Inside Three Animals

Compare body structures revealed through dissection

ZOO.5.9 "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 feature of each animal. Circle one food-processing part and one oxygen-absorbing part for each animal, then label the circles F and O.

What a Dissection Reveals

1. On a dissection tray, an earthworm looks like a chain of soft rings. Its repeated body segments carry tiny bristles called setae, which grip soil as the worm moves. A slightly raised band, the clitellum, is involved in reproduction. A shallow cut along a preserved specimen reveals a tube-shaped digestive tract: the crop stores food, the gizzard grinds it, and the intestine absorbs nutrients. Blood stays inside vessels, an arrangement called closed circulation. Oxygen enters through the worm's moist skin rather than through lungs or gills. These visible and hidden structures do different jobs despite the worm's lack of legs.

2. A crayfish from a stream has a different body plan. A hard exoskeleton covers its head and thorax, which are joined as a cephalothorax, and its flexible abdomen. Jointed legs and large claws attach near the front. When the shell is lifted during a dissection, feathery gills can be seen beneath its side edges. Water passes over the gills, where oxygen enters the body. Farther inside, a stomach with a gastric mill crushes food. Its heart pumps hemolymph into body spaces rather than keeping it entirely inside vessels. This is open circulation, unlike the earthworm's closed system.

3. On the tray, a perch looks different. Scales cover its body, while fins steer it through water. An operculum, a bony flap on each side of the head, protects the gills; oxygen moves from water into the blood there. During dissection, a backbone supports the body, a swim bladder helps control buoyancy, and a stomach digests food. A two-chambered heart pumps blood through a closed system, as in the earthworm, but the perch uses gills rather than moist skin. Each animal has specialized parts. Comparing how those parts work reveals differences in organization without treating any one feature as a complete measure of complexity.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does circulation differ between an earthworm and a crayfish?

2. Compare the crayfish's and perch's external coverings and the structures that protect their gills.

3. How do an earthworm's gizzard and a crayfish's gastric mill show a similar digestive specialization?

4. The earthworm and perch both have closed circulation. How do they differ in the body parts they use to absorb oxygen?

3 YOUR TURN

Your own words

Write a five-sentence museum label that challenges the claim, “No legs means no complex anatomy.” Compare the earthworm and crayfish using one external feature and two internal features of each, then explain why leg count alone cannot measure anatomical complexity.

ANSWER KEY

Inside Three Animals

HIGH SCHOOL · ZOO.5.9

PART 1 · READ AND MARK

Underline one external feature of each animal. Circle one food-processing part and one oxygen-absorbing part for each animal, then label the circles F and O. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does circulation differ between an earthworm and a crayfish?	**The earthworm has closed circulation, so blood stays in vessels. The crayfish has open circulation, so its heart pumps hemolymph into body spaces.**
2	Compare the crayfish's and perch's external coverings and the structures that protect their gills.	**The crayfish has a hard exoskeleton, with gills beneath the shell's side edges. The perch has scales on its body and an operculum protecting its gills.**
3	How do an earthworm's gizzard and a crayfish's gastric mill show a similar digestive specialization?	**Both are structures that crush or grind food, although they occur in different animals.**
4	The earthworm and perch both have closed circulation. How do they differ in the body parts they use to absorb oxygen?	**The earthworm absorbs oxygen through moist skin. The perch absorbs oxygen from water through gills.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

An earthworm has no legs, but its tiny setae grip the soil as it moves. Inside, its crop stores food and its gizzard grinds it. A crayfish has jointed legs that help it move. Inside, its gastric mill crushes food and its gills take oxygen from water. Leg count misses specialized structures inside both animals, so it cannot measure their anatomical complexity by itself.

Accept other accurate external and internal features from the passage. The museum label should compare both animals and reject leg count as a complete measure of anatomical complexity.