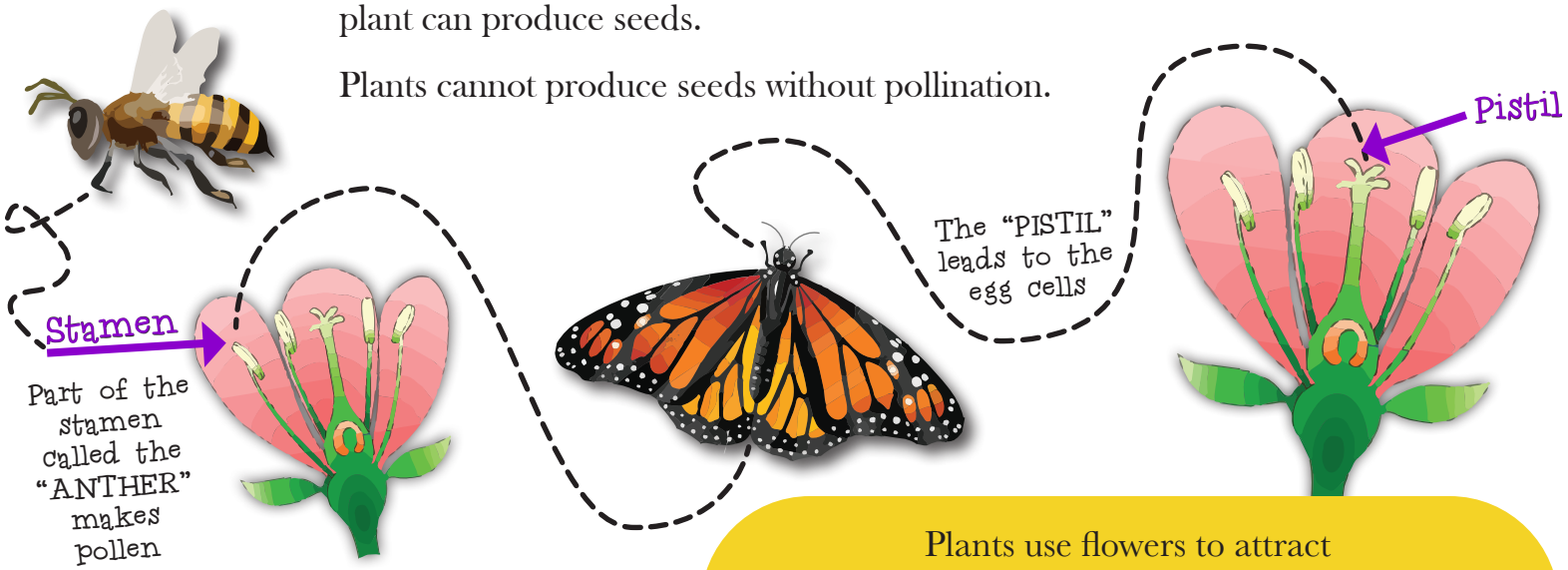
KIDS CONNECTION

A Pollinator Party: Partners in Agriculture

POLLINATION is an important part of the life cycle of plants. Pollen are microscopic, powder-like grains produced in the stamen (the male reproductive organ of a flower). During pollination, or the transfer of pollen, the pollen moves from the stamen to the pistil (the female reproductive organ) of a flower. Once the male and female cells unite, the plant can produce seeds.

Plants cannot produce seeds without pollination.



There are two methods of
POLLINATION

Cross-pollination
Pollen is transferred between flowers on two different plants.

Self-pollination
Pollination occurs within just one flower or between flowers on the same plant.

Plants use flowers to attract
POLLINATORS

Pollinators feed on nectar, a sugar-rich liquid. As a pollinator feeds on a flower's nectar, the pollen attaches itself to the pollinator's body. When the pollinator goes to another flower to feed on nectar, some of the pollen may rub off and pollinate that new flower.

Bees also collect the pollen, which is high in protein, to feed their young.

FUN FACT!

Honeybees are amazing flyers. They fly 15 miles per hour and beat their wings 200 times per second! Bees are responsible for 80 percent of the insect pollination of food eaten by people in the United States.

Pollinators Put Food on the Table!

Plants provide food, shelter and oxygen for other living things. Reproduction in plants and pollination are vital to agriculture and food production. Some foods we eat like wheat, corn, oats and rice are pollinated by the wind, but insects pollinate the majority of food-producing plants. About 1/3 of the food we eat comes from plants and trees pollinated by insects.

TREES

apple, pears, peach, apricot, nectarines
cherry, plum, persimmon, English walnut

SHURBS

blueberry, red raspberry, black raspberry, blackberry, gooseberry

FRUITS and VEGETABLES

bean, cantaloupe, cucumber, pea, pepper, pumpkin, soybean, squash, strawberry, tomato, watermelon, zucchini

SEEDS

sunflower, pumpkin, mustard, dill

FUN FACT!

Insects and animals pollinate about 75% of the plants grown for food, fiber, drinks and medicine worldwide.

Laws of Attraction

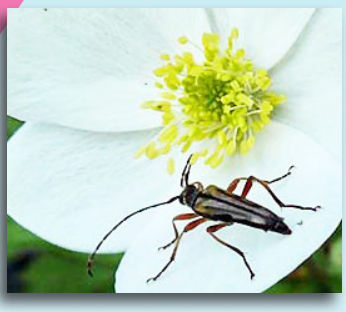
COLORS Bees are attracted to bright blue and violet colors. Hummingbirds like red, pink, fuchsia or purple. Butterflies choose brightly-colored flowers like yellow, orange, pink and red. Because they feed at night, bats and moths are attracted to pale colors.

SHAPES The shape of a flower also attracts pollinators. Butterflies prefer flowers with flat petals that provide a place for them to land. Beetles visit bowl-shaped flowers. Bats prefer large flowers that open at night, and hummingbirds like long, tubular flowers. Some plants have deep-throated flowers that only certain insects and birds can reach into to feed on nectar.

SMELLS Pollinators can use the sense of smell to locate flowers. Bats and beetles are attracted by fruity smells while flies love an unpleasant odor like rotting meat. Bees are attracted to sweet smelling and minty flowers. Birds have a poor sense of smell so they often pollinate flowers that don't smell at all.

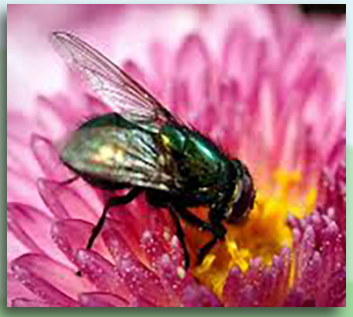
Most flowers are designed to attract specific pollinators. If you were a pollinator, what colors, shapes or smells would invite you to pollinate a flower?

check out these cool pollinators



beetles are attracted to large, bowl-shaped flowers. They only feed on pollen – not nectar. While they feed, they crawl over the flowers spreading the pollen that attaches to their bodies.

bats are important pollinators too. Over 300 species of fruit depend on bats for pollination. Bats feed on pale, fragrant flowers that open at night and the insects crawling on the the flowers.



flies are attracted to stinky smells; some are also attracted to nectar. Flowers that are pollinated by flies are maroon with unpleasant odors. As flies lay their eggs in flowers, they also deposit pollen.

Some plants release pollen to the surface or beneath the surface of **water**. On the surface, pollen floats to another flower. The pollen grains released beneath the surface are heavier and sink to the bottom to be caught by underwater flowers.

Most **birds** have a poor sense of smell, so they are attraced to shapes. They like long tubes that grow sideways or droop instead of standing upright.

butterflies spread pollen through contact. They have a long, hollow tongues that acts like a straw as they drink nectar. Butterflies prefer flowers with strong perfumes and brilliant colors like red, pink, orange, blue or yellow.

wind-pollinated plants do not need to rely on bright colors or smells to attract pollinators. The wind pollinates all grasses, most trees, and many agricultural crops like wheat, corn, grain sorghum, and prairie grasses. Some of these plants produce flowers that are long and feathery which allows the wind to blow the pollen off one flower and fall on or be caught by another flower.

Plants pollinated by the wind produce high quantities of lightweight pollen but most of the pollen never reaches its intended destination and does not result in pollination.

Click Here

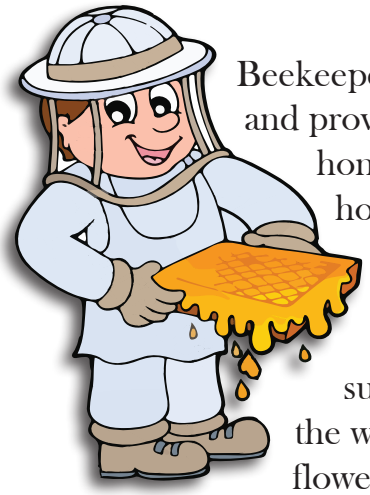
Learn about pollinators

National Assoc. of Conservation Districts: **The Pollinator Game**
http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/stpmcot12246.pdf

USDA: **Our Future Flies on the Wings of Pollinators**
http://www.fs.fed.us/wildflowers/pollinators/

PBS: **Pick the Pollinator**
http://www.pbs.org/wgbh/nova/nature/pollination-game.html

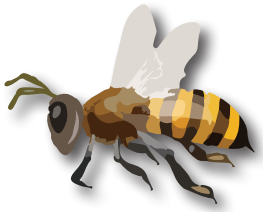
NeoK12: **Pollination Videos and Games**
http://www.neok12.com/Pollination.htm



Beekeepers, or bee farmers, build and provide hives (homes) where honeybees make and store honey. They also monitor the health of the bees and provide water and sugar necessary to the bees' survival, especially during the winter when there are no flowers blooming.

Honeybees produce two to three times more honey than they need. A single beehive can hold more than 100 pounds of extra honey! Beekeepers harvest the extra honey, leaving enough to feed the bees and encourage them to make more honey.

"BEE" a pollinator



You Will Need

- Juice Box
- Cheese Puffs
- Straw
- Flower Cut-outs

1. Select a juice box, cheese puffs, and a colored paper flower.

2. Lay a paper towel on your desk and set your juice box on it. Place a flower on top of each juice box and cheese puffs around the juice box.

3. Pretend you are a honeybee and drink a little nectar (juice) from your flower. As you drink, your tiny insect feet (your hands) pick up pollen (by touching your cheese puffs).

4. "Buzz" from flower to flower around the room and touch all of the other flowers to transfer "pollen" to each bloom you "land" on (making sure to only drink from your own juice box).

Kansas Department of Agriculture

Learn more about Kansas agriculture at www.ksagclassroom.org.

KFAC Kansas Foundation for AGRICULTURE IN THE CLASSROOM