

ask

TIME FOR SLIME

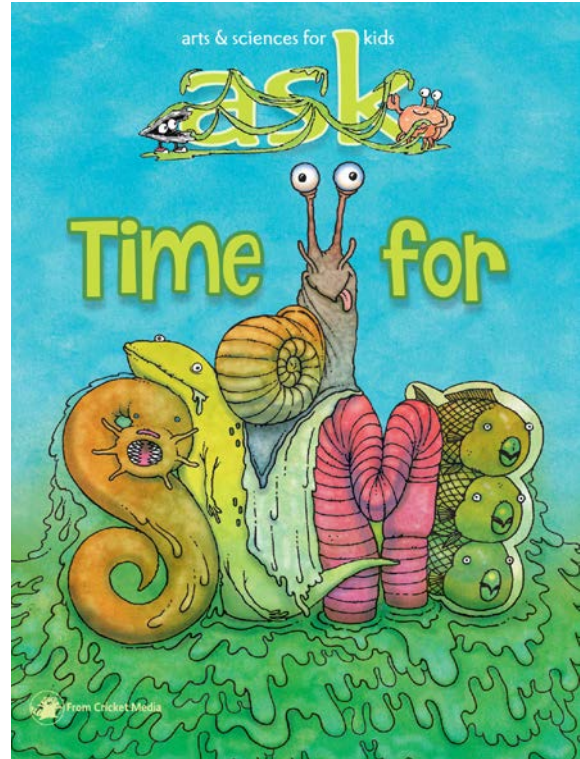
Ooey, Gooley, Slippery...SLIME! Known to most children as a stretchy plaything, students will be fascinated to learn how this lubricious substance aids in the biological functioning of most living organisms. Slide into the issue of ASK and discover how scientists are attempting to replicate slime to advance medical procedures, as well as to improve consumer products.

CONVERSATION QUESTION

What is the function of slime in the natural world?

TEACHING OBJECTIVES

- Students will read and analyze a non-fiction article.
- Students will learn how slime fulfills important functions for living organisms.
- Students will learn how slime is inspiring scientists to create new fibers, products, and medical technology.
- Students will learn about the two kinds of slime that snails produce.
- Students will determine the structure and function of slime.
- Students will identify problems and solutions.
- Students will compare and contrast different types of slime.
- Students will research multifunctional substances made by living things.
- Students will create a comic strip that presents information in a fun and entertaining way.
- Students will create analogies using words and concepts from the text.



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

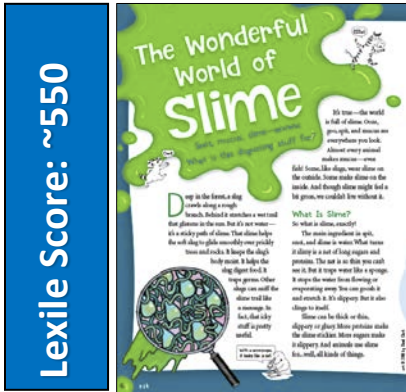
SELECTIONS

- **The Wonderful World of Slime**
Expository Nonfiction, ~550L
- **Inspired by Slime**
Expository Nonfiction, ~950L
- **The Snail's Two Slimes**
Expository Nonfiction, ~550L

The Wonderful World of Slime

pp. 6–10, Expository Nonfiction

Slide into the wonderful world of slippery, sticky slime. Young readers will be fascinated to learn about the important function that this gooey substance performs for most living organisms.



RESOURCES

- Slimy Structures

OBJECTIVES

- Students will learn how slime fulfills many important functions for most living organisms.
- Students will determine the structure and function of slime.
- Students will research multifunctional substances made by living things.

KEY VOCABULARY

- **defense (p. 9)** capability of resisting attack
- **microbe (p. 10)** microorganism, germ
- **moisture (p. 7)** liquid diffused or condensed in relatively small quantity
- **rippling (p. 7)** flowing in small waves

ENGAGE

Conversation Question: What is the function of slime in the natural world?

When you mention the word *slime*, most children will respond with observations about the popular, stretchy plaything. Allow a few minutes for this discussion and then redirect the conversation towards “slime” in the natural world. Where do we see it? What purpose does it serve? How is it produced?

INTRODUCE VOCABULARY

Invite pairs of students to find definitions for the key vocabulary. Then post the definitions provided so that students may check their work. Have pairs choose six more words from the article and procure definitions. They will then create a crossword puzzle using all ten words. Share puzzles with another class for use as a prereading exercise for this article.

READ & DISCUSS

Lead a class discussion based on the following prompts.

- What are the characteristics of slime?
- Why is some slime slippery and other slime gluey?
- What role does slime play in making bacteria hard to get rid of?

CONCEPT/SKILL FOCUS: Structure and Function

INSTRUCT: Elicit from students that the main idea of the article was to recognize that slime has an important function for most living organisms. Instruct students to use information from the article to complete the graphic organizer, *Slimy Structures*.

ASSESS: Circulate and converse with the students as they are working on their organizers. Collect their completed worksheets to further assess understanding. Consider arranging peer remediation groups if necessary.

EXTEND

Language Arts Have students do research to find other examples of natural substances that serve more than one purpose (e.g., spider webs catch prey and protect eggs.). Have the groups present their findings to the class.

Slimy Structures

Write a definition for SLIME.

Then complete the chart to explain how slime fulfills each function.

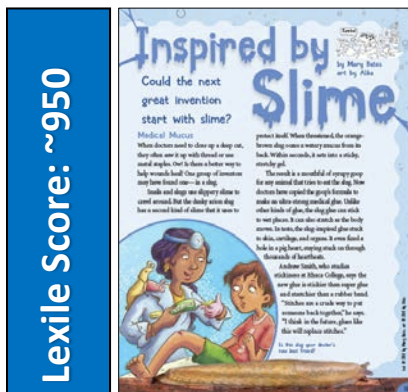
SLIME: _____

| Function | Explanation |
|-----------------------------------|-------------|
| Helps with eating | |
| Leaves messages | |
| Assists in hunting | |
| Serves as protection/self-defense | |
| Keeps fish/amphibian eggs safe | |
| Causes bacteria/germs to thrive | |

Inspired by Slime

pp. 11–12, Expository Nonfiction

While children are busy playing with slime, scientists are busy using slime to improve the world. Students will learn how this sticky substance may help revolutionize medical procedures, as well as create better and more environmentally friendly consumer products.



RESOURCES

- Slimy Solutions

OBJECTIVES

- Students will learn how slime is inspiring scientists to create new fibers, products, and medical technology.
- Students will identify problems and solutions.
- Students will create a comic strip that presents information in a fun and entertaining way.

KEY VOCABULARY

- **armor (p. 13)** defensive covering used to protect the body
- **fabric (p. 12)** cloth typically produced by weaving textile fibers
- **predator (p. 11)** an animal that naturally hunts others

ENGAGE

Conversation Question: What is the function of slime in the natural world?

Distribute the article, “Inspired by Slime,” and instruct students to explore the text and study the graphics to activate prior knowledge. Create a Know, Want to Know, Learned (K-W-L) chart on the board and list student responses. After completing the activity, solicit statements from students for the “Learned” column.

INTRODUCE VOCABULARY

Post the key vocabulary words and their definitions on the board, purposely matched incorrectly. Challenge students to make the correct connections and then use each word in a sentence.

READ & DISCUSS

Reinforce comprehension of the concepts in this article by using the following prompts to direct discussion.

- Why are scientists studying slime found in the animal world?
- Explain how it would be possible for slime to replace stitches.
- How can slime help scientists create a more “ocean-friendly” sunscreen?

CONCEPT/SKILL FOCUS: Problems and Solutions

INSTRUCT: Direct students to reread the article and highlight passages that discuss solutions to problems that scientists are working to solve. Have students use the organizer to identify and record the problem/solution relationships in the article.

ASSESS: Examine the information students listed on their charts. Evaluate the thoroughness and accuracy of their written statements. If errors are noted, direct students to return to the text to make corrections.

EXTEND

Graphic Arts Have students create a comic strip that depicts one of the problem/solution relationships. (Three frames work well.) Stress that the goal of this comic strip is to entertain while teaching the reader.

Slimy Solutions

Use information from the article to identify problems and solutions.

| Problem | Solution |
|-------------------------------------------------------|--------------------------------------------------------------|
| Snails and slugs are vulnerable to predators. | They create a gel that stops the predators' attempts. |
| Stitches and staples are a crude way to close wounds. | |
| | Hagfish eels release little packets of slime into the water. |
| | |
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| | |

The Snail's Two Slimes

pp. 14–15, Expository Nonfiction

This article will take readers along the slippery, slimy pathway of a periwinkle snail. Students will learn how these snails produce two kinds of slime that perform very different functions.



RESOURCES

- A Snail Tale

OBJECTIVES

- Students will learn about the two kinds of slime that snails produce.
- Students will compare and contrast two kinds of slime.
- Students will create analogies using words and concepts from the text.

KEY VOCABULARY

- **tide (p. 14)** the regular upward and downward movement of the level of the ocean that is due to the pull of the moon and the sun. There are usually two high tides and two low tides in one day.
- **salt marsh (p. 14)** an area of coastal grassland that is regularly flooded by seawater
- **stalk (p. 15)** the main stem of a plant

ENGAGE

Conversation Question: What is the function of slime in the natural world?

Distribute drawing paper and ask the students to draw a snail and its surroundings. Allow students to roam around the classroom and observe their classmates' drawings. Ask, "What common features appeared in the drawings?" After reading the article, have the students amend their illustrations, incorporating new information from the text.

INTRODUCE VOCABULARY

Define the key vocabulary terms with the class. Make a word web using these words and other relevant words and phrases from the article.

READ & DISCUSS

Arrange the students into groups of three. Instruct the groups to read the article together and then discuss the questions below. Check understanding by reviewing groups' responses as a whole class.

- Why does slime cover a snail's whole body?
- How do snails crawl vertically up surfaces?
- Explain how periwinkle snails behave differently during low and high tides.

CONCEPT/SKILL FOCUS: Compare and Contrast

INSTRUCT: Following the READ & DISCUSS activity, have students remain with their small groups. Challenge them to note the way the article presents information "in twos" (slimy slime/sticky slime, high/low tide behaviors). Review the skill of efficiently comparing and contrasting information and distribute the graphic organizer. They may complete *A Snail Tale* as a group; however, instruct them to write the paragraph using this information independently.

ASSESS: Collect the graphic organizer to determine if students were accurately able to compare/contrast information from the article. Evaluate further understanding by critiquing their independently written final paragraph.

EXTEND

Language Arts Teach a mini-lesson reminding students that an analogy connects two otherwise unlike things using a comparison or relationship. Provide a basic model. (*Bird is to fly as fish is to swim. Hot is to cold as light is to dark. Small is to tiny as big is to huge.*) Examine the relationships of the words in these examples. Ask students to use words/concepts from the article to create five of their own analogies. Compile a master list of the strongest analogies, leaving a blank in each set of words for the class to solve.

A Snail Tale

Compare and contrast the two kinds of slime produced by the periwinkle snail.

SLIPPERY SLIME

VS.

STICKY SLIME

| How are they alike? | How are they different? |
|---------------------|-------------------------|
| | |

Use your notes above to write a paragraph that compares and contrasts the two slimes.
