

ask

Perfect Poison

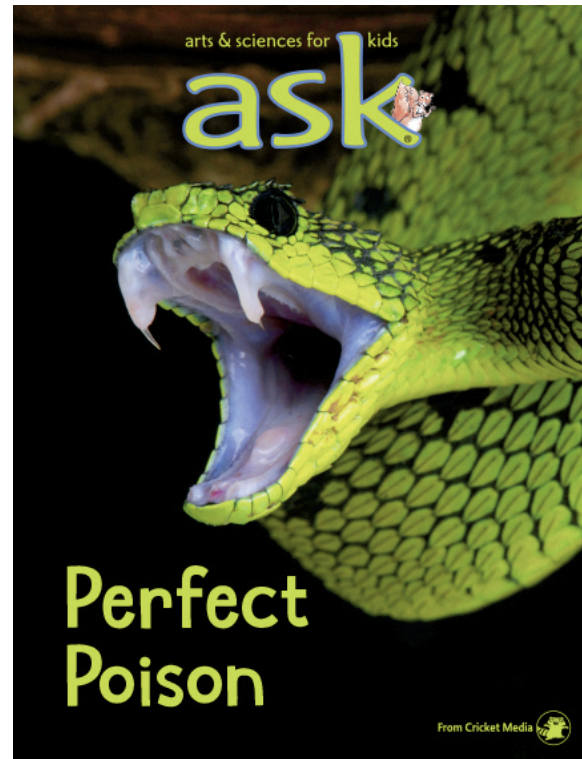
Pick your poison! Students learn about how poisons are used in the natural world and how learning about toxins can help save lives.

CONVERSATION QUESTION

How can poisons be both dangerous and helpful?

TEACHING OBJECTIVES

- Students will learn how plants use poisons to protect themselves
- Students will learn why cone shells are so deadly
- Students will learn about what causes a substance to be either poisonous or helpful
- Students will construct an explanation using article examples
- Students will identify cause-and-effect relationships
- Students will obtain and evaluate information
- Students will make a map of the location of poisonous plants
- Students will create a group presentation based on research
- Students will create an informative piece to convey a message about substance use



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

- **Plants That Poison**
Expository Nonfiction, ~650L
- **On the Trail of a Snail**
Cartoon, ~850L
- **Poison or Medicine?**
Narrative Nonfiction, ~750L

Plants That Poison

pp. 6–11, Expository Nonfiction

Use this article about poisonous plants to support constructing explanations using examples for evidence.



RESOURCES

- Constructing Explanations

OBJECTIVES

- Students will learn how plants use poisons to protect themselves
- Students will construct an explanation using article examples
- Students will make a map of the location of poisonous plants

KEY VOCABULARY

- **threatened (p. 6)** in danger of being harmed
- **chemicals (p. 7)** substances made by a chemical process
- **paralyzing (p. 8)** making (a person or animal) unable to move or feel all or part of the body
- **tolerance (p. 9)** the ability to accept, experience, or survive something harmful or unpleasant

ENGAGE

Conversation Question: How can poisons be both dangerous and helpful?

Create a list of poisonous plants known by the students. Ask the following questions to engage prior knowledge of topic:

- Why might some plants make poison?
- How does the poison work?
- Are all poisons the same?
- Can plant poisons ever help humans?

INTRODUCE VOCABULARY

Project the vocabulary words and have students search for these words in the article with a partner. Have students use the text to help define each word in context of the topic. Review the meanings in class to share and compare the meanings.

READ & DISCUSS

Have students read the article with a partner, and then use the following prompts in a class discussion to address the conversation question:

- What makes something poisonous?
- What different ways do plants use poisons?
- When are plant poisons helpful to other organisms?

CONCEPT/SKILL FOCUS: Constructing Explanations

INSTRUCT: Explain that the plant examples in the article provide evidence to help support an explanation to the conversation question: How can poisons be both dangerous and helpful?

Have students read the text a second time and record evidence in the *Constructing Explanations* graphic organizer and then write their own responses to the conversation question.

ASSESS: Have students compare their explanation with a partner and discuss how the examples they chose supported their responses.

EXTEND

Social Studies Have students research locations of the plants described in the articles. Students can make a map using a legend to show the areas where the plants grow.

On the Trail of a Snail

pp. 18–23, Expository nonfiction

Use this article about poisonous cone shells to help students determine how biologists use cause-and-effect relationships.



RESOURCES

- Cause-and-Effect Chart

OBJECTIVES

- Students will learn why cone shells are so deadly
- Students will find cause-and-effect relationships
- Students will create a group presentation based on research

KEY VOCABULARY

- **proboscis (p. 19)** the long, thin nose of some animals
- **barb (p. 19)** a sharp point that sticks out and backward
- **paralyze (p. 19)** to make (a person or animal) unable to move or feel all or part of the body
- **venom (p. 19)** poison that is made by an animal and used to kill or injure another animal, usually through biting or stinging
- **toxin (p. 20)** a poisonous substance and especially one that is produced by a living thing

ENGAGE

Conversation Question: How can poisons be both dangerous and helpful?

Show images of cone shells and ask students to share if they have seen this type of shell before. Then ask if they know anything about the creature that makes and lives in this shell. Record any information they share. Explain that they will be reading about the cone shell and the strong poisons it produces.

INTRODUCE VOCABULARY

Have students look on pages 19 and 20 to find the vocabulary words in the article. With a partner have students creatively show the meanings of the words to share with another group. Encourage students to act out the words, create a drawing, or use the words in a rhyme or five-sentence story.

READ & DISCUSS

Have students read the article with a partner, and then use the following prompts in a class discussion:

- How does the cone shell use poison?
- Why are scientists interested in the different toxins used by cone shells?

CONCEPT/SKILL FOCUS: Cause and Effect

INSTRUCT: Explain that biologists use cause and effect to learn about animals. Ask students to identify what questions Baldomero Olivera was trying to answer. Write these questions where they are visible to the class. Examples: What makes cone shells so deadly? What are the different kinds of poisons made by a cone shell? How does each toxin work? How can these chemicals help people? Discuss how research is directed toward answering these questions by finding out the cause and effect of each kind of poison.

ASSESS: Have students review the article to identify the cause-and-effect relationships described and record them on the *Cause-and-Effect Chart*. Have students share their charts in a small group and discuss their findings.

EXTEND

Language Arts Ask students research to find information, video clips and images of different cone shells and share their findings and create a group or class presentation.

Cause and Effect

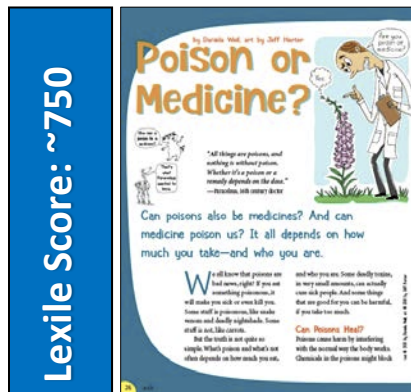
Use this chart to organize the cause-and-effect relationships found in the article that relate to biology questions about cone shells.

Page	Cause	Effect

Poison or Medicine?

pp. 26–28, Expository Nonfiction

Use this article to help students obtain information about what causes the same substance to be either a poison or a medicine.



RESOURCES

- Collecting Information

OBJECTIVES

- Students will learn about what causes a substance to be either poisonous or helpful
- Students will obtain and evaluate information
- Students will create an informative piece to convey a message about substance use

KEY VOCABULARY

- venom (p. 26)** poison that is made by an animal and used to kill or injure another animal, usually through biting or stinging
- toxin (p. 26)** a poisonous substance, especially one that is produced by a living thing
- chemicals (p. 26)** substances made by a chemical process
- antidote (p. 27)** a substance that stops the harmful effects of a poison

ENGAGE

Conversation Question: How can poisons be both dangerous and helpful?

Read the article opener with your class: “Can poisons also be medicines? And can medicine poison us? It all depends on how much you take—and who you are.” Ask students to share ideas about what they think this means and if they have an example.

INTRODUCE VOCABULARY

Display the vocabulary words and have students locate them within the article. Ask students to explain what the words mean in context of the topic. Answer questions and clarify any misconceptions about the meanings of the words.

READ & DISCUSS

Have students read the article. Then use the following prompts in a class discussion to address the conversation question: How can poisons be both dangerous and helpful?

- What characteristics make something a poison?
- What characteristics make something a medicine?
- How can something be considered both a poison and a medicine?
- What are important rules for eating or using any substance?

CONCEPT/SKILL FOCUS: Obtain Information

INSTRUCT: Explain that this article is filled with examples and information to help the readers learn about poisons and when poisons can be useful as medicines. Distribute copies of the *Collecting Information* graphic organizer and review the example entry. Have students search for additional information and add it to the chart.

ASSESS: Use the graphic organizer to assess if students recorded information that explains how substances can be both poisonous or medicinal depending on dosage and use.

EXTEND

Language Arts Have students create a poster or public service announcement that shares information about how medicines or food can be poisonous to people or animals.

