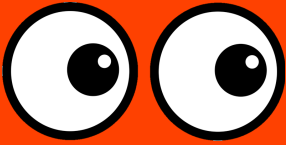


DEFENSE *against the* BARK ARTS

ANSWER
KEY



Watch the video to learn more about plant defenses and then answer the comprehension questions below.



Comprehension Questions

1

What is lignin and what part of the tree does it protect?

Lignin is a rigid web of compounds that is tough to chew and highly impermeable to pathogens. It is found in tree bark and protects the trunk.

2

What is the difference between a physical/mechanical defense and a chemical defense?

A physical defense is a structural defense designed to protect the plant. A chemical defense includes toxins and other chemicals that the plant releases.

3

Name and describe 3 specific plant defenses mentioned in the video.

Some trees have thorns to defend themselves. Stinging nettle leaves have sharp hairs called trichomes that release chemical irritants. The mimosa plant retracts its leaves when touched, which scares insects away and makes the leaves appear less appetizing to animals.

4

True or false: plant immune systems are unlike animals' because only certain cells can detect and defend against invaders (*circle one*).

TRUE

FALSE

5

True or false: many spices produced by plants are chemical defenses that protect them from microbes and insects (*circle one*).

TRUE

FALSE

6

True or false: some plants form "alliances" with other species like parasitic wasps by releasing chemicals into the air (*circle one*).

TRUE

FALSE



Conduct some research of your own on tree defenses.

You can search the Internet or consult books or knowledgeable sources.

Summarize your discoveries below. Give specific examples when able.

Teacher tip: you may choose to focus on specific tree species to help guide students. Some trees with interesting defense strategies include black walnut (sends chemicals into the soil as it grows that prevent other species from growing there), the silk floss tree (grows thorns on its trunk, likely to protect its fruit from hungry animals), and the willow tree (releases chemicals in the air when it is being eaten by insects to warn other nearby willows of the threat).

DESIGN CHALLENGE

S.O.S.! A tree is in trouble and needs YOUR help!

Can you help the made-up "lamshaw tree" by picking 2 defenses that would protect it from the threats described?

The lamshaw tree in Northern California has delicious green leaves that grow on branches that hang low to the ground. Grazing deer and hungry caterpillars like to eat lamshaw leaves for their moisture and nutrients. The lamshaw also grows large fruits that look like grapefruits but taste like strawberry shortcake! Humans love to eat these fruits because they get all the flavor of cake without the calories and this makes them feel less guilty when they tell their doctors about their diet. Often, humans will take every fruit off of the tree, leaving the tree without any seeds to reproduce.

Lamshaw Tree Defenses

Defense #1

Describe the first defense mechanism that you chose and why you picked it.

Example: The lamshaw fruits develop a chemical irritant in their skin to discourage animals from collecting and eating its fruit.

What type of defense is this? (*circle one*)

PHYSICAL

CHEMICAL

Defense #2

Describe the second defense mechanism that you chose and why you picked it.

Example: The lamshaw leaves grow small hairs that get stuck in the throats of animals that eat them, like deer, causing them to eat fewer leaves.

What type of defense is this? (*circle one*)

PHYSICAL

CHEMICAL

Imagine what the lamshaw tree could look like and draw it below. You may choose to label its defenses, include the animals and insects that threaten it, or add color. Be creative!

