Beneath the Surface

Compare how two animals are built to survive.

ZOO.6.7 "Dissect representative taxa and compare their internal and external anatomy and complexity."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline external structures and circle internal structures in the passage. Write matching numbers beside structures in the two animals that do the same job.

An Earthworm and a Crayfish

1 An earthworm and a crayfish look different on a dissection tray, but both move, digest food, and deliver oxygen to their tissues. Before cutting, examine the earthworm's repeated body segments, tiny bristles called setae, and thick clitellum near its front end. Setae grip the ground as muscles change the worm's shape. Inside, a long intestine runs through the body, and blood stays within vessels. The worm has no lungs or gills. Oxygen dissolves on its moist skin, then crosses into nearby blood vessels. If the skin dries, this exchange becomes difficult.

2 Now examine the crayfish. Its hard exoskeleton covers a fused head and thorax and a flexible, segmented abdomen. Jointed walking legs help it move across the bottom, and small swimmerets hang beneath the abdomen. Lift the carapace during dissection to find feathery gills along the sides of the thorax. A modified mouthpart called the scaphognathite moves water over the gills, where oxygen enters the circulating fluid, called hemolymph. Inside, the stomach begins breaking down food, and a digestive gland helps process it. The heart pumps hemolymph into spaces around organs rather than keeping it entirely inside vessels.

3 These dissections reveal similar jobs carried out by different structures. Both animals have segmented bodies, but the worm's moist outer surface exchanges gases while the crayfish relies on gills sheltered by its carapace. The earthworm's intestine and the crayfish's stomach and digestive gland handle food in different ways. Their transport systems differ too: blood remains in the worm's vessels, while much of the crayfish's hemolymph flows through body spaces. A crayfish has more kinds of jointed appendages and a separate gill system, but these added parts do not make it better suited to every habitat.

2 ANSWER WITH EVIDENCE

Use the passage

1. Compare the external structures that help each animal move.

2. How does oxygen enter each animal, and what does the crayfish use to move water over its gas-exchange structures?

3. Compare the internal structures the two animals use to digest food.

4. How do the animals' internal transport systems differ?

3 YOUR TURN

Your own words

Imagine a damp, narrow soil tunnel beside a shallow stream. In 4 to 5 sentences, choose which animal fits each place, support your choices with at least two external and two internal features across both animals, and explain why having more kinds of parts does not guarantee success in every habitat.

Beneath the Surface

PART 1 · READ AND MARK

Underline external structures and circle internal structures in the passage. Write matching numbers beside structures in the two animals that do the same job. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Compare the external structures that help each animal move.	**The earthworm's setae grip the ground as muscles change its shape. The crayfish uses jointed walking legs to move across the bottom and has swimmerets beneath its abdomen.**
2	How does oxygen enter each animal, and what does the crayfish use to move water over its gas-exchange structures?	**Oxygen crosses the earthworm's moist skin into nearby blood vessels. It enters the crayfish's hemolymph at the gills, and the scaphognathite moves water over them.**
3	Compare the internal structures the two animals use to digest food.	**The earthworm has a long intestine. The crayfish has a stomach that begins breaking down food and a digestive gland that helps process it.**
4	How do the animals' internal transport systems differ?	**The earthworm's blood remains inside vessels. The crayfish's heart pumps hemolymph into spaces around its organs.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The earthworm fits the damp soil tunnel because its setae grip soil and its flexible, segmented body can move through it. Its moist skin lets oxygen enter nearby blood vessels, so the dampness matters. The crayfish can travel along the stream bottom with its jointed walking legs and protective exoskeleton. Its gills take in oxygen from water moved by the scaphognathite, and its heart pumps hemolymph into body spaces. Although the crayfish has more kinds of appendages, those parts do not make it better suited to a narrow tunnel.

Accept other accurate comparisons grounded in the passage. In Part 3, look for a reasoned habitat choice, at least two external and two internal features across the animals, and a clear distinction between having more kinds of parts and being better suited to a habitat.