

TEACHER READING GUIDE

**Real World Math:
Space Exploration**

written by Jennifer Szymanski

This book is a part
of the **Real World
Math** series.



Essential Question: How can identifying the central idea and relevant details help you better understand the text?

BOOK SNAPSHOT

Selected from the New Worlds
Reading Initiative Booklist

Text Type: Informational

Genre: Nonfiction

Themes/Topics: Math, Space Science

Lexile: 650L

**SKILLS ALIGNED WITH FLORIDA'S ELA
B.E.S.T. STANDARDS**

Word Work

ELA.2.F.1.3 (a)

Decode words with the vowel diphthong *ou*.

Vocabulary

ELA.2.V.1.1

Use grade-level math academic vocabulary. (Tier 2)

Comprehension

ELA.2.R.2.2

Identify the central idea and relevant details.

Cross-Curricular Connection

Real World Math: Space Exploration includes real-life math connections! It also supports the **B.E.S.T. Standards for Mathematics** for categorization, measurement, and addition.

BUILDING BACKGROUND

- Engage students with a game of "Would You Rather?" Ask students to move to the side of the room that corresponds with their answer to the following space questions:
 - Would you rather pilot a rocketship to the moon (right side of the room) or drive a rover on Mars (left side of the room)?
 - Would you rather land on the moon or on Mars?
 - Would you rather eat space food or earth food?
 - Would you rather be an astronomer who studies space or a geologist who studies rocks?
- After every question, encourage students to share and discuss their choices. Ask them to keep their choices in mind as they read the text.

STUDENT LEARNING TARGETS

Today I am:
identifying the
central idea and
relevant details in a
text.

So that I can:
better understand
the text.

WORD WORK – DECODING WORDS WITH THE VOWEL DIPHTHONG *ou*

ELA.2.F.1.3: Use knowledge of grade-appropriate phonics and word-analysis skills to decode words.
a. Decode words with variable vowel teams (e.g., *oo*, *ea*, *ou*) and vowel diphthongs (e.g., *oi*, *oy*, *ow*).

A vowel team that produces more than one vowel sound is a **vowel diphthong**. A **vowel diphthong** has two parts, especially noted in the vowels spelled *ow*, *oy*, *ou*, and *oi*. Students will focus on the /ou/ sound as in *cloud*.

- Write the word *cloud* on the board.
- Say, "Today, you will learn one of the sounds the diphthong *ou* makes. The *ou* in *cloud* makes the /ou/ sound, like in *cow*."
- As you read each phoneme, point to the respective graphemes on the board.
- Say, "Repeat after me, /k/ /ow/ /d/." (Stress the /ow/ sound.)
- Say, "As we read *Real World Math: Space Exploration*, we will encounter and practice sounding out more words with the diphthong *ou*."

Continue to practice decoding words with the diphthong *ou* using the following words from the book:

about (on multiple pages)	round (p. 9)
amount (p. 4, p. 31)	around (p. 11, p. 23)
out (on multiple pages)	pouches (p. 17)
count (p. 7, p. 9, p. 29)	mountains (p. 18)

TALK ABOUT NEW AND INTERESTING WORDS

ELA.2.V.1.1: Use grade-level academic vocabulary appropriately in speaking and writing.

Tier 2 vocabulary words, paired with student-friendly definitions, can be used for explicit vocabulary instruction. It is important to provide background information and learning opportunities to help students make connections to the words. Examples of Tier 2 vocabulary words for this text are:



distance (p. 4): **Distance** describes the amount of space between two things. Astronomers can measure the **distance** between objects in space.



order (p. 13): If something is put in **order**, it is organized or structured in a certain way. Astronomers **order** the rocks from the moon by size to help us learn more about them.



category (p. 20): When people or things are divided into **categories**, they are sorted into groups by their similarities. We can separate pictures from space into their own **categories**.



unit (p. 24): A **unit** describes a measurement that is a set quantity, length, or weight used to measure things. We can use extra-large **units** to measure the distance between Earth and Proxima Centauri.

Vocabulary Extension Activity

- Reinforce students' understanding of math vocabulary using cloze sentences with the vocabulary term omitted.
 - For example, a math problem can be written for the word **order**.
 - Benjamin has 3 carrots measuring 4 inches, 6 inches, and 2 inches. _____ the carrots from shortest to longest.

READ FOR MEANING – IDENTIFYING THE CENTRAL IDEA AND RELEVANT DETAILS

- ELA.2.R.2.2: Identify the central idea and relevant details in a text.
- ELA.2.C.1.4: Write expository texts about a topic, using a source, providing an introduction, facts, transitions, and a conclusion.

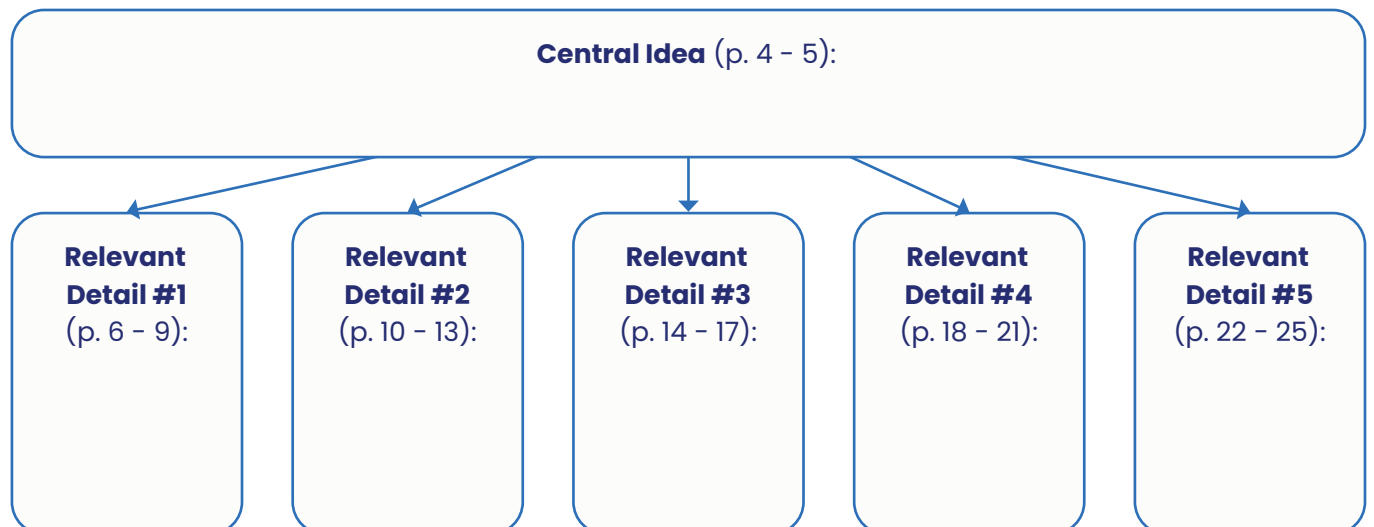
Before:

The purpose of today's read aloud is to identify the **central idea** and **relevant details** in *Real World Math: Space Exploration*. The **central idea** is the most important element of a text, and the **relevant details** are details the author uses to support the central idea. Identifying the **central idea** is key to synthesizing information provided in a text to maximize students' comprehension.

- Write an idea on the board.
 - For example, "It is important to drink water."
- State details relating to the central idea. Ask students to stand if the detail supports the idea (relevant) or stay seated if it does not support the idea (irrelevant).
 - Relevant details may include:
 - Our body is more than 50% water.
 - Drinking water helps keep us cool when it is really hot outside.
 - Water is good for digestion.
 - Water keeps you from getting sick.
 - Water helps you think and focus.
 - Irrelevant details may include:
 - Water is also known as H₂O.
 - Oceans make up 96.5% of Earth's water.
 - A drop of water can hold millions of bacteria and viruses.
 - Some water may have come from space.
 - A jellyfish is almost 95% water.
- Monitor students' understanding that relevant details support the idea, while irrelevant details do not.

During:

As you read *Real World Math: Space Exploration*, display and use the central idea graphic organizer to identify the relevant details and central idea of the text.



Use the Gradual Release of Responsibility Framework to guide students in identifying the central idea and relevant details.



Central Idea and Relevant Detail #1 (p. 4 – 9):

- **I Do:** Model finding the central idea and a relevant detail.
 - Read the introduction. (p. 4)
 - Say, “Many times, the author states the central idea in the introduction of the text because they want us to know what we will be reading about.”
 - Say, “This introduction talks about how math helps astronomers learn more about space. I can infer that is what the text will be about and that we have identified our central idea.” Write the central idea on the displayed graphic organizer.
 - Say, “Now we are looking for relevant details to support our central idea.”
 - Read p. 5 – 9. “In these pages, we talked about how astronomers count planets and count down for blastoff. So counting helps astronomers learn more about space. We have found our first relevant detail.” Write relevant detail #1 on the displayed graphic organizer.

Try This!

To support **oral language development**, guide students to answer the questions fielded throughout the book in complete sentences. Speaking in complete sentences will build oral language skills, writing skills, and listening skills. Refer to p. 186 in the B.E.S.T. Standards for a rubric to better understand the oral language expectations for your grade level.

Relevant Details #2 – 5 (p. 10 – 25):

- **We Do:** Continue to guide students in identifying the relevant details that support the central idea of the text. Record students’ thinking in the central idea graphic organizer.
 - For example, for the second relevant detail, read p. 10 – 13.
 - Ask, “What is the relevant detail in these pages supporting the central idea that math helps astronomers learn more about space?” If needed, scaffold this question by asking students:
 - “What other math skill helps astronomers learn more about space?”
 - Provide students wait time, and ask them to turn and talk to their partner to identify the relevant details from those pages.
 - Discuss students’ thinking, and write the correct response on the central idea graphic organizer.
 - Continue to guide students with relevant details 3 – 5 on the graphic organizer.



After:

- Review the graphic organizer with students, and discuss how each relevant detail supports the central idea of *Real World Math: Space Exploration*.
- Brainstorm ways math is used in daily living. Ask students to think-pair-share.
- Students will write three sentences explaining how they use math in their daily lives and draw a corresponding picture.
 - If needed, scaffold with the following sentence starter: “I use math to _____.”
- For example,

I use math to measure how much cereal I want for breakfast.



I use math to count how many pencils I have.



I use math to tell what time I need to go to bed.

