Inside Two Mollusks

Use dissection observations to compare form and function.

MAQ.6.6 "Dissect representative taxa (e.g., clam and squid), collect data, compare their internal and external anatomy, analyze, explain, and communicate results."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the names of two structures found in both animals, circle the clam's foot and the squid's siphon, and number the sentences that explain what each circled structure does. Use your marks to compare how the animals move.

At the Dissection Station

1. At a dissection station, a clam lies with its two hinged shells intact. The outer shell is hard, and a muscular foot can extend from between its edges. After opening the shell, students see an adductor muscle attached to both halves. When it contracts, it pulls the shells together. A thin mantle lines the shell; its tissue helps build the shell. Two gills sit inside the mantle cavity. In a living clam, water moving past the gills supplies oxygen, while trapped food particles travel toward the mouth. The foot can push into sand, anchoring the clam as it burrows.

2. Across the table, a squid has a flexible body rather than paired outer shells. Its arms and two longer tentacles carry suckers that help seize prey. During dissection, students lift the mantle, the muscular body wall, and locate two gills beneath it. Water entering the mantle cavity passes the gills before leaving through a siphon. By squeezing its mantle and directing the siphon, a living squid can jet through water. Students also trace a path from the mouth through the esophagus to a stomach, where swallowed food is broken down. The squid's internal pen supports its body without forming a hard outer shell.

3. The team records what was seen, rather than treating every mark as proof of behavior. Both animals have a mantle and gills, but these shared parts occur in bodies with different coverings and ways of moving. The clam's hinged shells and adductor muscle provide a mechanism for closing its body; the squid's mantle and siphon provide a mechanism for jetting water. Students can infer these actions from structure, yet a preserved specimen cannot show how fast either animal moves. To check a prediction about speed, they would need observations of living animals under comparable conditions.

2 ANSWER WITH EVIDENCE

Use the passage

1. Compare where the gills are located in the clam and squid. What structure is associated with the gills in both animals?

2. How do the animals' body coverings differ? Use one external observation and one internal observation for each animal.

3. Compare how each animal gets food. Include a structure or process described for each.

4. A student claims that the squid always moves faster than the clam. What anatomy suggests a difference in movement, and why can't this dissection prove the claim about speed?

3 YOUR TURN

Your own words

A predator approaches both animals. In four or five sentences, predict one defensive action for each animal, supporting each prediction with one visible external feature and one internal feature identified during dissection. Name an observation of living animals that could test one prediction.

ANSWER KEY

Inside Two Mollusks

PART 1 · READ AND MARK

Underline the names of two structures found in both animals, circle the clam's foot and the squid's siphon, and number the sentences that explain what each circled structure does. Use your marks to compare how the animals move. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Compare where the gills are located in the clam and squid. What structure is associated with the gills in both animals?	**The clam's gills sit inside the mantle cavity. The squid's gills lie beneath the mantle, where water passes through the mantle cavity.**
2	How do the animals' body coverings differ? Use one external observation and one internal observation for each animal.	**The clam has paired outer shells, with an internal adductor muscle that pulls them together. The squid lacks paired outer shells and has an internal pen that supports its flexible body.**
3	Compare how each animal gets food. Include a structure or process described for each.	**The clam receives food particles carried by water toward its mouth. The squid uses suckers on its arms and tentacles to seize prey, then breaks down swallowed food in its stomach.**
4	A student claims that the squid always moves faster than the clam. What anatomy suggests a difference in movement, and why can't this dissection prove the claim about speed?	**The clam's foot can push into sand, while the squid's mantle and siphon can produce jet movement. A preserved specimen cannot show either animal's speed; that requires observations of living animals.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The clam might close its visible hinged shells when the predator approaches. Its internal adductor muscle could pull the shells together. The squid might jet away using its visible siphon to direct water. Its muscular mantle, identified during dissection, could squeeze water out through the siphon. To test the squid prediction, I would observe whether a living squid jets away when a predator approaches.

Accept other anatomically supported predictions that distinguish visible features from structures identified during dissection. The proposed test should involve observing a living animal.