

How Plants Protect Themselves

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| Grade(s): 3-5 | Topics: Predation, Plant Animal Interactions, Ecosystems, Insects | Season: All |
| Timing: 60 minutes, including 5 minute RPK, 10 minute introduction, 10 minute Plant Defense game, 15 minute outdoor exploration, 15 minute indoor art activity, and 5 minute conclusion | | |
| Objectives: <ul style="list-style-type: none">• Students can explain that plants cannot move like people and other animals, but they have many different ways of protecting themselves• Students can categorize protection strategies into texture, taste, smell, and strength and give examples of how each strategy works against a predator• Students are able to explain that while plants have defenses, predators can still sometimes beat them | | |
| Materials: <ul style="list-style-type: none">• Examples of plants that have different protection types (see below)• <i>Plant Protection Scavenger Hunt</i> worksheets• <i>Plant Defense</i> game signs / labels, enough for half the class to be a type of defense and the other half of the class to be predators• Manipulatives for <i>Plant Defense</i> game• Craft supplies for Build a Protected Plant (optional: students can also draw)<ul style="list-style-type: none">○ egg cartons cut up for flowers○ unraveled yarn for fuzz○ strips of tissue paper to represent bad smells/taste○ construction paper, some crinkled for rough bark○ sand paper for roughness○ card stock cut in small triangles for thorns○ pipe cleaners cut in half for fuzzy stems• Examples of built protected plants or protected plant drawings to use as example | | |
| Degree of need for extra teacher or parent helper? Medium | | |
| Journal Prompt: How can plants protect themselves, even though they can't move? | | |
| Lesson Sequence: Reactivate Prior Knowledge (5 minutes) Pass around a burr, stinging nettle, rose thorn, etc. if possible and ask students if they have ever encountered this type of plant before. How did it feel when they touched it and where were they when it happened? Why might the plant have those type of features that are so uncomfortable to touch? Introduction (10 minutes) Ask the students for ideas about what could hurt a plant such as an orchard tree (insects, people, animals, disease). What challenges does a plant face? What gets in the way of its survival? What are ways that plants are able to deal with their predators? How do they grow? Tell them that plants can't run away like people or other animals but have other ways of protecting themselves. What are some ways that plants protect themselves? If the students need help, mention some of the defenses below and show examples, but encourage them to think about how they have experienced plants and what they didn't like | | |

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about plants they have come across (spines, irritation, etc) since they are also plant predators.

Strength (bark, hard shell): Any tree bark will demonstrate this, but maple, black locust, and oak are good examples, and nuts like acorns demonstrate this too
Smell (strong smell unpleasant to a predator): marigold, onion, herbs like mint, sage
Touch (fuzzy, sharp, itchy, waxy leaves/stems): lamb's ear is fuzzy, rhododendron and azalea leaves are waxy, roses and raspberries or blackberries are thorny
Taste (toxic or unpleasant taste): spirea has a strong taste, milkweed and nightshade are toxic

Plant Defense Game (10 minutes)

Assign each student to be either a plant with a particular defense mechanism (give out signs or labels) or a plant predator and give each child 5 manipulatives to start. Tell them that they have to find a partner (plants find predators and vice versa) and play rock paper scissors. Whoever loses gives 1 of their manipulatives to their opponent. After the round ends they each find a new partner. Have students play for about 5 minutes and then have everyone count how many manipulatives they ended up with. Tally for plants and predators. By the end of the game students should be able to explain several types of plant defenses, as well as develop a comfort with the idea that plants and predators are in a balance, where both win sometimes, but not always.

Outside Exploration (15 minutes)

Go outside and look for examples of some types of plant defenses. Waxy leaves and thorns should definitely be visible, as well as tree bark and potentially some fuzzy plants/leaves.

At the end, circle students up and do a survey of what they found and couldn't find. Ask what kind of protection people have. (Examples could include houses, locks, clothes, umbrellas, helmets, weapons, skin, eyelashes, eyebrows, skull, ribs, and fat.)

Build a Protected Plant (15 minutes)

Tell the students that there are many different kinds of plants beyond the ones that you showed them. Challenge them to "invent" a plant that has one or more of the protection types. Encourage creativity and originality.

Students can draw their protected plant if preferred, or make it out of different materials. If they are constructing the plant from materials, they should take 5 minutes to decide what they are going to make before they ask for the materials they would like.

Conclusion (5 minutes)

Share their Protected Plant creations and talk about how each one works. Review what they learned about how plants protect themselves using smell, taste, strength, and touch.

Vocabulary

Fuzzy
Odor
Poison
Protect
Thorn

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Toxic
Waxy

Vocabulario

Olor
Proteger
Espina
Tóxico
Velloso
Veneno

Extensions / Homework Ideas: