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Plant Partners

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Plant Partners

By Rene Ebersole

- *Despite their clean image, **plants** can be ruthless tricksters. They can even be killers.*

Plants may seem harmless. They don't have long fangs or sharp claws. Even pointed thorns don't hurt too much. Yet **plants** have found many ways to get what they need from **animals**. Some lure bugs with flashy flowers. Others use sweet syrup to attract birds. Still others grow seeds with hooks that latch onto fur. Some even make meals out of unsuspecting **animals**.

Plants Need Partners

Believe it or not, **plants** need **animals** at almost every stage in their lives. To see how this works, let's start at the beginning of a plant's life. Many **plants** are rooted to the ground. They can't move much. They depend on birds, bees, and other **animals** to do the moving for them.

This starts with pollination. Pollination takes place when **pollen** moves from one plant to another. This is how **plants** reproduce.

Pollination Problems

Most of the time, **plants** pollinate other **plants**. This causes a big problem. Since **plants** can't get around, they have to find ways to move pollen. This is no easy chore.

Of course, wind helps out. It can blow pollen around. Wind isn't always reliable, though. It can blow in any direction. It may also be calm when the pollen is ready.

That's where **animals** come in. **Animals** that help with pollination are called pollinators. These include birds, bees, and butterflies.

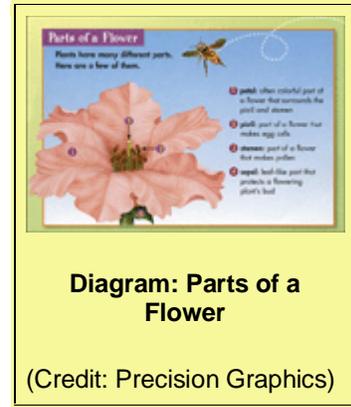
Plants use many ploys to draw pollinators. Some grow red and yellow patterns to attract butterflies. They may also have broad petals that can be used as landing pads.

[\(See picture, "Diagram: Parts of a Flower."\)](#)

The black-eyed Susan has yellow petals with a black middle. To a bee, that looks like a bull's-eye. It zooms in to find **nectar**. While it's sipping, the bee picks up pollen. Then it buzzes off with the pollen in tow.

Flower Power

The bird of paradise has a different way to attract pollinators. This beautiful plant is custom-made for a hummingbird's long bill. The bird sips the flower's energy-packed nectar. Like a bee, it picks up pollen. It drops off the pollen as it flies from flower to flower.



Not all **plants** are as pretty as the bird of paradise. Some don't have bright colors. Others don't even smell good. Still, they have ways to attract pollinators.

One flower, for example, uses a really bad smell. It smells like rotten eggs or decaying flesh. Few **animals** are brave enough to go near it. Yet it does attract a few kinds of **animals**.

The horrible smell brings in flies--lots of flies. The flies buzz around. They land on the flower. They pick up pollen. Then they carry bits of pollen from one flower to the next.

It just goes to show: Everyone and everything has a favorite flower.

Movers and Shakers

A plant grows seeds after it is pollinated. **Plants** have to scatter their seeds about to survive. After all, the seeds can't all grow in the same spot. Spreading seeds is called seed dispersal.

Plants spread seeds in many ways. Take jewelweed, for example. It does it with an explosion. This plant has pods that split open and fling seeds. What triggers the blast? Maybe a gust of wind.

Many **plants** aren't able to move their seeds with wind. They depend solely on **animals** to truck their seeds to places far and wide.

Take squirrels, for example. They gather acorns in the fall. Acorns are really seeds. Squirrels hide acorns in secret places, but the squirrels don't always go back to their hidden seeds. In spring, the uneaten seeds sprout into new oak trees.

You may also have helped to spread seeds. Burrs are seeds that have tiny hooks. The hooks can latch onto animal fur and human clothing. If you have ever found a burr on your sock, then you carried a plant seed.

Meaty Meals

Some **plants** don't stop at tricking **animals**. They eat **animals**. At least 400 kinds of **carnivorous plants** grow in the wild. These meat-eaters capture, kill, and eat **animals**.

The Venus flytrap is the most famous of the meat-eating **plants**. True to its name, its meal of choice is the fly. But that doesn't mean it won't enjoy an unlucky spider or ant.

Venus flytraps capture insects with a hinged set of spiked leaves. These leaves look like steel jaws. Yet they are covered with sensitive hairs that trigger the jaws to close. When an insect lands on the

leaves, it brushes against the hairs. When that happens, the trap snaps shut!

The plant can't swallow a bug whole. It coats the insect with chemicals. These are called **digestive enzymes**. The chemicals turn a fly into a yummy drink.

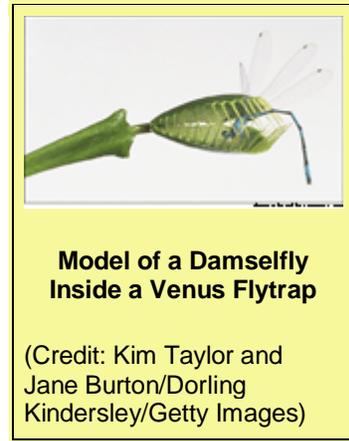
You might want to be careful the next time you see a plant. Don't be fooled by the bright colors. Don't be tricked by the pretty scent. Before you know it, you might be working for the plant.

How a Venus Flytrap Works

- A damselfly lands on a Venus flytrap. Long hairs line the plant's hinged leaves. When the bug brushes against them, the leaves snap shut.

[\(See picture, "Model of a Damselfly Inside a Venus Flytrap."\)](#)

- The plant coats the insect in chemicals called digestive enzymes. They break down the bug's body, turning it into a drink.



Wordwise

carnivorous: eating meat

digestive enzyme: chemical that breaks down food

nectar: sweet liquid made by a plant

pollen: powdery substance that helps **plants** reproduce

Vocabulary

Direct students to the glossary above. Read aloud each sentence below and ask which glossary entry best fills the blank.

- Bees spread _____ from plant to plant. (*pollen*)
- Hummingbirds drink _____ from flowers. (*nectar*)
- _____ turn bugs into food for Venus flytraps. (*Digestive enzymes*)

Before Reading

Ask students to identify ways in which **animals** use **plants**. (*Possible answers: eating **plants**, living in trees, using twigs for nests, hiding in bushes*) Then ask if they're surprised to hear that **plants** can use **animals**. Can they think of how?

Fast Facts

- Carnivorous **plants** tend to live in soil that lacks nutrients. Eating insects is a way of getting minerals that are not otherwise available. This is a supplement to their main diet, obtained through photosynthesis.

- Berries and fruits help **plants** coax **animals** into eating, and thus dispersing, seeds.

- Some varieties of acacia seeds are prone to beetle infestations. If the seed passes through the body of an elephant or other mammal, however, the animal's digestive juices kill the beetles, enabling the seed to survive and germinate.

Comprehension Check

Read each question aloud or print a handout from our website.

- Why do **plants** need help from **animals**? (*Being rooted to the ground, **plants** can't move. They need **animals** to spread pollen and seeds.*)

- What are some **animals** that spread pollen? (*bees, butterflies, birds, flies*)

- How do squirrels help oak trees? (*Squirrels bury acorns, which are seeds, in different places. Uneaten acorns sprout and grow.*)

- What is the most famous carnivorous plant? (*Venus flytrap*)

Critical Thinking and Writing

- **Cause/Effect:** Copy and distribute the "Plant Possibilities" work sheet (below) for pupils to complete.

- **Analysis:** Have students write a paragraph that tells how seed dispersal benefits a plant species. (*Possible answers: Seedlings are not competing for resources with one another or their parent plant. Dispersal gives seeds more opportunities to land in good soil. If catastrophe befalls one habitat, it won't wipe out the species.*)

- **Inference:** Ask students to hypothesize about what might happen to an oak forest if its squirrel population declined. (*Possible answer: With fewer squirrels spreading acorns, oak seedlings might decrease in number.*)

Extension Activity

- **Science:** Form six groups. Assign each group to research and report on one of the following carnivorous **plants**: bladderwort, butterwort, cobra lily, pitcher plant, sundew, waterwheel.

Plant Possibilities

Read "Plant Partners" above. Use what you learn to complete the cause/effect chart below.

Cause

Possible Effects

A bee lands on a black-eyed

Susan. _____

A gust of wind hits a jewelweed
pod. _____

A squirrel buries acorns.

A bug lands on a Venus flytrap.

A hummingbird sips nectar from a bird of
paradise. _____

A Venus flytrap coats an insect with digestive enzymes.

A burr hooks onto an animal's
fur. _____

Review

Circle the correct answer to each question below.

1. How do plants use animals?

- a. Some **plants** rely on **animals** to carry pollen to other **plants**.
- b. Some **plants** rely on **animals** to spread seeds.
- c. Some **plants** eat **animals**.
- d. all of the above

2. Which plant is carnivorous?

- a. black-eyed Susan
- b. jewelweed
- c. oak
- d. Venus flytrap

3. Which chemicals turn insects into food for a carnivorous plant?

- a. antioxidants
- b. beta blockers
- c. digestive enzymes
- d. pollenin acids

Answer Key

1. d, 2. d, 3. c

