Plant Defenses Reading

PART I

Name _____
Date _____
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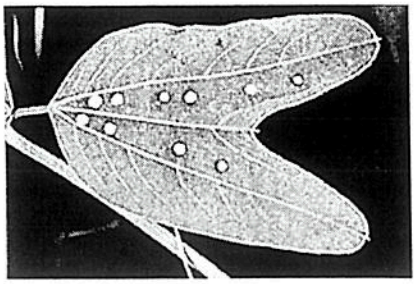
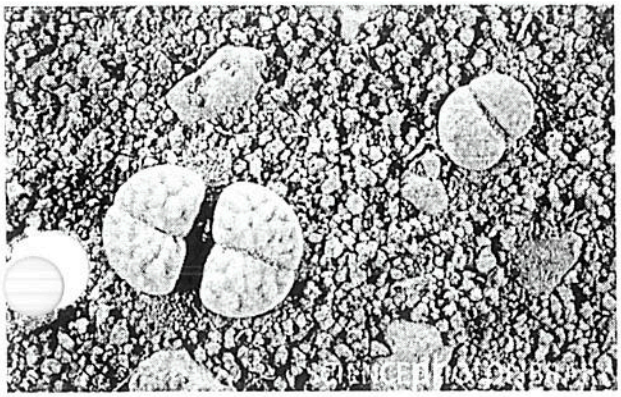
THE SECRET LIFE OF PLANTS

Plants are stuck in the ground and can't run from enemies. So how do they survive?



The passionflower vine has a problem: butterflies lay eggs on them. When the caterpillars hatch from the eggs, they eat the vine's leaves. This is bad for the vine. To protect itself, the vine grows little yellow bumps, which look a lot like butterfly eggs. Butterflies think the leaf is crowded with "eggs," so they fly on by to find another spot!



In the African desert, animals eat plants to get water. The stone plant hides from animals that might eat it by looking just like hard, dry rocks. If animals don't recognize that it is a plant, they won't try to eat it for food or water!

Adapted from: Seeber, Barbara H. "The Secret Life of Plants." *National Geographic Explorer! (Vol. 9, No. 3)*. Nov/Dec 2009: 14+. *SIRS Discoverer*. Web. 24 Jan 2012.

TREES "CRY OUT"

Q: *Can trees "cry out" in pain to warn other trees of danger? What could the other trees do about it?*

A: Certain trees under attack by chewing insects (like caterpillars or beetles) send out a "cry" for help. The "cry" isn't really a "shout," though! It is chemicals that are released by the tree, and go into the air. These airborne chemicals move through the air, toward nearby trees. The chemicals are a stimulus to neighboring trees. The tree neighbors respond by producing chemicals in their leaves that make the leaves taste bitter. Yuck! When the chewing insects land on these trees, the insects don't want to eat the bitter-tasting leaves, so they move on to another plant.

Trees can also use this kind of chemical signal to attract "help"! The "help" are parasites or predators of the attacking insects. For example, when bark beetles (insects) attack some trees, the trees produce the chemical ethanol. The ethanol in the air is a stimulus to woodpeckers who smell it. The woodpeckers respond by flying to the tree and eating the bark beetles.

"So plants don't only warn each other," says Dr. Schultz, an entomologist (bug expert) from Penn State Univeristy. "They also call in friends!"

Adapted from; Sones, Bill, and Rich Sones. "Strange but True (September 2001)." *Boys' Life*. Sept. 2001: 10. *SIRS Discoverer*. Web. 24 Jan 2012.

http://www.sciencephoto.com/media/25433/enlargehttp://webecoist.momtastic.com/2010/02/15/deception-trickery-in-plants-12-masters-of-disguise/, (image via: morning-earth.org)
http://news.discovery.com/animals/beetles-acoustic-stress-heavy-metal-music.html

Plant Defenses Questions

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First, read your article and number the paragraphs. Then, answer the questions about the reading, and provide the number of the paragraph in which you could find the answer.

1. What are spines? Thorns? Prickles?

2. How do spines, thorns, and prickles help a plant defend or protect itself?

3. Provide two examples of how plants use toxins, or poisons.

4. Describe the example of plants and insects working together.

5. From what is the mimosa protecting itself? How does it protect itself?

6. From what are corn plants trying to protect themselves?

	Para. #	organism	stimulus	external (E) or internal (I) stimulus	response
1.	4	mimosa		E	
	How does this help the plant defend/protect itself?				
2.	5	corn		E	
3.	7	wasp		E	
	How do these stimuli and responses help the plant defend/protect itself?				