

Instructional Features

TEAM is designed for use by ELL teachers and by general education teachers as a support for ELLs in their academic classrooms. The student books are centered around common themes and topics for each grade level and reflect instructional design that asks students to be responsible for their own learning. Each unit has an academic standards focus, a reading strategy, a language focus, and a writing focus, as shown in the chart below:

Unit/Lesson/Theme	Standards Focus	Reading Strategy	Language Focus	Writing Focus
UNIT 1: Into the Deep				
LESSON 1: Testing the Waters	Science Social Studies	Predictions	Roots and Root Words	Letter to the Editor
LESSON 2: Life at the Bottom of the Sea	Science	Conclusions	Subject and Verb	Summary
LESSON 3: Journey Across the World	Science Language Arts	Point of View	Multiple-Meaning Words	Personal Narrative
UNIT 2: It's Elementary!				
LESSON 4: The Master Detective	Math Science	Sequence	Figurative Expressions	Biography
LESSON 5: Sir Arthur Conan Doyle	Language Arts Science	Main Idea	Irregular Verbs	Problem and Solution
LESSON 6: Mystery Solved	Science Language Arts	Genre	Infinitives	Review
UNIT 3: From Here to There				
LESSON 7: A New Beginning	Social Studies	Inferences and Conclusions	Homophones	Description
LESSON 8: Going North	Social Studies	Cause and Effect	Adverb	Persuasive Paragraph
LESSON 9: Traveling on the Mississippi	Social Studies Language Arts	Figurative Language	Pronouns	Travel Account
UNIT 4: Cultures Around the World				
LESSON 10: Roman Technology	Science Social Studies	Cause and Effect	Antonyms	Opinion
LESSON 11: People of the Sea	Science Social Studies	Compare and Contrast	Prepositions	Summary
LESSON 12: Norse Myths	Social Studies Language Arts	Author's Purpose	Commas	Retelling

TITLE Life at the Bottom of the Sea

GENRE Informational Text

LESSON OBJECTIVES

- Read, discuss, and write about an ecosystem at the bottom of the ocean
- Understand how to draw conclusions
- Listen to a conversation about seafloor spreading
- Recognize a subject and its verb in a sentence
- Write a summary about a discovery

Content Standards Connection

- The Language of Science
- The Language of Social Studies

ELA Standards Connection and Targets of Measurement (ToMs)

Reading

- Ask and answer questions to demonstrate understanding of a text
- Determine meaning of words and phrases
- Give textual evidence to support analysis of the text
- Use information gained from photographs and charts to demonstrate understanding of a text
- Know and apply grade-level phonics and word analysis skills in decoding words
- Determine how a text structure develops ideas
- Determine main ideas and details that support main ideas
- Cite text to support inferences and conclusions
- Summarize a text
- Analyze sequence of events
- Use language related to cause and effect to demonstrate understanding of events in a text

Speaking and Listening

- Follow instructions
- Respond to and pose questions about a text
- Engage in collaborative discussions
- Participate in conversations
- Use language related to cause and effect
- Express ideas clearly and concisely
- Present claims emphasizing facts, details, and examples

Writing

- Use descriptive language
- Develop and strengthen writing by planning and editing
- Create and structure a piece of writing
- Write a summary
- State important points of the text
- Use concise language
- Use language to create cohesion and clarify relationships

Grammar and English Conventions

- Use knowledge of language and its conventions when writing
- Demonstrate an understanding of word relationships
- Determine subject-verb agreement

ACADEMIC LANGUAGE OF LESSON

Tier 1	hierarchy, lure
Tier 2	converge, diverge, diverse, suspected, teems, vent
Tier 3	canyons, conclusion, crustaceans, fissures, geysers, hydrothermal, lithosphere, mollusks, organisms, photosynthesis, plate tectonics, seafloor spreading, summary



READING

TOTAL TIME: 90 Minutes

My Learning Goals: 5 Minutes

First Reading: 20 Minutes

Second Reading: 25 Minutes

Show What You Know: 20 Minutes

What Did You Learn?: 15 Minutes

Check My Goals: 5 Minutes

OBJECTIVE

- Use listening, speaking, and reading skills to read and understand a passage about the depths of the ocean

ACADEMIC LANGUAGE

Tier 1: hierarchy, lure **Tier 2:** diverse, suspected, vent **Tier 3:** canyon, conclusion, crustaceans, fissures, geyser, hydrothermal, lithosphere, mollusks, organism, photosynthesis, seafloor spreading

GENRE Informational Text

MY LEARNING GOALS

Direct students' attention to My Learning Goals. Chorally read My Learning Goals. Explain to students that at the end of the lesson, they will determine if they have met these goals. If they have, they will put a check next to each goal.

WORK WITH THE PAGE

Explain that students will read an informational passage over four pages. Tell students that an informational text presents facts about the subject. Unlike stories, the information can be proven and is not made up.

Read the title of the passage aloud. Have volunteers tell what they think they will learn about in the passage.

Tell students you will read the full passage twice. The first time you will read it aloud. The second time you will read it as a class, or student volunteers will take turns reading the passage.

First Reading

As you read the four sections of the passage aloud the first time, instruct students to follow along in their books and to circle or underline any unfamiliar words. Tell them that when you are finished reading the passage the first time, you will discuss the unfamiliar words.

Circulate among students to identify words that have been circled or underlined. Discuss each of

READING

Let's Read

MY LEARNING GOALS
 I can

- read and understand an informational text.
- draw conclusions from what I have read.

Hydrothermal Vents

In 1977, scientists made a stunning discovery on the bottom of the Pacific Ocean. The scientists were using the deep-sea submergence vehicle *Alvin* to dive on the mid-ocean ridge. The mid-ocean ridge is an underwater mountain range that circles the globe. Here Earth's tectonic plates are spreading apart. The scientists' mission was to accomplish the first direct observation of this seafloor spreading. On the bottom of the Pacific Ocean, the scientists discovered hydrothermal vents spewing hot, mineral-rich fluids. A hydrothermal vent is like a geyser on the seafloor of the ocean.

Most hydrothermal vents are found at an average depth of seven thousand feet in areas of seafloor spreading along the mid-ocean ridge system. Seawater seeps through fissures in the ocean crust. The cold seawater is heated by hot magma and then comes back to the surface to form vents. The hot seawater in the vents does not boil. This is because of the extreme pressures at the depths where the vents form.

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Underline the word that means "cracks."

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What discovery did the scientists make?

They _____.

22 Unit 1 ★ Lesson 2
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the word meanings and model sentences with the meanings. Alternatively, you can also ask student volunteers to tell the meanings and model sentences.

As you read, answer any questions that students may have.

**WORK WITH THE PAGE**

Read section two of the passage aloud, have students read chorally, have student volunteers take turns, or have students read silently.

Say: Now, we will read more about hydrothermal vents.

Read the text on the page. Direct students' attention to the photograph. Talk about the photograph.

Encourage students to ask questions as you read.

Pause at the end of the page to explain any words or phrases that students are unfamiliar with.

**Check for Understanding**

Instruct students to complete the Check for Understanding.

Say: Now, complete the Check for Understanding at the bottom of the page.

Ask students to share their answers.

You may choose to expand the activity by orally asking students more questions.

**Turn and Talk**

Direct students to complete the Turn and Talk activity with a partner.

Say: Look at the Turn and Talk question at the bottom of the page. Turn to a partner and read and answer the question.

What is the difference between a white smoker and a black smoker? A black smoker _____. [is the hottest hydrothermal vent]

Let's Read**Smokers**

The hottest hydrothermal vents are called black smokers. Black smokers spew mostly iron and sulfide minerals. These combine to form iron monosulfide. This compound is what gives the smoker its black hue. **Black smokers are found mostly in the Pacific Ocean.**

White smokers are formed from deposits of barium, calcium, and silicon. White smokers are located in the Atlantic Ocean.

Smokers emit jets of particle-laden fluids. Fine minerals are formed when hot fluids mix with the near-freezing seawaters. Minerals solidify as they cool and create chimneylike structures. The chimneys of these vents grow rapidly. They can grow up to 30 feet in a year and a half. One vent chimney in the Pacific Ocean off the coast of Oregon was named Godzilla because of its size. Before it toppled, the chimney reached the height of a 15-story building. Scientists study these hydrothermal vents because they believe the vents play an important role in the ocean's circulation patterns, chemistry, and temperature. The vents occur more commonly in areas where there is high volcanic activity. Hydrothermal vents may last for years or they may last for less time. The shifting of the tectonic plates and the movement of rocks deep within the oceanic lithosphere may close off vents and open others.



Highlight where the black smokers are found.

What is the difference between a white smoker and a black smoker?

A black smoker _____.

To extend the conversation, use these questions and sentence frames.

What is the difference between the smokers in the Pacific and the smokers in the Atlantic Ocean? The smokers in the Pacific are ____ smokers and the ones in the Atlantic Ocean are ____.

How fast do these vents grow? They grow ____ in a year and a half.



AUDIO SCRIPT

Ramon: Have you heard of the theory of plate tectonics?

Brittani: Yes. The theory was proposed in the 1960s and is accepted today because evidence has been discovered to support the theory. The theory is that the earth's outermost layer called the lithosphere is broken into a number of tectonic plates. Each tectonic plate contains different types of lithosphere. These plates are constantly moving very slowly. These motions produce diverse landforms in the places where the plates meet.

Ramon: That's correct. These landforms include underwater canyons and mountain ranges. Earthquakes and volcanoes are caused by plate tectonics. When two plates move away from each other, a divergent boundary occurs. It's called a divergent boundary because the plates diverge, or move away, from each other. Here along these divergent boundaries, lava spews from fissures and geysers spurt superheated water. There are frequent earthquakes here.

Brittani: I was surprised to learn that there can be an earthquake in the ocean as well as on land. As the plates move up against each other, the rock along the plate boundaries sticks together. As the plates continue to move, it causes pressure to build up on the rock. Eventually, the pressure causes the rock to break suddenly. This produces an earthquake.

Ramon: That's right. Volcanoes can form, too. Most volcanoes are found at the boundaries of two tectonic plates. In places where two plates are moving together, it is called a convergent boundary because they converge, or come together. Generally, when the plates collide, one plate sinks beneath the other tectonic plate and the second plate rises up into a rugged mountain range. Underneath the earth's outermost layer is a softer layer. As the sinking plate moves deeper into this softer layer, the plate experiences increased heat and pressure. This action squeezes water and other fluids out of the sinking plate.

Brittani: I know what happens next. The fluids rise and mix with the softer layer and melt some of the rock in the earth's mantle. The melted rock, called magma, rises to the surface and erupts, forming a chain of volcanoes. These volcanoes form a new lithosphere, or outer crust.

Ramon: Yes. Because most plate boundaries of this type are found beneath the oceans, this kind of plate motion is called seafloor spreading. Scientists have been studying seafloor spreading for years. In fact, they were trying to observe seafloor spreading when they found hydrothermal vents. There's still much to be discovered at the bottom of the sea.