Two Cnidarian Shapes

Read, compare, and model a polyp and a medusa.

ZOO.2.10 "Create a digital or physical model illustrating the anatomy of a cnidarian, citing similarities and differences between polyps and medusas."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline structures both forms share, circle features that differ, and number the body parts you would label in a cutaway model. Use your marks to plan two accurate models.

One Body Plan, Two Forms

1. At a rocky shoreline, a sea anemone holds its position while a jellyfish pulses through nearby water. Both are cnidarians, animals with bodies arranged around a central axis. The anemone shows a polyp form: its base attaches to a surface, its body rises like a column, and its mouth faces upward among its tentacles. The jellyfish shows a medusa form: its body spreads into a bell, its mouth hangs beneath the bell, and tentacles trail from its edge. A polyp stays attached for much of its life; a medusa can move through the water.

2. Despite their different outlines, both forms have a gastrovascular cavity, a space where food is digested and nutrients are distributed. A single mouth opens into this cavity; undigested material leaves through that same opening. The body wall has an outer epidermis and an inner gastrodermis, with a jellylike layer called mesoglea between them. Tentacles carry stinging cells called cnidocytes, which help capture prey. A cutaway model should show the cavity inside the body wall, rather than as an opening outside it. It should also connect each set of tentacles to its form's mouth and body.

3. If you build two clay models, start with one plan for the shared parts, then reshape it for each form. Give the polyp a narrow column and an attachment base; give the medusa a broad bell and a thicker layer of mesoglea. Turn the polyp's mouth and tentacles toward the water above its base, but place the medusa's mouth below its bell. Use arrows to show how a medusa can swim by contracting its bell. Do not make a life cycle from these two shapes alone: some cnidarian species have both forms, while others do not.

2 ANSWER WITH EVIDENCE

Use the passage

1. You are making a cutaway polyp model. Where should you place its attachment base, mouth, and tentacles?

2. How would you shape a medusa model and show how it moves?

3. Which three body-wall layers should appear in both cutaway models, and what is their order from outside to inside?

4. A model shows the gastrovascular cavity outside the body wall and adds a second opening for waste. What two changes would make it accurate?

3 YOUR TURN

Your own words

Draw a labeled cutaway model of a polyp in one panel and a medusa in the other. Show their shared internal structures, each form's mouth and tentacles, and one feature that sets each form apart; then write two sentences explaining one anatomical similarity and one difference.

ANSWER KEY

Two Cnidarian Shapes

HIGH SCHOOL · ZOO.2.10

PART 1 · READ AND MARK

Underline structures both forms share, circle features that differ, and number the body parts you would label in a cutaway model. Use your marks to plan two accurate models. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	You are making a cutaway polyp model. Where should you place its attachment base, mouth, and tentacles?	**Place the base at the bottom, attached to a surface. Put the mouth and tentacles at the top of the column.**
2	How would you shape a medusa model and show how it moves?	**Shape a broad bell with a thick mesoglea layer, and add arrows showing the bell contracting as the medusa swims.**
3	Which three body-wall layers should appear in both cutaway models, and what is their order from outside to inside?	**Outer epidermis, mesoglea, then inner gastrodermis.**
4	A model shows the gastrovascular cavity outside the body wall and adds a second opening for waste. What two changes would make it accurate?	**Move the cavity inside the body wall and remove the second opening. Waste leaves through the mouth.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Polyp panel labels: upward mouth and tentacles with cnidocytes, narrow column, attachment base, gastrovascular cavity, outer epidermis, mesoglea, inner gastrodermis lining the cavity.
Medusa panel labels: downward mouth, tentacles with cnidocytes at the edge of a broad bell, gastrovascular cavity, outer epidermis, thick mesoglea, inner gastrodermis lining the cavity.
Both forms have a gastrovascular cavity inside a body wall with the same three layers. The polyp has an attachment base and an upward-facing mouth, while the medusa has a bell and a downward-facing mouth.

Accept clearly placed labels in place of detailed drawing skill. A medusa's tentacles may vary by species, but the model should distinguish its bell and downward-facing mouth from the polyp's column and upward-facing mouth.