Scaffolding Comprehension of Informational Text

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Reading Comprehension:

Before Reading
During Reading
After Reading

Preview - Before Reading Strategies

- Teach the pronunciation and meaning of critical, unknown vocabulary words
- Review, teach or activate any necessary background knowledge
- Preview the text
Before Reading - Vocabulary

- “direct vocabulary instruction has an impressive track record of improving students’ background knowledge and comprehension of academic content” Marzano, 2001, p. 69
- .97 effect size for direct teaching of vocabulary related to content Stahl & Fairbanks, 1986

Selection Vocabulary

- **General academic vocabulary** – Words used in many domains. *(suitcase words)*
  - Examples: contrast, analyze, observe, evidence, theory

- Application of general academic vocabulary differs across domains (Hyland & Tse, 2007; Fisher & Blachowicz, 2013)
  - Math – Analyze givens, constraints, and relationships in problem
  - Science – Analyze and interpret data
  - English – Analyze how author develops character

Selection of Vocabulary

- **Domain-specific vocabulary** that provides background knowledge
  - Examples: tariff, acute angle, foreshadowing

- When possible, teach clusters of words that are meaningfully related.
  - **Math**: angles, acute, right, obtuse, straight, reflex
  - **Science**: cell, nucleus, mitochondrion, vacuole, cell membrane, cell wall, chromosome
  - **Social Studies**: colony, ethnic group, migration, society, settlement, settler
Selection of Vocabulary

- Select **difficult words** that need interpretation.
  - Words not defined within the text
  - Words with abstract referent
  - Words with an unknown concept

Selection of Vocabulary - Summary

- Select a **limited number** of words.
- Select words that are **unknown**.
- Select words **critical** to passage understanding.
- Select words that can be used in the **future**.
- Select **difficult words** that need interpretation.

Selection - Vocabulary

<table>
<thead>
<tr>
<th>Text: American Journey</th>
<th>Chapter 11, Section 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publisher: Glencoe</td>
<td>Jacksonian Democracy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>favorite son</th>
<th>majority</th>
<th>plurality</th>
<th>mudslinging</th>
</tr>
</thead>
<tbody>
<tr>
<td>landslide</td>
<td>nominating convention</td>
<td>tariff</td>
<td>suffrage</td>
</tr>
<tr>
<td>nullify</td>
<td>secede</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selection - Vocabulary

<table>
<thead>
<tr>
<th>Text: My World</th>
<th>Chapter 4, Section 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publisher: Pearson</td>
<td>Central America and the Caribbean Today</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>* carnival</th>
<th>* Santeria</th>
<th>* diaspora</th>
<th>* microcredit</th>
</tr>
</thead>
<tbody>
<tr>
<td>* ecotourism</td>
<td>indigenous</td>
<td>democracy</td>
<td>parliamentary system</td>
</tr>
<tr>
<td>dictatorship</td>
<td>free-trade agreements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Organize words for Instruction

- Order words in list to stress relationships between words.

- Group words into semantic clusters to create a scheme. (Marzano & Marzano, 1988; Wixson, 1986)

Before Reading - Vocabulary

Step 1. Introduce the word.
   a) Write the word on the board or overhead.
   b) Read the word and have the students repeat the word.
   c) Have students tap out the syllables in the word.
   d) Have students read the word by parts as you loop under the word.
   e) Have students repeat the pronunciation of the word.
      (If the word is difficult to pronounce or unfamiliar have the students repeat the word a number of times.)

Introduce the word with me.

This word is suffrage. What word? suffrage
Tap and say the parts of the word. suf frage
Read the word by parts. suf frage
What word? suffrage
Suffrage is a noun.

Step 2. Introduce meaning of word.

Option # 1. Present a student-friendly explanation.
   a) Tell students the explanation. OR
   b) Have them read the explanation with you.

Present the definition with me.

When someone has suffrage, they have the right to vote in an election.

Glossary: Suffrage - the right to vote

- the right
- to vote
Before Reading - Vocabulary

Step 2. Introduce meaning of word.
Option # 3. Introduce the word using the meaningful parts in the word.

autobiography
auto = self
bio = life
graph = letters, words, or pictures

hydroelectricity
hydro = water

NOTE: 88% of key science words have Spanish cognates; 1/2 are high frequency words in Spanish

Common Latin and Greek Roots

<table>
<thead>
<tr>
<th>Latin</th>
<th>Greek</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>graph</td>
<td>to write, to draw</td>
<td>Greek: autograph, biography, photograph, telegraph, lithograph</td>
</tr>
<tr>
<td>hydro</td>
<td>water</td>
<td>Greek: hydroplane, dehydrate, hydroelectric, hydrogen, hydrophone</td>
</tr>
<tr>
<td>ject</td>
<td>throw</td>
<td>Latin: reject, deject, project, inject, injection, projection</td>
</tr>
<tr>
<td>logos, logy</td>
<td>study</td>
<td>Greek: geology, astrology, biology, numerology, zoology, technology, psychology, anthropology, mythology</td>
</tr>
<tr>
<td>luna</td>
<td>moon</td>
<td>Latin: lunar, lunacy, lunatic, interlunar</td>
</tr>
<tr>
<td>meter</td>
<td>measure</td>
<td>Greek: meter, thermometer, diameter, geometry, optometry, barometer, centimeter, symmetry, voltameter</td>
</tr>
<tr>
<td>mega</td>
<td>great, large, big</td>
<td>Greek: megaphone, megalith, megalomania, megatons, megalopolis</td>
</tr>
<tr>
<td>min</td>
<td>small, little</td>
<td>Latin: minimal, minimize, minimum, mini, miniature, minuscule, minute, minority</td>
</tr>
<tr>
<td>mit, mis</td>
<td>send</td>
<td>Latin: mission, transmit, transmission, remit, missile, submission, permit, emit, emissary</td>
</tr>
<tr>
<td>path</td>
<td>feeling, suffering</td>
<td>Greek: pathetic, pathology, apathy, antipathy, sympathy, telepathy, empathy, sociopath</td>
</tr>
<tr>
<td>ped</td>
<td>foot</td>
<td>Latin: pedestrian, pedal, peddle, peddler, pedicure, pedometer</td>
</tr>
<tr>
<td>philla</td>
<td>love, friendship</td>
<td>Greek: philosopher, Philadelphia, philanthropist, philharmonic, philharmonic</td>
</tr>
</tbody>
</table>
Step 3. Illustrate the word with examples.

a. Concrete examples
   - objects
   - acting out
b. Visual examples
c. Verbal examples

Suffrage Examples

When the United States was founded only white men with property had suffrage.

At the time of the American Civil War, most white men had been granted suffrage.

In 1920, women were granted suffrage. The passage of the Nineteenth Amendment granted women the right to vote in all United States elections.

The Voting Rights Act of 1965 outlawed discriminatory voting practices that denied suffrage to many African Americans in the United States.
Before Reading - Vocabulary

Step 4. Check students’ understanding.
Option #1. Ask deep processing questions.

Check students’ understanding with me.

Why is suffrage a critical aspect of a democracy?

Begin by saying or writing:

Suffrage is a critical aspect of democracy for the following reasons. First, _____________

Option #2. Have students discern between examples and non-examples.

Check students’ understanding with me.

Tell me suffrage or not suffrage.

The right to run for elected office. not suffrage Why not?
The right to vote. suffrage Why?
The right to develop ads for a candidate. not suffrage Why not?

Option #3. Have students generate their own examples.

Check students’ understanding with me.

Make a list of ways that suffrage could be limited or compromised.

Before Reading - Vocabulary

suffrage noun
suffragist noun

In 1917, all women in the United States did not have suffrage, the right to vote. Suffragists in New York City collected more than a million signatures of women demanding voting rights. They then paraded down Firth Avenue with the signature placards.
Vocabulary Routine

1. Introduce the word.
2. Introduce meaning of word.
3. Illustrate the word with examples (and non-examples).
4. Check understanding.

Background Knowledge - What

- ...what one already knows about a subject. 
  Stevens, 1980

- ...all the knowledge learners have when entering a learning environment that is potentially relevant for acquiring new knowledge. 
  Biemans & Simons, 1996

Background Knowledge - Why

- Background knowledge of text has a major impact on whether or not a reader can comprehend text. 
  Anderson & Pearson, 1984; Bransford, Stein, & Shelton, 1984; Wilson & Anderson, 1986

- Across grades and reading ability, prior knowledge of subject area and key vocabulary results in higher scores on reading comprehension measures. 
  Langer, 1984; Long, Winograd, & Bridget, 1989; Stevens, 1980

- Average correlation between person’s background knowledge of a given topic and extent to which a person learns new information is .66. 
  Marzano, 2004

- Prior knowledge has a large influence on student performance, explaining 30 to 60% of variance in performance. 
  Docy, Segers, & Buehl, 1999
Background Knowledge - Why?

Read this paragraph and explain it to your partner.

From a neuroanatomy text (found in Background Knowledge by Fisher and Frey)

Improved vascular definition in radiographs of the arterial phase or of the venous phase can be procured by a process of subtraction whereby positive and negative images of the overlying skull are imposed on one another.

Teach Background Knowledge

BIG IDEA

Even a thin slice of background knowledge is useful.

Teach Background Knowledge

Preparation

1. What is critical?
2. What information would ease acquisition of new knowledge?
3. What information would reduce cognitive overload?
4. What information will increase interest and motivation?

Chapter 11
The Jackson Era 1824-1845

Section 1
Jacksonian Democracy
Main Idea

The political system of the United States changed under Andrew Jackson.

As you read, ask yourself:

What changes in the political system of the United States occurred under Andrew Jackson?

Andrew Jackson

Background knowledge

Career - Military
- At 13 joined Continental Army
- Major General of Tennessee Militia
- Led campaign against Creek Indians in Georgia
- In 1815 led military victory over British at the Battle of New Orleans

Career - Politician
- Lawyer
- US Representative
- US Senator
- Circuit Judge
- President

Background knowledge

President
- 7th President
- 1829 - 1837

Early Life
- Parents emigrated from Ireland
- Father died before his birth
- Mother died when he was 14
- Two brothers also died
Andrew Jackson
Background knowledge

Personal Life
- Married Rachel Jackson
- Two adopted children
- Owned large cotton plantation with 150 slaves
- Killed man in pistol duel

Preview - Informational Passage
As the student previews, he/she discovers:
- the topics to be covered,
- the information that will be emphasized,
- how the material is organized.

- In addition, background knowledge is activated.

Preview - Informational Passage
Warm-Up
Before you read a chapter or a section of a chapter in your science, social studies, or health book, Warm-up. Get an idea of the chapter’s content by previewing these parts.

BEGINNING
- Title
- Introduction

MIDDLE
- Headings
- Subheadings

END
- Summary
- Questions

Jacksonian Democracy

The Election of 1824
Striking a Bargain
The Adams Presidency

The Election of 1828
Jackson Triumphs

Jackson as President
“Old Hickory”
New Voters
The Spoils System
Electoral Changes
During Reading Strategies

- Utilize passage reading procedures that provide adequate reading practice
- Ask appropriate questions during passage reading
- Have students generate questions
- Teach text structure strategies that can be applied to passage reading

Comprehension - Informational Text Reading

- Read (a paragraph or a number of related paragraphs)
- Stop
- Respond
  - answer teacher questions
  - generate questions/answer questions
  - verbally retell content ("Paragraph shrinking")
  - mark text/add notes in the margins
  - take notes
  - map/web content

During Passage Reading

- Read
- Stop
- Respond
  - Teacher Asks Questions
  - Students Answer Questions

During Passage Reading - Ask Questions

Asking questions. A evidence-based, time honored procedure

The teacher asks questions to guide and monitor students’ comprehension

(Ambrozek, Lehr, & Osborn, 2001; National Reading Panel, 2000; McKeown, Beck, & Blake, 2009)
During Reading - Ask Questions

The Teacher-Generated Questions
- Divide the material into appropriate segments.
- Develop questions on the content, focusing on the most important understanding that students should construct.

OR

Curriculum Questions
- Ask questions provided by the curriculum material.

Guidelines for Asking Questions

1. Ask text-dependent questions
   - The student must read the text to respond to the question
2. Creating better questions
3. Ask higher order questions
   - Inferences, predictions, comparisons, summaries
4. Scaffold higher order questions with foundation questions on key details
5. Scaffold answers with sentence starters
6. Use appropriate active participation procedures for asking questions

During Reading - Text-Dependent Questions

Ask questions that focus on information (evidence) provided in the text.

Students must answer the questions based on passage information NOT on previous experience or personal ideas.

Keep students cognitively in the text… don’t draw them out of the text.

During Reading - Scaffolding

Scaffold higher order questions by first asking literal, foundation questions.
During Reading - Scaffold Higher Order Questions

Scaffolding Questions
How many political parties were there in 1824?
Four men in the party ran for president. Did Andrew Jackson get a majority of votes?
Which of the 4 candidates received the most votes?
Who did the House of Representatives select as president?
What position in the government was Clay given?

Big Question to be asked:
Why were Adams and Clay accused of making a “corrupt bargain” (stealing the election)?

Sentence Starter: Adams and Clay were accused of making a corrupt bargain because...........

During Reading - Ask Questions

Procedure for asking students questions on text material.

Saying answer to partner (Partners First)
1. Ask a question
2. Give students thinking time or writing time
3. Provide a verbal or written sentence starter or paragraph frame
4. Have students share answers with their partners using the sentence starter
5. Call on a student to give answer
6. Engage students in a discussion

During Passage Reading

Read
Stop
Respond
- Students generate questions
- Students answer questions

During Reading - Students generate and answer questions

Student-Generated Questions based on Headings and Subheadings

1. Read the heading or subheading.
2. Generate one or two questions.
3. Read the section.
4. Answer the question.
Classifying Rocks

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you classify</td>
<td>Rocks are classified by mineral composition, color, and texture.</td>
</tr>
<tr>
<td>rocks?</td>
<td></td>
</tr>
<tr>
<td>How are rocks</td>
<td></td>
</tr>
<tr>
<td>classified?</td>
<td></td>
</tr>
</tbody>
</table>
During Passage Reading

Read
Stop
Respond

- Students create main idea statements
- Students respond to teacher or partner questions

During Reading - Students generate main idea statements

Paragraph Shrinking

1. Name the who or what.
   (The main person, animal, or thing.)
2. Tell the most important thing about the who or what.
3. Say the main idea in 10 words or less.
   (Optional: Record your main idea sentence.)

(From the PALS program by Fuchs, Mathes, and Fuchs)

9.1 Early Brain Development
The Developing Child
Application of Paragraph Shrinking

1. A baby’s brain develops rapidly in the first year of life.
2. When a baby is given quality experiences, brain development accelerates.
3. Neural pathways form and control body functions and thinking.
4. The brain uses sensory input to build neural pathways.
5. Most actions of newborns are instinctive reflexes.
6. Baby gains many skills that result for development of brain.

During Passage Reading

Read
Stop
Respond

- Students “mark” the text
- Students write notes in the margins
During Reading - Students “mark” the text

1. Number the paragraphs
2. Circle the topic and/or key terms
3. Underline the author’s claims or other critical information

During Reading - Students write notes in the margins

- Notes in the margin might include:
  - A drawing to illustrate a point
  - A summary of the content
  - Key vocabulary terms and definitions
  - Responses to interesting information, ideas, or claims

During Passage Reading

Read
Stop
Respond

- Students take notes
- Students map/web the content
During Reading - Students take two column notes

- **Antarctica**
  - Far south continent
  - South Pole
  - Covered with ice

- **Weather**
  - Harsh
  - Below freezing
  - Windy

- **Living Things**
  - Few

Antarctica, the most southern continent, has very harsh weather and is covered in ice. Few living things survive on Antarctica.

### Interactive Science 4th Grade Cornell Notes

- **Discovering Cells**
  - What are cells?
    - All living things are made of cells
    - Cells are basic unit of structure and function

- **Cells and structure**
  - Structure of living things determined
  - by how cells are put together

- **Cells and function**
  - Processes to live, grow, reproduce

### Summary

- All living things made of cells. Cells provide structure of organisms and cells carry out functions that allow organisms to live, grow, and reproduce.

During Reading - Students map or web the content

- **Land**
  - Far south
  - South Pole
  - Covered with ice

- **Weather**
  - Harsh
  - Below freezing
  - Windy

- **Antarctica**

- **Living Things**
  - Few can survive
Have students complete or generate graphic organizers that summarize critical information.

- Summary
- Compare and Contrast
- Opinion
After Reading - Graphic Organizers

The teacher:
- Provides students with a **graphic organizer** that reflects the structure of the text material
  - Central Idea
  - Hierarchy
  - Compare/Contrast
  - Sequence of Events
  - Cause/Effect
  - Problem/Solution

After completing the graphic organizer, students:
- **Teach** the content on the graphic organizer to their partners
- Use the graphic organizer as a support during **class discussions**
- Write a **summary** of the content based on the graphic organizer

Write a Summary - Writing Frames

Antarctica is the coldest continent on the earth. The land is covered with _______________. The temperature stays below _______________ and the _______________ constantly blow. Because of these conditions, not many _______________ things are found on this continent.

**Summary of Informational Text**
Chapter: __________ Topic: _______________

- In this section of the chapter, a number of critical points were made about …
- First, the authors pointed out that…
- This was important because…
- Next, the authors mentioned that…
- Furthermore, they indicated…
- This was critical because…
- Finally, the authors suggested that…
Chapter: Drifting Continents  Topic: Wegener’s Theory

- In this section of the chapter, a number of critical points were made about Alfred Wegener’s theory of continental drift. First, the authors pointed out that Wegener believed that all the continents were once joined together in a single land mass that he called Pangaea that drifted apart forming the continents of today. This was important because it explained why the outline of the continents as they are today fit together. Next, the authors mentioned that Wegener argued that there were many pieces of evidence supporting his theory of continental drift. Furthermore, they indicated that Wegener used evidence of similar landforms and fossils on different continents to prove his theory. This was critical because this evidence could be validated by other scientists. Finally, the authors suggested that despite this evidence, other scientists did not accept Wegener’s theory because he could not explain the force that pushes and pulls the continents.

Summary of Opinion Article

- Name of Article:…
- Author: …
- Topic: …

- In this article, __________. discusses…
- The author’s primary claim is that …. 
- First, she/he states….
- She/he then points out that …
- In addition, ______________, indicates that…. 
- Finally, she/he conclude…..

Name of Article: The Writing Revolution
Magazine/Journal: the Atlantic (September, 2012)
Author: Peg Tyre
Topic: Writing Instruction

In this article, Peg Tyre discusses writing instruction in today’s schools. The author’s primary claim is that a return to traditional, explicit instruction on the fundamentals of writing could be the answer to poor writing exhibited in schools. First, she states that teachers at New Dorp High School determined that their students poor performance was due to the fact that they could not express their ideas on paper. She then points out that when New Dorp adopted intense, explicit instruction on the skills of analytic writing, test scores and graduation rates improved. In addition, Tyre indicates that thinking, speaking, and reading skills are strengthened through writing instruction. Finally, she concludes that a return to traditional writing instruction may be the key to improving the writing skills of failing students.
Write a Summary - Strategy

1. Write down the topic of the summary.
2. List - Make a list of important ideas.
3. Cross-out - Cross out any unnecessary or weak ideas.
4. Connect - Connect ideas that could go in one sentence.
5. Number - Number the ideas in the order that they will appear in the paragraph.

List - Make a list of important ideas.

- Penquin’s birth
  - Male takes care of egg
  - Female lays egg
  - Female leaves
  - Female spends winter at sea
  - The water is very cold
  - Male puts egg on his feet under belly
  - Male stays on egg for two months
  - Male doesn’t eat
  - Egg hatches
  - Male must care for baby

Cross-out - Cross out any unnecessary or weak ideas.

Connect - Connect ideas that could go in one sentence.

Penquin’s birth

1. Male takes care of egg
2. Female lays egg
3. Female leaves
4. Female spends winter at sea
5. The water is very cold
6. Male puts egg on his feet under belly
7. Male stays on egg for two months
8. Male doesn’t eat
9. Egg hatches
10. Male must care for baby

Number - Number the ideas in the order that they will appear in the paragraph.
The birth process of penguins is fascinating and quite different from that of other animals. The female penguin lays an egg. However, the female penguin leaves soon after laying the egg and spends the winter in the sea. Meanwhile the male must take care of the egg. For two months, he places the egg on his feet under his belly. During this time, the male penguin doesn’t eat. Even after the baby penguin hatches, the male penguin continues to take care of the infant penguin.