Deep Sea Word Dive

Use word parts and context to unlock scientific vocabulary.

9.RV.1.C "Use structural analysis of roots, affixes, and etymology to explain the meanings of unfamiliar and complex words."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline four complex words whose parts help you infer their meanings. Number the nearby details that give clues about each word.

Life at the Ocean Floor

(1) Far below the ocean's sunlit surface, a research team lowers a submersible into the Pacific. Its thick hull resists crushing pressure, while cameras send images to scientists aboard the ship. The vehicle moves slowly along the seafloor, where no daylight reaches. Pilots guide it past jagged lava and clouds of mineral-rich water. Although the craft is small, it carries lamps, sampling arms, and sensors that record temperature. Each descent lets researchers observe places divers cannot safely visit and collect evidence without bringing the fragile seafloor environment to the surface.

(2) Near volcanic ridges, the team finds hydrothermal vents. These chimney-like openings release seawater that has seeped into cracks, been heated by magma, and returned carrying dissolved minerals. The water may be much hotter than the surrounding sea, yet it does not boil easily under immense pressure. Around each vent, pale tubeworms, clams, and crabs gather in dense communities. Scientists compare the vents to underwater springs, but their heat and chemicals come from Earth's interior. A vent can change or stop flowing, so its nearby community may shift quickly.

(3) At the base of this food web, certain bacteria use chemosynthesis to make sugars from chemical energy rather than sunlight. Other animals depend, directly or indirectly, on these bacteria for food. Some vent residents are called extremophiles because they survive conditions that would harm many familiar organisms, including darkness, pressure, and sudden temperature changes. Researchers study these organisms to understand how life adapts to demanding habitats. The discoveries also help scientists consider where life might exist beyond Earth, such as beneath the icy crusts of ocean worlds. Each expedition raises new questions about survival in places once thought empty.

2 ANSWER WITH EVIDENCE

Use the passage

1. What does submersible most likely mean? Explain how the prefix sub- and details about the vehicle support your answer.

2. What two ideas do the parts of hydrothermal contribute to the word's meaning? Use details about the vents to explain.

3. Break chemosynthesis into two meaningful parts. What does each part suggest, and what does the whole word mean in this passage?

4. What does the suffix -phile suggest in extremophiles? Use the description of the vent residents to explain the whole word.

3 YOUR TURN

Your own words

Write two sentences about an ocean discovery using one complex science word that does not appear in the passage. In the second sentence, break the word into at least two meaningful parts and explain how its Greek or Latin origins reveal its meaning.

ANSWER KEY

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GRADE 9 · 9.RV.1.C

PART 1 · READ AND MARK

Underline four complex words whose parts help you infer their meanings. Number the nearby details that give clues about each word. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What does submersible most likely mean? Explain how the prefix sub- and details about the vehicle support your answer.	**A submersible is a vehicle designed to travel below the water's surface. The prefix sub- means under, and the passage describes it moving along the seafloor.**
2	What two ideas do the parts of hydrothermal contribute to the word's meaning? Use details about the vents to explain.	**Hydro- contributes water, and thermal contributes heat. Hydrothermal vents involve seawater heated by magma.**
3	Break chemosynthesis into two meaningful parts. What does each part suggest, and what does the whole word mean in this passage?	**Chemo- suggests chemicals, and synthesis suggests making or putting together. Chemosynthesis is making sugars from chemical energy.**
4	What does the suffix -phile suggest in extremophiles? Use the description of the vent residents to explain the whole word.	**The suffix -phile suggests attraction to or thriving in something. Extremophiles are organisms that survive or thrive in extreme conditions.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The bioluminescent jellyfish flashed blue-green light in the dark water. Bioluminescent combines Greek bios, life, with Latin lumen, light, and the suffix -escent, becoming, so it describes a living organism becoming light-producing.

Accept equivalent meanings when students accurately connect word parts to passage details. For Part 3, accept any appropriate complex science word not used in the passage if its parts, origins, and explanation are accurate.