Who Lives Here?

Identify aquatic animal groups by their body structures and life histories.

MAQ.7.1 "Characterize aquatic representatives of the following taxa: Hemichordata, Urochordata, Cephalochordata, and Vertebrata (including Agnatha, Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves, and Mammalia)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline a body or life-history trait that helps identify each named animal, then circle its taxon name. Use your marks to connect each animal with its group.

A Survey from Sand to Sea

1. At the edge of a coastal sand flat, an acorn worm pushes its three-part body through sediment and collects food particles. This marine animal belongs to Hemichordata, not to the chordates; it has gill slits but no true notochord. Nearby, an adult sea squirt remains attached to a piling and pumps water through its body to filter food. Sea squirts are urochordates: their swimming larvae have a notochord in the tail, but adults lose it. A lancelet, a cephalochordate, lies partly buried in sand. Its slender body retains a notochord along its length throughout life.

2. A lamprey swims past the sand flat. This jawless vertebrate belongs to Agnatha; it has a cartilaginous skeleton and a round mouth. Vertebrates have a skull and at least rudimentary vertebral structures. A ray belongs to Chondrichthyes, a group of jawed fish with skeletons made of cartilage. A striped bass belongs to Osteichthyes, jawed fish with bony skeletons and gills. Fish do not represent every aquatic vertebrate. A frog begins life as a gilled tadpole in water; the adult has lungs and moist skin. Frogs belong to Amphibia, a group that often changes form as it grows.

3. Farther offshore, a sea turtle surfaces for air. This member of Reptilia has lungs and scaly skin, and females lay eggs on land. A penguin also breathes air but belongs to Aves: its feathers and wings adapted as flippers distinguish it from the turtle. A dolphin belongs to Mammalia, not to the fish groups. It breathes with lungs, gives birth to live young, and feeds them milk. Penguins and dolphins maintain a relatively stable internal body temperature, yet feathers identify the bird and milk identifies the mammal. Body structures and life histories can separate animals that share the same water.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does the notochord differ in a sea squirt and a lancelet as they grow? Name each animal's taxon.

2. A lamprey, ray, and striped bass all swim in water. Which is jawless, and how do the skeletons of the two jawed fish differ?

3. How do a frog and a sea turtle use water and land during their life cycles? Include one body feature of each.

4. A penguin and a dolphin both breathe air. Which trait identifies each animal's vertebrate group?

3 YOUR TURN

Your own words

Write a four-stop field report from an imagined coastal survey. Include an acorn worm, an adult sea squirt, a lancelet, and one aquatic vertebrate of your choice; identify each one's taxon and give a trait that helps distinguish it. Also name the vertebrate's subgroup.

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PART 1 · READ AND MARK

Underline a body or life-history trait that helps identify each named animal, then circle its taxon name. Use your marks to connect each animal with its group. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does the notochord differ in a sea squirt and a lancelet as they grow? Name each animal's taxon.	**A urochordate sea squirt has a notochord in its tail as a larva but loses it as an adult. A cephalochordate lancelet keeps a notochord throughout life.**
2	A lamprey, ray, and striped bass all swim in water. Which is jawless, and how do the skeletons of the two jawed fish differ?	**The lamprey is jawless. The ray has a cartilaginous skeleton, while the striped bass has a bony skeleton.**
3	How do a frog and a sea turtle use water and land during their life cycles? Include one body feature of each.	**A frog begins as a gilled tadpole in water and develops lungs as an adult. A sea turtle breathes with lungs while at sea, and females lay eggs on land.**
4	A penguin and a dolphin both breathe air. Which trait identifies each animal's vertebrate group?	**Feathers identify the penguin as a member of Aves. Feeding its young milk identifies the dolphin as a member of Mammalia.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

In the sand, I found an acorn worm, a hemichordate with a three-part body. On a piling, I found an adult sea squirt, a urochordate that stays attached and filters food from water. Partly buried nearby was a lancelet, a cephalochordate that keeps its notochord throughout life. Offshore, I saw a dolphin, a vertebrate in Mammalia that feeds its young milk.

Accept other accurate distinguishing traits from the passage. For the field report, the vertebrate may belong to any subgroup named in the passage, provided its trait and subgroup match.