

Building Students' Knowledge in the Early Grades

Handout Packet

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Part 1: **How Knowledge Helps**

- *Why is building knowledge, in the early grades, important?*
- *How does knowledge promote equity in education?*

Filling in Gaps: *The Apollo 11 Mission*

*Directions: Read through the passages below about the Apollo 11 mission and scan the corresponding questions (in the right column). Each question requires some background knowledge to answer. Individually (or with a partner) answer **two** questions of your choice. If you finish early, you can answer more.*

It took four days for Apollo 11 to travel the 239,000 miles from Earth to the moon. During the launch, the astronauts were sitting in the very top of the rocket. Once it reached outer space, the part they were in broke off from the rocket and continued on toward the moon. The rocket was not needed once the ship reached outer space.

1. What was the primary goal of the Apollo 11 mission?

- a) Capture pictures of the moon from space
- b) Land on the moon
- c) Orbit around the moon

Once they got close enough to the moon, the Eagle broke off from the command module and landed on the surface. Meanwhile, as the Eagle approached the surface, hundreds of scientists back at mission control were watching their computers nervously to make sure everything went as planned. The NASA scientists monitored every single part of the ship, making sure every fuse and wire were working properly.

2. Why would some of the NASA scientists and people watching at home *be nervous* during the Apollo 11 mission?

At the same time, people all over America were glued to their television sets, also nervously waiting to see what would happen. The Eagle was equipped with television cameras, so everyone back home could see and hear everything that was happening 239,000 miles away on the moon!

With his first step he said, "That's one small step for man, one giant leap for mankind."

3. What was the name of the astronaut who said these words?

Based on what you know about the context behind this quote, what do you think it means?

Filling in Gaps: ***The Apollo 11 Mission*** (continued...)

The astronauts conducted experiments to help future astronauts and scientists. The first thing they noticed was their mobility, or how easy it was to walk and move around. Here on Earth, when you jump up you come straight back down—not so on the moon. When you hop on the moon, you stay up for a few seconds and come down rather slowly.

4. Why was it easier for the astronauts to walk on the moon compared to walking on Earth?

The astronauts collected samples of the moon's dust and rocks. Then they planted an American flag in the moon's soil. They had prepared the flag beforehand by inserting wires in it so that it would be firm and appear to be waving.

5. Why did the flag *need* to have wires inserted in it in order to appear to be waving?

Knowledge Helps Fill in Gaps

Simple texts, like those on reading tests, are filled with gaps – presumed domain knowledge – that the writer assumes the reader knows.

Knowledge Helps Build Understanding & Respect

- Content-rich curriculum introduces students to people, cultures, events, and ideas from all over the world, past and present
- Through content-rich curriculum, students learn that all peoples/cultures/ civilizations have made important contributions to human development
- Content-rich curriculum fosters appreciation for diverse cultures

World and Word Knowledge:

- Support listening comprehension (and in later grades, reading comprehension)
 - Fills in gaps
 - Resolves ambiguity
 - Exposes students people and places outside their immediate environment
- Promote equity

Round Table Review

Part 2: Instructional Practices

What practices support a knowledge building approach?

Applying a Systematic Approach

Coherently Building Knowledge within a Grade

Example:

Kindergarten	Grade 1	Grade 2
Nursery Rhymes and Fables	Fables and Stories	Fairy Tales and Tall Tales
The Five Senses	The Human Body	Early Asian Civilizations
Stories	Different Lands, Similar Stories	The Ancient Greek Civilization
Plants	Early World Civilizations	Greek Myths
Farms	Early American Civilizations	The War of 1812
Native Americans	Astronomy	Cycles in Nature
Kings and Queens	The History of the Earth	Westward Expansion
Seasons and Weather	Animals and Habitats	Insects
Columbus and the Pilgrims	Fairy Tales	The U.S. Civil War
Colonial Towns and Townspeople	A New Nation	Human Body: Building Blocks and Nutrition
Taking Care of the Earth	Frontier Explorers	Immigration
Presidents and American Symbols		Fighting for a Cause

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Cumulative Knowledge Building across Grades

Example:

Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Continents and Maps	More Continents, Countries & Maps	Geography of the Americas	World Rivers	Exploring Maps & World Mountains	World Lakes	World Deserts
Native Americans	Mesopotamia	India	Ancient Rome	Medieval Europe	Maya, Aztec, & Inca Civilizations	Ancient Greece & Rome
Exploring & Settling America	Ancient Egypt	China	The Vikings	Early Islamic Civilizations & African Kingdoms	Age of Exploration	The Enlightenment, The French Revolution, & Romanticism
Mount Rushmore Presidents	Early Civ. of the Americas	Culture of Japan	The Earliest Americans	Dynasties of China	Renaissance, Reformation, & England's Golden Age	The Industrial Revolution
	Culture of Mexico	Ancient Greece	Early Exploration of North America	The American Revolution	Early Russia & Feudal Japan	Independence for Latin America
	Early Explorers & Settlers	The Constitution	The Thirteen Colonies	The United States Constitution	Geography of the US	Immigration, Industrialization, & Reform
	From Colonies to Independence	War of 1812	Americans Move West	Early Presidents & Social Reformers	Westward Expansion	
	Exploring the West	The Civil War			The Civil War	
	Immigration & Citizenship	Immigration & Citizenship			Native Americans	
	Civil Rights Leaders	Civil Rights Leaders				

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Practices that Promote Coherence

The planning considerations described below are designed to support coherent knowledge building within a grade level.

- **Prerequisite knowledge/vocabulary-** A key consideration for coherence is whether or not students have the prerequisite knowledge and vocabulary to understand a topic. If not, consider teaching foundational content first. *For example, one might:*
 - ✓ *Teach a unit about Native Americans before a unit about the Pilgrims to support students with understanding the interactions between both groups of people.*
 - ✓ *Teach students about the familiar parts of the visible body before they learn about the parts inside the body.*
 - ✓ *Start the year by building on a related topic introduced in a previous grade level.*
- **Chronological order-** Chronological order is the arrangement of events following one after another in time. This order helps students see the connection between cause and effect. *For example, one might:*
 - ✓ *Teach the topic of “American Revolution” before that of “Making a Constitutional Government,” which came as a result.*
- **Macro-to-micro or Micro-to-macro-** As we sequence topics, we may wish to move from general to specific or from specific to general. Likewise, we might move from big picture to smaller detail or vice-versa. Either possibility is valid if it progresses in a logical fashion. *For example, one might:*
 - ✓ *move micro-to-macro by studying cells first and progressing to the larger context of the human body (or vice-versa).*
 - ✓ *Likewise, we might move macro-to-micro by studying the larger universe, then zeroing in specifically on the earth (or vice-versa).*
- **Integration of Content into Relevant Topics-** Integration of content supports understanding and retention. It is also a means of achieving efficiency in a packed curriculum. For example, if we integrate geography and geographic maps with the events that occur in those areas and integrate science biographies within related science concepts then we support learning and simultaneously save time. *For example, one might:*
 - ✓ *Read a biography of Michael Faraday in conjunction with the topic of electricity, his focus of his lifelong work.*
 - ✓ *Examine the geography of China when teaching the topic of ancient China.*
 - ✓ *Teach the art and music of the Renaissance when teaching the history of the Renaissance.*
 - ✓ *Integrate Greek myths with the study of ancient Greece.*

Practices that Promote Cumulative Knowledge Building

The planning considerations described below are designed to support cumulative knowledge building across grade levels.

- Review topics addressed across grades for repetition and gaps (if possible)
- Ensure instruction is not dependent on what's taught at earlier grade(s). (Topics that are reintroduced in later grades will address more detail, but should still be accessible to students who did not participate in the earlier instruction.)

What domain-specific (Tier 3) words are found in the text, “The Geography of Mexico?”

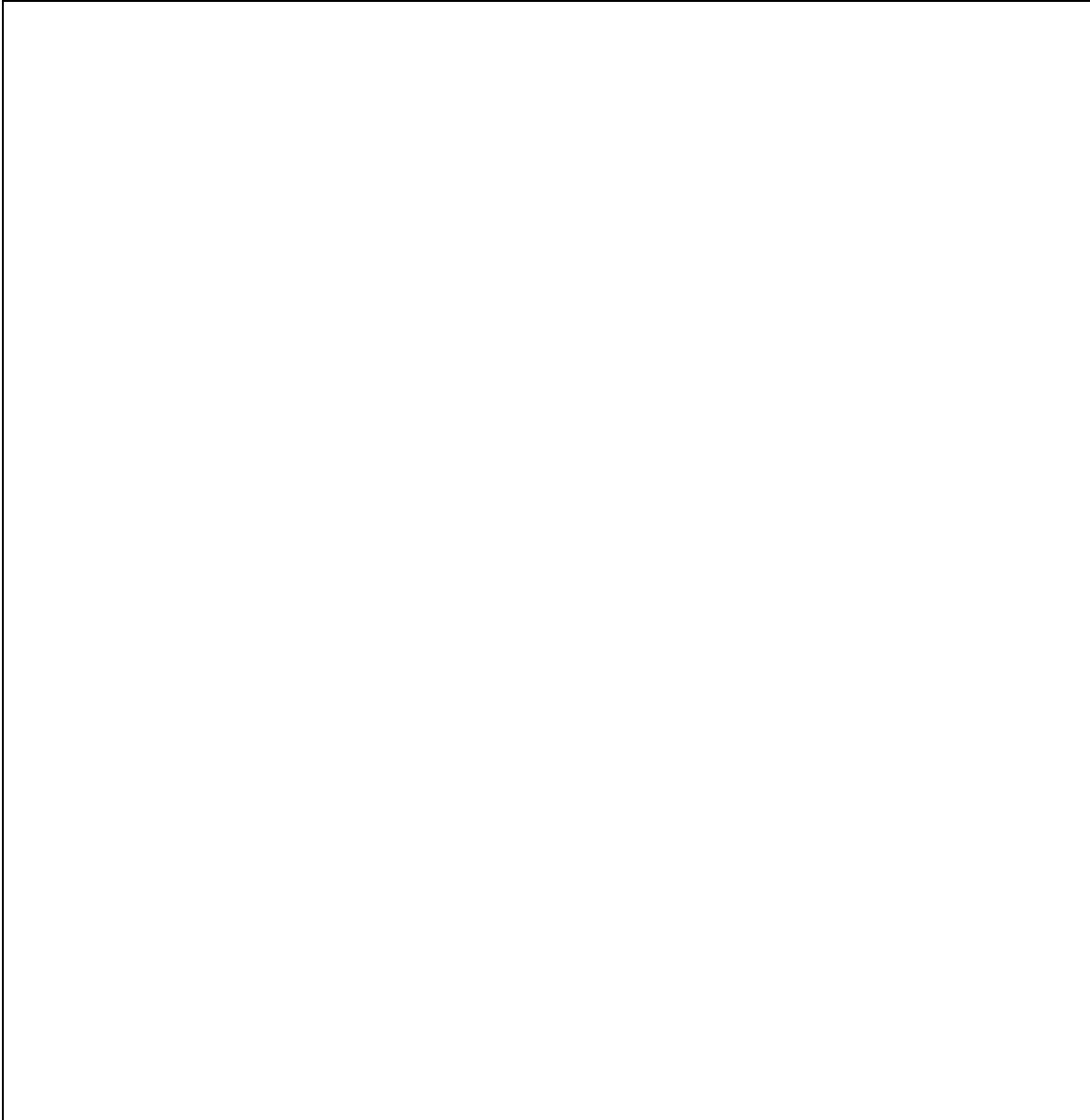
Directions: Working with a partner, list all of the Tier 3 words that you find. If you finish before time is called, draw lines between words that connect to one another.

Staying on Topic Promotes Vocabulary Growth

- **Repeated exposure** to words – hearing again and again in different contexts
- Words about a topic are connected in a **network of meaning**. As students listen to these stories, they **gain more context, see how words connect, and grasp more subtle meanings**.

Reflection

How can **staying on topic support a child's ability to engage in structured conversations** about that topic?



Part 3: **Sharing Strategies and Resources**

Strategies for Bringing Content to Children

- Acquiring content-rich trade books for student libraries and transitional/instructional read-alouds
- Incorporating content-based centers in Pre/Kindergarten classrooms
- Leveraging opportunities for cross-curricular instruction
- Building home-school connections around content taught in the classroom

FREE Resources — Bringing Rich Content into Your School or Classroom

Building Your Own Content-Rich Units

Student Achievement Partners, “Text Set Project”

www.achievethecore.org/page/2784/text-set-project-building-knowledge-and-vocabulary

Content-Rich Activities

Variety of vetted activities made available by various education websites. Online activity lists are organized by both topic and grade level.

- History and Geography: <https://www.coreknowledge.org/curriculum/history-geography/ckhg-online-resources/>
- Science: <https://www.coreknowledge.org/curriculum/science/cksci-online-resources/> (See “Additional Activities”)

Content-Rich Read-Alouds (grades PreK–2)

<https://www.coreknowledge.org/curriculum/download-curriculum/>

- **Subject: Language Arts** (includes Literature, Science, History)
Unit Resource: CKLA, Domain
Individual Resource: *Read-Aloud Anthology* (includes read-aloud text)
Corresponding images are located in resource titled, “*Flip Book*”
- **Subject: History and Geography**
Individual Resource: *Student Book*

My List of Strategies/Resources

Part A: ✓ **Strategies or resources that you feel could be layered into your instructional program**

- Acquiring content-rich trade books for student libraries and transitional/instructional read-alouds
- Incorporating content-based centers in Pre/Kindergarten classrooms
- Leveraging opportunities for cross-curricular instruction
- Building home-school connections around content taught in the classroom

[OPTIONAL] Other ideas:

Part B: **Why do you feel that these strategies/resources would be beneficial for your students?**

Part 4: Reflection

3-2-1 Reflection

3 ways in which I can bring rich content and vocabulary to my students over the next year:

2 practices/strategies I want to test-out this school year:

1 practice/strategy I want to “test out” starting in January: