Mollusk Body Plans

Compare anatomy by building a model of three mollusks.

ZOO.3.7 "Create a model comparing the anatomy of gastropods, bivalves, and cephalopods."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline a movement structure in each paragraph, circle each description of a shell or its absence, and box one feeding structure in each paragraph. Use your marks to compare the three body plans.

Three Ways to Live as a Mollusk

1. At the edge of a rocky shore, a snail crosses a patch of algae. Like other mollusks, it has a soft body, a muscular foot, and a mantle, a tissue layer that covers its internal organs. The snail's broad foot grips the rock and moves in muscular waves over a film of mucus. Its mantle builds a single coiled shell that protects much of its body. A distinct head carries sensory tentacles. Beneath the head, a radula, a rough ribbon of tiny teeth, scrapes algae from the rock. The shell provides cover while the foot keeps the snail attached.

2. Below the same shore, a clam lies buried in sand. Its mantle makes two shells joined by a hinge, and strong muscles can pull the shells shut. Unlike the snail, the clam has no distinct head or radula. Its narrow, muscular foot pushes into sand and anchors the body as it burrows. When buried, the clam extends two siphons toward the water above. Water enters through one siphon and leaves through the other. Gills inside the shell collect suspended food particles from the incoming water. The clam can feed without chasing food or exposing most of its body.

3. Farther offshore, an octopus searches among rocks for crabs. It is a cephalopod, another kind of mollusk, but its foot has changed into eight flexible arms and a funnel. The arms grasp prey and help it crawl. Its beak bites prey, while a radula helps process food. The octopus has a distinct head and no external shell; its mantle surrounds the internal organs. To move quickly, mantle muscles push water out through the funnel, driving the animal in the opposite direction. Unlike the slow-moving snail and buried clam, the octopus can move toward prey and seize it.

2 ANSWER WITH EVIDENCE

Use the passage

1. In a movement model, which foot structure would you label for the snail, clam, and octopus? State what each does.

2. How would you show the shell and mantle in a model of each animal?

3. For each animal, connect a feeding structure to what it helps the animal eat.

4. Both the clam and octopus move water through body structures. Which structures would you label, and what different job does the water flow do for each animal?

3 YOUR TURN

Your own words

Make a three-panel anatomy model showing a snail on rock, a clam buried in sand, and an octopus hunting a crab. In each panel, label the foot or its modified parts, the mantle, the shell or its absence, and a feeding structure; add two arrows that show how labeled structures help the animal feed or move.

ANSWER KEY

Mollusk Body Plans

HIGH SCHOOL · ZOO.3.7

PART 1 · READ AND MARK

Underline a movement structure in each paragraph, circle each description of a shell or its absence, and box one feeding structure in each paragraph. Use your marks to compare the three body plans. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	In a movement model, which foot structure would you label for the snail, clam, and octopus? State what each does.	**The snail's broad foot glides over rock. The clam's narrow foot anchors it and helps it burrow. The octopus's modified foot forms arms for crawling and a funnel for quick movement.**
2	How would you show the shell and mantle in a model of each animal?	**Show the snail's mantle making one coiled shell, the clam's mantle making two hinged shells, and the octopus's mantle around its organs with no external shell.**
3	For each animal, connect a feeding structure to what it helps the animal eat.	**The snail's radula scrapes algae. The clam's gills collect suspended food particles. The octopus's arms grasp crabs, and its beak bites them.**
4	Both the clam and octopus move water through body structures. Which structures would you label, and what different job does the water flow do for each animal?	**Label the clam's siphons and gills: incoming water carries food particles to the gills. Label the octopus's mantle and funnel: the mantle pushes water through the funnel to propel the octopus.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Snail panel: label broad foot, mantle, coiled shell, and radula; arrows show the foot moving across rock and the radula scraping algae. Clam panel: label narrow foot, mantle, two hinged shells, and gills; arrows show the foot burrowing and water carrying food particles to the gills. Octopus panel: label modified foot as arms and funnel, mantle, no external shell, and beak; arrows show the arms grasping a crab and water leaving the funnel to move the octopus.

Accept models that show the same anatomical relationships with different drawing styles. For the octopus, either the arms or the funnel may serve as a movement structure, but the modified foot must be identified.