

Picture the Deep

Use sensory details and sequence to build meaning from an informational text.

8.5.D "create mental images to deepen understanding;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline details that help you picture what the seafloor looks like. Number 1, 2, and 3 beside details that show conditions changing in order, then use your marks to build a mental movie.

Life Around Deep-Sea Vents

- ① Far below the ocean's surface, sunlight cannot reach the seafloor. Near some tectonic plate boundaries, cracks in Earth's crust release mineral-rich water heated by magma. When this water meets the near-freezing seawater, minerals form dark, cloudy plumes above chimney-shaped structures. These hydrothermal vents may look like underwater smokestacks, but the plumes are not smoke from fire. They are tiny mineral particles carried upward by hot water. The scene is completely dark except for any lights carried by explorers.
- ② Despite the darkness and crushing pressure, vent fields can support crowded communities. Tube worms extend red feathery plumes into the water, while pale crabs move across rocks coated with bacteria. The animals do not depend on sunlight or plants for food. Instead, certain bacteria use chemicals from the vent fluids to make energy-rich food, a process called chemosynthesis. Other organisms eat the bacteria or eat animals that have eaten them. In this way, a seemingly barren seafloor becomes an active food web.
- ③ Vent communities do not remain unchanged. An underwater eruption, earthquake, or shift in flowing fluids can block a vent or open a new one. If a vent stops releasing chemicals, the bacteria near it lose their energy source, and many animals must leave or die. At a newly active vent, bacteria can spread first, followed by animals that feed on them. Over time, the seafloor's living pattern can move, shrink, or grow as the hot water's path changes.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What would you picture rising above the chimney-shaped structures? Name two details from paragraph 1 that create this image.

2 How should your mental image of the seafloor change from paragraph 1 to paragraph 2? Use at least two details.

3 What image from paragraph 2 helps you understand how a food web can exist without sunlight? Explain briefly.

4 Make a mental movie of a vent closing and a new vent opening. What happens to the living community in order?

3 YOUR TURN _____ Your own words

Imagine you are piloting a research submersible toward a newly active vent. Write three sentences that create a clear mental image using darkness and vehicle lights, a mineral plume, and at least two organism or food-web details from the passage. Add one sentence explaining how your image changes if the hot flow stops.

PART 1 • READ AND MARK

Underline details that help you picture what the seafloor looks like. Number 1, 2, and 3 beside details that show conditions changing in order, then use your marks to build a mental movie. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What would you picture rising above the chimney-shaped structures? Name two details from paragraph 1 that create this image.	Dark, cloudy plumes of tiny mineral particles rise above the structures. The water is completely dark except for explorers' lights.
2	How should your mental image of the seafloor change from paragraph 1 to paragraph 2? Use at least two details.	The image changes from a dark seafloor with mineral plumes to a crowded community with red tube worms, pale crabs, and bacteria-coated rocks.
3	What image from paragraph 2 helps you understand how a food web can exist without sunlight? Explain briefly.	Picture bacteria gathered on rocks near the vent, using chemicals in vent fluids to make food. Other organisms eat the bacteria or animals that ate the bacteria.
4	Make a mental movie of a vent closing and a new vent opening. What happens to the living community in order?	When a vent closes, nearby bacteria lose their energy source, so many animals leave or die. At a new vent, bacteria spread first, and animals that feed on them arrive later.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My submersible's lamps cut through black water and reveal a chimney sending a dark mineral plume upward. Red tube worms wave near pale crabs that move across bacteria-coated rocks. I picture bacteria at the vent beginning the food web by making food from chemicals. If the hot flow stops, the scene changes as bacteria lose their energy source and the animals disappear or move away.

Accept varied wording when students' images are grounded in accurate passage details. For the open task, look for all required image elements and a logical change when the vent stops flowing.