Inside Three Bodies

Compare body structures and the jobs they do

ZOO.10.5 "Dissect representative taxa and compare their internal and external anatomy and complexity."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one external structure and circle one internal structure for each animal. Then draw a line between structures in two different animals that do a similar job.

Three Ways to Build a Body

1. During an earthworm dissection, the outside offers the first clue: the body is soft and divided into repeated segments. Tiny bristles on most segments grip soil as muscles shorten and lengthen the body. A slit along the underside reveals a tube-shaped gut that runs from mouth to anus. Several muscular vessels near the front help move blood through a closed network of vessels. Earthworms have no lungs or gills; oxygen crosses their moist skin and enters the blood. These linked parts let an earthworm feed and move through narrow, damp tunnels.

2. Set a crayfish beside the worm before opening it. Its hard outer covering supports the body, and its jointed legs and claws handle different kinds of movement and food. The crayfish must shed that covering to grow. When you lift the shell over the front of the body, you can find feathery gills near the bases of the legs. Water passes over the gills, where oxygen enters the hemolymph, the animal's bloodlike fluid. A heart pumps hemolymph into spaces around organs before it returns to the heart. This is an open circulatory system, unlike the worm's closed system.

3. A perch provides a third pattern. Its scales cover flexible skin, and fins steer a body supported by an internal backbone. During dissection, the gills lie behind protective gill covers, while a swim bladder helps the fish control its depth. The heart sends blood to the gills and then around the body through vessels, so circulation stays closed. Both perch and crayfish use gills, but their supports and circulatory paths differ. The worm's skin, the crayfish's outer covering, and the perch's backbone each solve particular problems. Comparing these parts shows different combinations of specialization, not a ladder from “simple” to “advanced.”

2 ANSWER WITH EVIDENCE

Use the passage

1. Compare how the earthworm and crayfish use external body parts to move.

2. How are the crayfish's and perch's gills alike, and where is each animal's gills found?

3. Compare how oxygen enters the earthworm and the perch. What happens to blood after oxygen enters each animal?

4. Compare the main body supports of all three animals. Why do these differences not put the animals on a ladder from simple to advanced?

3 YOUR TURN

Your own words

A marine worm specimen has a soft segmented body, feathery gills, and blood that stays inside vessels. In 70 to 100 words, compare its external and internal anatomy with the earthworm and perch, explain how its features suit life in water, and avoid ranking the animals from simple to advanced.

ANSWER KEY

Inside Three Bodies

PART 1 · READ AND MARK

Underline one external structure and circle one internal structure for each animal. Then draw a line between structures in two different animals that do a similar job. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Compare how the earthworm and crayfish use external body parts to move.	**The earthworm's bristles grip soil as its muscles move its soft body. The crayfish moves with jointed legs supported by a hard outer covering.**
2	How are the crayfish's and perch's gills alike, and where is each animal's gills found?	**Both animals use gills to take in oxygen from water. Crayfish gills are near the bases of the legs; perch gills are behind protective gill covers.**
3	Compare how oxygen enters the earthworm and the perch. What happens to blood after oxygen enters each animal?	**Oxygen crosses the earthworm's moist skin and enters its blood, which moves through a closed network of vessels. In the perch, oxygen enters the blood at the gills, and the heart sends blood around the body through vessels.**
4	Compare the main body supports of all three animals. Why do these differences not put the animals on a ladder from simple to advanced?	**The earthworm has a soft, segmented body; the crayfish has a hard outer covering; and the perch has an internal backbone. Each support is part of a different combination of structures suited to how that animal lives, not a step on one ladder.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The marine worm's soft segments resemble the earthworm's outer body, but its feathery gills differ from the earthworm's moist skin for taking in oxygen. Like the earthworm, it keeps blood inside vessels. Its gills resemble the perch's gills in function, yet the perch has scales, fins, and a backbone rather than a soft segmented body. The feathery gills offer a surface for oxygen to enter from water, and closed vessels carry it through the body. Each animal has a combination suited to its habitat, not a fixed place on a ladder.

Accept accurate comparisons that name structures and explain their functions. For the open task, look for comparisons with both passage animals, an explanation of gas exchange in water, and no claim that one animal is inherently more advanced.