

LESSON PLAN Step 3

How a Plant Attracts the Right Pollinator

Objectives

- Describe the complementary relationships between pollinators and the plants they pollinate.
- Identify adaptations that flowers have developed to “encourage” pollination.

Materials

- Copies of Activity Pages 3A and B and the Take-Home Page.
- Pens, pencils, crayons.

Subjects

- Science, language arts, art

Procedure

1. Begin the lesson by explaining that over time flowers have developed adaptations to ensure that the best pollinator (one that will carry pollen onto another flower of the same species) will return again and again.

Pollinators such as hummingbirds and honeybees have also adapted to ensure that they will have a plentiful food supply.

2. Give each student a copy of Activity Page 3A. Explain that you’re trying to determine which animal would make the best pollinator for the trumpet flower. Have your students study the pictures while you provide the following background:

- The trumpet flower is red in color, has an upside-down “tube” shape, has no “landing” spot, and has little fragrance.
- Hummingbirds have a poorly developed sense of smell; are attracted to the colors red, pink, orange, and yellow; “hover” at, rather than land on, their flowers; and have a long bill and tongue.

- Honeybees have a short proboscis, cannot see red, must land and crawl, and are attracted to sweet fragrances.

3. Have your students answer the questions on Activity Page 3A. (Is the honeybee or the hummingbird more likely to access the nectar? Is the shape of this particular flower more appropriate for a honeybee or a

hummingbird? Which pollinator would be more attracted to the flower’s color? Would a honeybee be lured by the trumpet flower’s scent? Is there a place for a honeybee to land? Which animal would make the best pollinator for the trumpet flower?)

4. Give each student a copy of Activity Page 3B. Remind them that flowers are designed to attract pollinators with specific tastes and attributes.

Have your students answer the following questions on Activity Page 3B:

What is your favorite color?

What is your favorite shape?

What smells good to you?

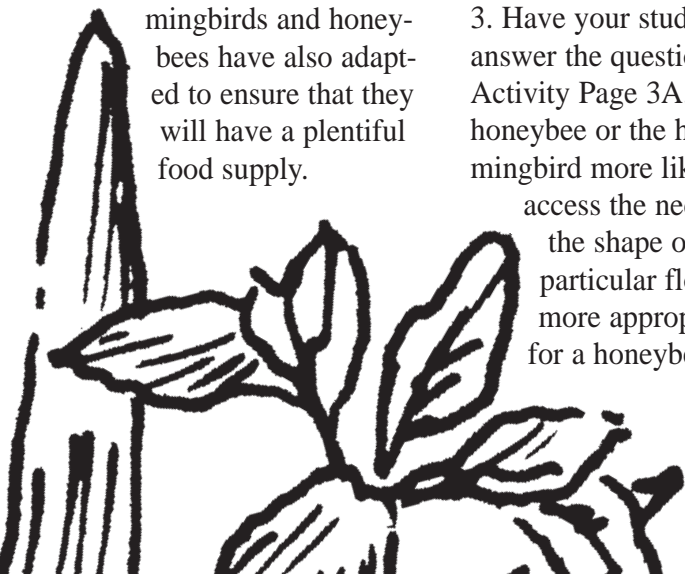
What is your favorite snack?

5. Have your students pair off. Instruct them to state their preferences, which they’ve listed on Activity Page 3B. Then have each of them draw simultaneously their

partner’s “designer flower.” For fun, have them make it as unreal as possible. For example, one might design a flower that is black, triangular in shape, smells like fresh-baked brownies, and provides pizza as a reward. Have each pair present their “designer flowers” to the class. As an extension, have the artist be the flower, designing “adaptations” suited to his or her partner’s preferences.

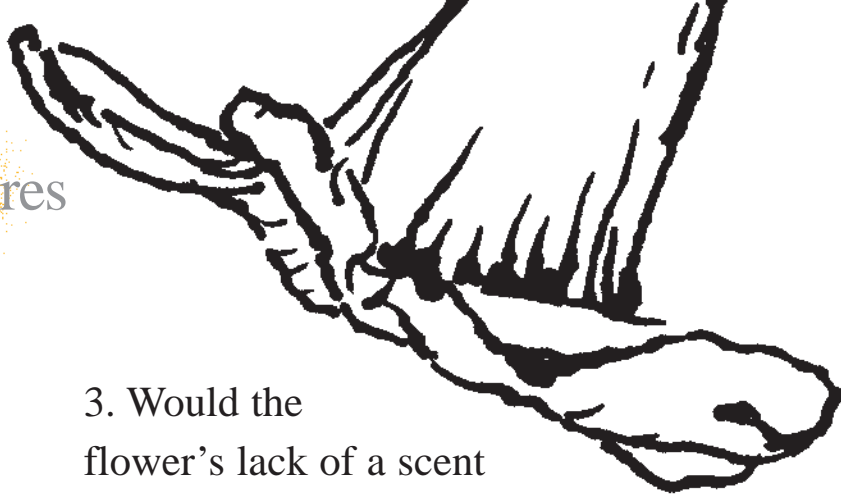
6. Direct your students to the Take-Home Page. Tell them to think up and draw a fictional pollinator-plant pair. (*For example, a flower that smells like Swiss cheese would likely attract a rodent pollinator.*)

Remind students that the goal is to get the animal to pick up the pollen and carry it to another plant of the same species. Have them list the attributes of the plant that attract the pollinator and the mechanism or mechanisms by which the pollinator carries the pollen to the next plant.



ACTIVITY PAGE 3A

Looking at Adaptive Structures



1. In the trumpet flower, the nectar is located at the bottom of the long, curved blossom. Which animal(s) are more likely to get nectar from the trumpet flower? Why?

2. Would the flower's color attract the honeybee? Why or why not?

3. Would the flower's lack of a scent turn away a hummingbird? Why or why not?

4. Does the trumpet flower have a place where a pollinator can land and crawl around?

5. Based on your observations, which animal do you think would make the best pollinator for the trumpet flower?



Design Your Own Flower

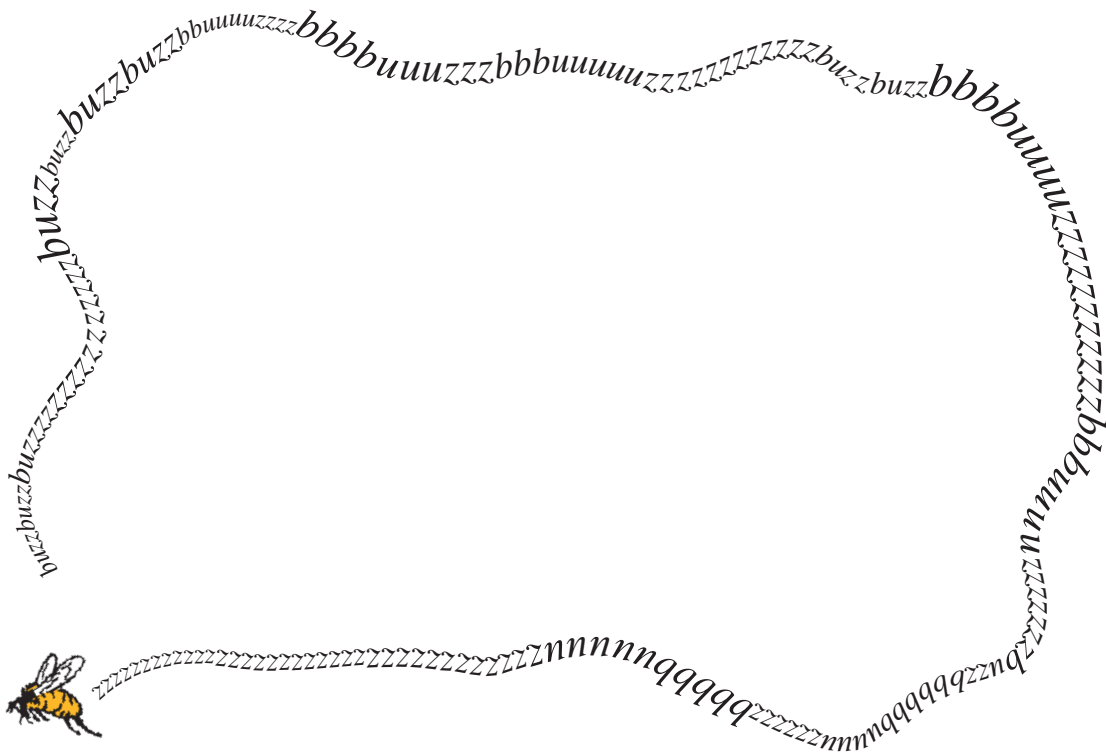
What is your favorite color?

What is your favorite shape?

What smells good to you?

What is your favorite snack?

My “Designer” Flower



2. Now imagine that you are a flower adapting to your partner's preferences. In the box above, create a "designer" flower to suit your partner's preferences. In the lines below, describe why the flower you designed would appeal to your partner.

TAKE-HOME PAGE

TRABAJO PARA HACER EN LA CASA

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Pollinator
Polinizador

Draw a real or made-up “pollinator” in the box above. Label your pollinator’s pollen-carrying structures.

Dibuja un polinizador real o imaginario. Nombra las partes del cuerpo que tu polinizador usa para dispersar el polen.

Flower Flor

Now try to draw a real or made-up flower that would attract your “pollinator.” Label the features of your flower that attracted your pollinator. Label the features of your flower that transferred its pollen grains to your pollinator’s body.

Dibuja una flor real o imaginaria que atraería a tu “polinizador.” Nombra las características de tu flor que atrayeron a tu polinizador. También nombra las partes de tu flor que transfirieron los granos de polen a tu polinizador.

