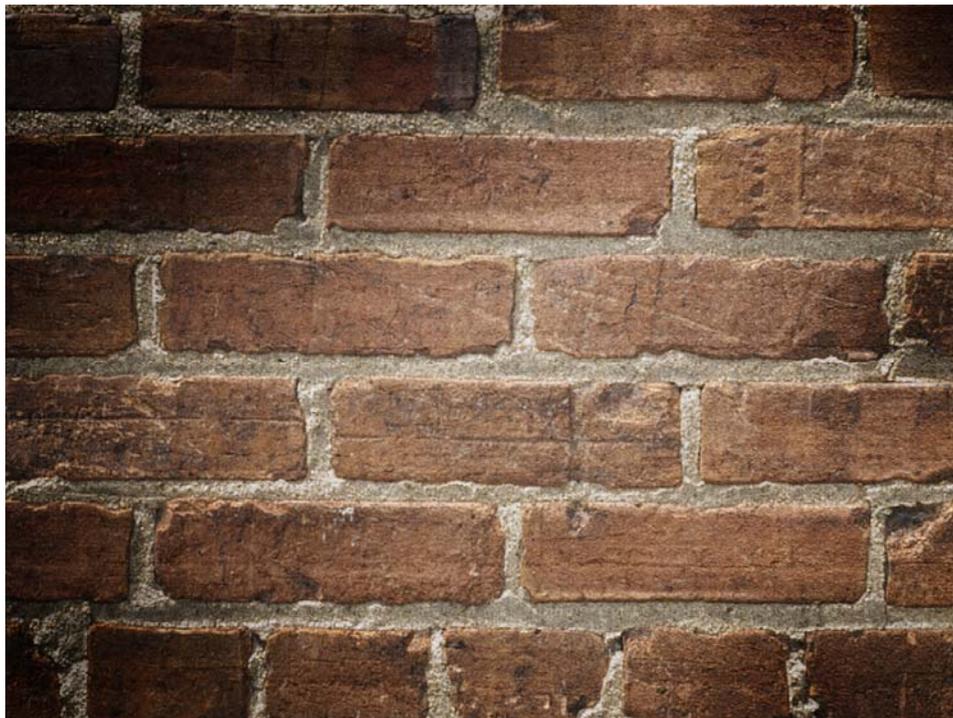
- Writing about text is effective because it encourages students to think about what the author wrote (more effective with elementary than secondary)
- Requires students to identify the key ideas and details and to think about how those ideas are organized
- More explicit consideration of the text than if the reader were only reading

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## GRAHAM & PERIN RESULTS

	d	n
Strategy instruction	.82	20
Summarization	.82	4
Peer assistance	.75	7
Product goals	.70	5
Word processing	.55	18
Sentence combining	.50	5
Prewriting	.32	5
Process approach	.32	21
Inquiry	.32	5
Models	.25	6
Grammar	-.43	11

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## **SUMMARIES OF SHORT TEXTS:**

- Identify/select the main idea of a paragraph
- Delete trivial information
- Delete redundant information
- Write a one sentence synopsis of the main and supporting information for each paragraph

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## **A. READ THE TEXT**

You can see some small things with your eyes. With a microscope, however, you can see much smaller details. Think of a butterfly's wing. You can see it with your eyes. But a microscope can show you small parts of the wing called scales.

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## B. IDENTIFY MAIN IDEA

You can see some small things with your eyes. With a microscope, however, you can see much smaller details. Think of a butterfly's wing. You can see it with your eyes. But a microscope can show you small parts of the wing called scales.

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## C. DELETE TRIVIA

You can see some small things with your eyes. With a microscope, however, you can see much smaller details. ~~Think of a butterfly's wing. You can see it with your eyes. But a microscope can show you small parts of the wing called scales.~~

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## D. WRITE ONE SENTENCE SUMMARY

Microscopes let you see things so small that you can't see them with just your eyes.

(written with text removed)

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## SUMMARIES OF LONGER TEXTS:

- ① Identify/select the main idea of a text
- ① Create a skeleton outline using the subheadings from the text
- ① Identify 2-3 important ideas for each subheading
- ① Convert the outline into a summary

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## GIST

- 1. Read text (section)
- 2. Identify 5Ws and H
- 3. Write 20 word summary

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## SUMMARY WRITING SKILLS

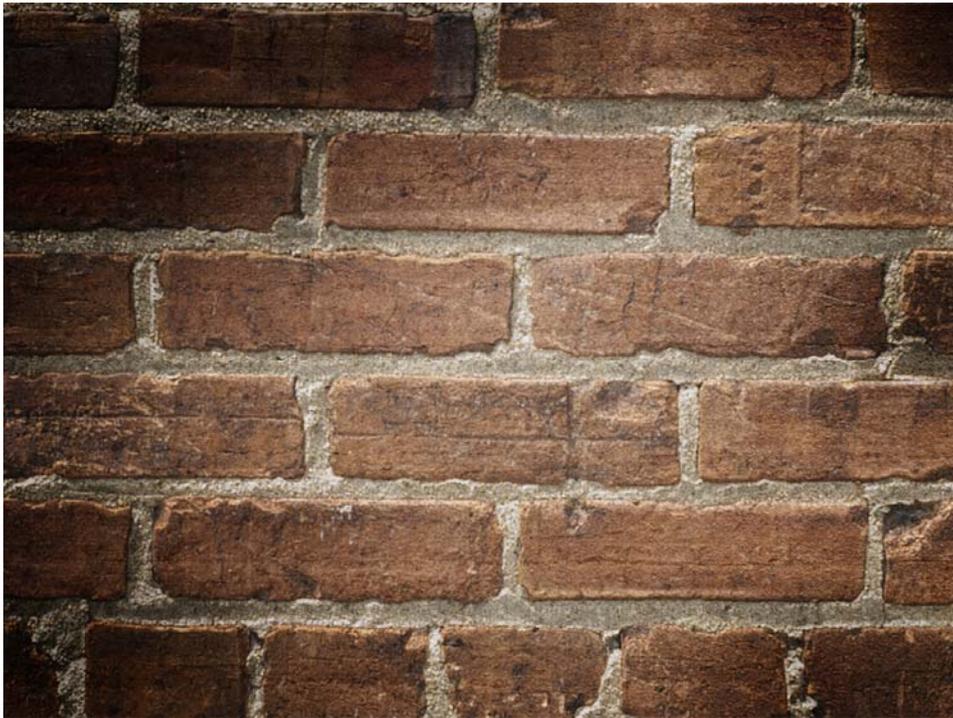
- Comprehension of the text
- Identification of key ideas and details
- Identification of the text structure
- Ability to paraphrase and translate ideas into your own words
- Ability to combine subpoints into generalizations

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## 8. INTRODUCE DISCIPLINARY APPROACHES

- To the extent that available texts allow, introduce students to the reading routines and special text characteristics of the disciplines

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### **THE FALL OF FORT TICONDEROGA**

After the battles of Lexington and Concord, the British army stayed in Boston. The American forces camped around Boston, waiting for the British to move.

Meanwhile, a young New Englander named Benedict Arnold had been appointed to lead 400 soldiers at Fort Ticonderoga in New York. After arriving there, he joined forces with Vermont's rough and rugged Ethan Allen. Allen led a group of rebels called the "Green Mountain Boys."

Before dawn on May 10, 1775, the Americans attacked Fort Ticonderoga. The British were sleeping peacefully. Allen woke up the commander by banging on his door and shouting, "Come out of there, you old rat!" The Americans captured the fort without firing a shot. Inside, they found something they needed desperately—heavy iron cannons.

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### **THE BATTLE OF BUNKER HILL**

A month later on the night of June 16, British troops in Boston heard strange noises on nearby Charlestown Peninsula. When the sun rose, they could not believe their eyes. The day before, the peninsula had been empty. Now its two small hills—Bunker Hill and nearby Breed's Hill—were alive with Americans. In just one night they had built a fort of dirt and logs on Breed's Hill.

The British knew they had to attack quickly. If the Americans could drag the cannons taken at Fort Ticonderoga up to the hilltops, they would be able to pound Boston and the British ships in the harbor.

On the next day 2,000 of the king's troops lined up at the base of Breed's Hill. General William Howe ordered them to march to the top and take the American fort. The Redcoats sweated heavily in the hot June sun as they struggled up Breed's Hill.

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In the hilltop fort, fingers tightened on triggers. Fighting to control their fear, the Americans reported their order—"Don't fire till you see the whites of their eyes." As the red line of troops moved closer, a gray-haired farmer prayed, "I thank thee, O Lord, for sparing me to fight this day."

When the British were almost on top of them, the Americans fired. Huge gaps appeared in the line of redcoats. The surprised British fell back and then made a second attack. Again they were mowed down by American gunfire.

General Howe regrouped his men and sent them up the hill a third time. Once more, the Redcoats' front line was ripped apart by gunfire. As soldiers in the back lines advanced, they tripped over their fallen comrades. But this time the British troops reached the top. By now the Americans had run out of gunpowder and were retreating to safer ground. The canons captured at Fort Ticonderoga had never left New York.

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By evening the British had taken over the Charlestown Peninsula. But as the dead and wounded were counted, General Howe found that the victory had been "too dearly bought." He had lost more than 1,000 soldiers that day. The Americans had lost over 400.

Even though most of the fighting took place on Breed's Hill, this bloody conflict was remembered as the Battle of Bunker Hill. After that battle, the British would never again doubt that Americans could and would fight.

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### **THE SECOND CONTINENTAL CONGRESS**

While New England went to war, representatives from the colonies were meeting in Philadelphia. This was the Second Continental Congress. John Adams asked the Congress to set up a "Grand American Army" with troops from every colony. To lead this army, Adams suggested "a gentleman whose skill as an officer...would command respect of America." The man was George Washington of Virginia.

The Congress asked Washington to serve as commander-in-chief of the new Continental Army. Washington agreed, saying he would use "every power I possess... for the support of the glorious cause."

Adams believed that the colonies should declare their independence, or complete freedom, from Great Britain. But the Congress was not ready to take such a step. Most Americans still felt loyal to King George III. The idea of independence scared them.

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The Congress tried to make peace and voted to send another petition to King George III. This petition asked the king to help end the war. It was called the Olive Branch Petition because the olive branch is the symbol of peace.

King George refused to read the petition from what he called an "illegal congress." He saw the actions of the Congress as treason. In Britain the punishment of treason was death.

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### WASHINGTON TAKES COMMAND

As George Washington rode toward Boston he knew that the odds were against him. How, he wondered, could the colonies stand up to Britain—the world’s most powerful country? How could rebel farmers defeat the world’s strongest army and navy?

Yet Great Britain faced two large problems. One was distance—America lay across a vast ocean. Sending troops and supplies across the Atlantic Ocean was both slow and costly. Britain’s second problem was the size of the colonies. To crush the rebellion, the British would have to take control of a huge territory.

Washington also faced great problems. The Continental Army was poorly trained and lacked supplies. The colonies did not have a navy. Worse still, many people did not support the war. Only about two fifths of the colonists called themselves Patriots and supported the fight against Britain. One fifth were Loyalists, people who felt loyal to Great Britain and opposed the war. The remaining two fifths did not take sides and could not be counted on to fight.

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Early in July 1775, General Washington took command of the troops camped around Boston. Everywhere he looked he saw “confusion and disorder.” Men obeyed only those orders they liked. Washington worked hard to bring order to the army. Soon one soldier wrote, “Everyone is made to know his place and keep it... It is surprising how much work has been done!”

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### **THE BRITISH LEAVE BOSTON**

For months nothing happened. The British hoped the Patriots would grow tired of their rebellion and go home. To Washington's dismay, many of his troops did just that. The Americans hoped that King George III would pull his troops out of Boston. Instead, he hired German mercenaries to help crush the rebellion. Mercenaries are soldiers hired to fight in another country's war.

Washington desperately needed cannons to drive the British out of Boston. He finally sent a former bookseller, Henry Knox, to get the iron cannons that had been captured at Fort Ticonderoga. Somehow Knox's men loaded 59 huge cannons onto sleds. Then they dragged them for more than 300 miles (480 km) across the snowy hills and frozen rivers to Boston.

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On March 4, 1776, Boston awoke to a surprise. The day before, nearby Dorchester Heights had been bare hills. Then overnight those hills had sprouted cannons—cannons aimed at the city. The British general announced that if the Americans did not allow him to leave peacefully, he would destroy Boston. Washington wisely agreed to let the British troops move out. A few days later the redcoats sailed for Canada. With them went over 1,000 American loyalists.

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## A GOOD BEGINNING

American Patriots were overjoyed by this news. In the past year, they had shown the British they could fight. They had formed a Continental Army with George Washington as their leader. And they had driven the British out of the colonies.

Many people thought the war was over. But Washington knew better. The British would be back. Still, the Patriots had made a good beginning.

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## HISTORY EVENTS CHART

TEXT	WHO?	WHAT?	WHERE?	WHEN?	WHY?
Relation:					
2					
Relation:					
3					
Relation					
4					
Main point:					

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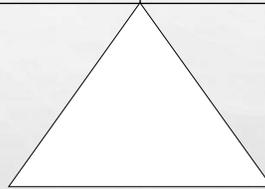
## HISTORY EVENTS CHART

TEXT	WHO?	WHAT?	WHERE?	WHEN?	WHY?
<b>Fall of Fort Ticonderoga</b>	<b>American forces (Arnold &amp; Allen) &amp; British forces</b>	<b>Americans capture Fort Ticonderoga</b>	<b>New York</b>	<b>May 10, 1775</b>	<b>Americans capture cannons</b>
Relation: Americans finally had cannons, but failed to get them from NY to Boston.					
<b>Battle of Bunker Hill</b>	<b>American forces &amp; British forces</b>	<b>British win the battle.</b>	<b>Boston</b>	<b>June 16, 1775</b>	<b>Americans failed to get cannons to Boston</b>
Relation: American army has to be unified if they are going to win.					

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## CHARACTER CHANGE CHART

What is main character like at the beginning of the story?	What is the main character like at the end of the story? How has he or she changed?
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Crisis

Given this character change, what do you think the author wanted you to learn?

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## **ELEMENTARY TEACHERS CAN CONTRIBUTE TO GROWTH IN DISCIPLINARY LITERACY BY...**

1. BUILDING BASIC LITERACY SKILLS
2. DEVELOPING CHILDREN'S CONTENT KNOWLEDGE
3. EXPOSING KIDS TO DISCIPLINARY TEXT
4. GUIDING STUDENTS TO READ DISCIPLINARY TEXT
5. DEVELOPING DISCIPLINARY VOCABULARY
6. WORKING WITH MULTIPLE TEXTS
7. TEACHING DISCIPLINARY WRITING
8. INTRODUCING DISCIPLINARY APPROACHES

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