Life Below the Surface

Identify aquatic animals by their structures and feeding methods.

MAQ.6.1 "Characterize aquatic representatives of the following taxa: Protozoa (e.g., foraminiferans, radiolarians, amoeba, and paramecium), Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida, Rotifera, Mollusca, Arthropoda, Bryozoa..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle each taxon name and underline a nearby body structure or feeding clue that helps identify its aquatic representative.

A Survey from Tide Pool to Seafloor

1 At the edge of a tidal pool, a drop of water can contain several kinds of protozoa, a traditional name for diverse single-celled organisms. An amoeba extends temporary lobes to crawl and surround food; a paramecium beats tiny cilia to swim and sweep food inward. Far offshore, foraminiferans build chambered shells, often of calcium carbonate, while radiolarians form intricate mineral skeletons, usually of silica. Larger animals show other plans. A sponge, a member of Porifera, filters particles as water passes through its pores. A sea anemone belongs to Cnidaria and catches prey with stinging cells on its tentacles.

2 Under a mat of algae, a free-living flatworm in Platyhelminthes glides on a flattened body and feeds on small animals. A nematode is a slender, unsegmented roundworm; some aquatic species eat bacteria in sediment. A segmented marine bristle worm in Annelida crawls using paired, bristle-bearing appendages and may hunt smaller animals. A rotifer, a microscopic animal, creates feeding currents with a ring of beating cilia near its head. A clam in Mollusca uses gills to filter food from water, while a crab in Arthropoda has jointed legs and a hard outer skeleton and can scavenge scraps.

3 On a rocky ledge, bryozoans form colonies of tiny animals; each feeds by drawing particles toward a crown of ciliated tentacles. A brachiopod looks like a clam because both have two shells, but its shells usually differ from each other and it feeds with a ciliated organ called a lophophore. A sea star in Echinodermata moves on tube feet powered by a water vascular system and can pry open shellfish. Similar surroundings do not mean close kinship: a clam is a mollusk, while a brachiopod belongs to a separate lineage. Compare body parts and feeding methods, not just size or habitat, when identifying these animals.

2 ANSWER WITH EVIDENCE

Use the passage

1. How could you distinguish a foraminiferan from a radiolarian by examining its hard covering?

2. A sample contains a flatworm, a nematode, and a marine bristle worm. Which body clue identifies each one?

3. How do a sponge and a sea anemone obtain food differently?

4. A sample contains a bryozoan colony, a brachiopod, and a clam. What feeding feature identifies the colony, and what distinguishes the brachiopod from the clam?

3 YOUR TURN

Your own words

Write four sentences describing a three-stop field survey featuring a rotifer, a crab, and a sea star. Give one structure and its function for each animal, then contrast how the crab and sea star move.

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PART 1 · READ AND MARK

Circle each taxon name and underline a nearby body structure or feeding clue that helps identify its aquatic representative. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How could you distinguish a foraminiferan from a radiolarian by examining its hard covering?	**A foraminiferan has a chambered shell, often made of calcium carbonate. A radiolarian has an intricate mineral skeleton, usually made of silica.**
2	A sample contains a flatworm, a nematode, and a marine bristle worm. Which body clue identifies each one?	**The flatworm has a flattened body, the nematode is slender and unsegmented, and the bristle worm is segmented with paired, bristle-bearing appendages.**
3	How do a sponge and a sea anemone obtain food differently?	**A sponge filters particles from water passing through its pores. A sea anemone catches prey with stinging cells on its tentacles.**
4	A sample contains a bryozoan colony, a brachiopod, and a clam. What feeding feature identifies the colony, and what distinguishes the brachiopod from the clam?	**Each animal in the bryozoan colony draws particles toward a crown of ciliated tentacles. A brachiopod feeds with a lophophore and has two shells that usually differ from each other; the clam filters food with its gills.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

At my first stop, a rotifer uses a ring of cilia to draw food toward its head. At the next stop, a crab uses jointed legs to cross the seafloor. At the last stop, a sea star moves using tube feet powered by a water vascular system. The crab walks on jointed legs, while the sea star moves on many small tube feet.

Accept accurate equivalent descriptions of the structures and feeding methods in the passage. For the field survey, check that all three animals have a structure with a correct function and that the final sentence contrasts crab and sea star movement.