Teeth on a Ribbon

How mollusks use a radula to collect food

ZOO.3.4 "Describe how the radula is used in feeding."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each action a radula or its tooth performs during feeding, and circle the food that action helps the animal obtain.

Three Ways to Feed

1. At low tide, a limpet clings to a rock darkened by a thin film of algae. Its mouth is on the underside of its body. Inside the mouth, a muscular structure moves a radula, a flexible ribbon bearing many rows of tiny, hard teeth. As the limpet extends and draws back this ribbon, the teeth rasp the rock, lifting bits of algae. The animal then moves the loosened food into its mouth and swallows it. A radula does not chew food like human molars. Here, its repeated scraping gathers food that would be hard to pick up whole.

2. Scraping stone can wear down teeth, but a limpet does not need one set to last its whole life. New teeth form toward the back of the radula as older teeth wear away at the front. Other mollusks use radulas on different food. A whelk, a predatory sea snail, can extend a feeding tube called a proboscis toward its prey. Its radula helps rasp pieces of soft animal tissue into its mouth. Both the limpet and the whelk move tooth-bearing ribbons against food, but the surfaces they work on are very different.

3. Some cone snails use a more specialized version of this feeding tool. Instead of rasping a broad patch of food, a hunting cone snail launches a modified radular tooth like a tiny harpoon into a fish or worm. Venom passes through the hollow tooth and can immobilize the prey. The snail then pulls the prey in and swallows it. Although this method looks unlike a limpet's scraping, the tooth still belongs to the radula system and helps the animal obtain food. Not every mollusk has a radula: clams, which filter food from water, lack one.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does a limpet use its radula to get algae from a rock into its mouth?

2. Scraping rock wears down a limpet's radular teeth. How can the limpet keep using its radula to feed?

3. How does a whelk use its radula to feed, and how is its food surface different from a limpet's?

4. How does a hunting cone snail's radular tooth help it obtain prey instead of scraping food from a surface?

3 YOUR TURN

Your own words

Imagine a snail feeding on a thin layer of fungi growing on tree bark. In three sentences, describe how it could use a radula to collect and swallow the fungi, and explain why the radula suits this food surface.

ANSWER KEY

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PART 1 · READ AND MARK

Underline each action a radula or its tooth performs during feeding, and circle the food that action helps the animal obtain. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does a limpet use its radula to get algae from a rock into its mouth?	**It moves the toothed radula back and forth to rasp algae off the rock, then moves the loosened food into its mouth.**
2	Scraping rock wears down a limpet's radular teeth. How can the limpet keep using its radula to feed?	**New teeth form toward the back of the radula as older teeth wear away at the front.**
3	How does a whelk use its radula to feed, and how is its food surface different from a limpet's?	**A whelk rasps soft animal tissue into its mouth. A limpet rasps algae from a rock.**
4	How does a hunting cone snail's radular tooth help it obtain prey instead of scraping food from a surface?	**It launches a hollow, modified tooth into a fish or worm. Venom passes through the tooth and can immobilize the prey so the snail can pull it in and swallow it.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The snail presses its mouth against the fungal layer on the bark. It moves its toothed radula across the surface to scrape off small pieces and bring them into its mouth. Rows of tiny teeth can collect food that is spread too thinly to grab in one bite.

Accept descriptions that connect radular tooth movement to collecting food and moving it into the mouth. For the open task, students may describe repeated scraping rather than a single pass.