

## Activity 7.2.1 An Egg is not enough

### Purpose

Previously, you have learned about the importance of plant genetic material. The transfer of pollen from anthers to stigmas, called pollination, initiates the process of fertilization. How do pollen grains actually reach plant ovules?

For some types of inflorescence, pollen may fall from the anther to the stamen of the same flower to self-pollinate. How do dioecious flowers, such as corn, pollinate? How do plants cross-pollinate in nature?

Why is pollination important? What happens if plant egg cells are not pollinated?

### Materials

#### Per pair of students:

- Computer with Internet access
- *Activity 7.2.1 Pollination Scenario Cards*

#### Per student:

- Pencil
- *Agriscience Notebook*

### Procedure

Through this activity, you will research the various ways that plant flowers receive pollen. Then you will read scenarios describing pollination of 10 different plants and try to determine which method of pollination brought about the results described.

#### Part One – Identify the Agents

1. Your teacher will assign you and your partner a type of pollination to research.
2. Using the Internet, research the assigned various type of pollination. Record your findings in Table 1 on the student worksheet.
3. In the third column, mark whether the plant is most likely self-pollinated, cross-pollinated, or both.

4. Your teacher will direct you when to share researched pollination types. Share your information when it is your turn.
5. As other pairs share their pollination agent research, write a brief description of each in the space provided in Table 1.

### **Part Two – Expose the Agents**

1. Your teacher will provide you and your partner with a set of *Activity 7.2.1 Pollination Scenario Cards*.
2. Read the scenarios given and take note of a few clues that may help you determine how pollination was achieved.
3. Use the information from Table 1 to determine the type of pollination that has taken place. Record your responses in Table 2.
4. Your teacher will lead a class discussion and share the correct pollination agent for each scenario.

### **Conclusion**

1. How does flower shape and structure determine the type of pollination agent?

The shape and structure just attract different types of insects

2. If no pollination agents were at work, what would the effect on plant production be?

Less pollen for the plants and for the bees

6. Which type of pollination holds the most value for agriculture? Why do you believe this is so?

Cross-Pollination because it helps both the plant and the insects that get attracted to the plant.

7. What other factors may influence pollination rates?

The type of plants surrounding the pollination plant.

## Activity 7.2.1 Student Worksheet

**Table 1. Agents of Pollination**

Pollination Type	Description	Is the plant self-pollinated, cross-pollinated, or both?
<b>Anemophily</b>	Anemophily, or wind pollination is a form of pollination where pollen is distributed by wind.	Cross-Pollination
<b>Cantharophily</b>	Cantharophily or Beetle-pollinated flowers are usually large, the scents may be spicy and fruity. They are usually greenish or white in color and are heavily scented.	Cross-Pollination
<b>Chiropterophily</b>	Chiropterophily is pollination where the pollen is passed on by bats.	Cross-Pollination
<b>Hydrophily</b>	Hydrophily is an uncommon form of pollination. The way this one works is by the pollen being distributed by the flow of waters, particularly in rivers and streams.	Both
<b>Hymenopterophily</b>	Hymenopterophily is pollination by its members. This is were bees, wasps, and their relatives come in play.	Cross-Pollination
<b>Myrmecophily</b>	Myrmecophily is where ants and other organisms are applied. The organisms are plants, other arthropods, and fungi.	Cross-Pollination
<b>Myophily</b>	Myophily is pollination of plants by flies.	Cross-Pollination
<b>Ornithophily</b>	Ornithophily is pollination of flowers by birds.	Self-Pollination
<b>Phalaenophily</b>	Phalaenophily is pollination by moths.	Both

<b>Psychophily</b>	Psychophily is the pollination of flowers by butterflies.	Cross-Pollination
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**Table 2. *Pollination Scenarios***

<b>Scenario</b>	<b>Clues</b>	<b>Type of Pollination</b>
<b>1</b>	Rubbed all over the petals and on multiple amounts of flowers	Self-Pollination
<b>2</b>	The caretaker left and pollen was found deep within the flower	Cross-Pollination
<b>3</b>	The buds from the flower did not open all the way till evening	Cross-Pollination
<b>4</b>	The pollination from one plant is found on the other	Cross-Pollination
<b>5</b>	The pollinator was in search of nectar and pollen for food	Self-Pollination
<b>6</b>	“no sign of animal interference was found of the scene”	Self-Pollination
<b>7</b>	Pollen from the plant was transported	Cross-Pollination
<b>8</b>	Something had to pollinate it during the day and some plants were disturbed.	Cross-Pollination

<b>9</b>	It was found on neighboring plants	Cross-Pollination
<b>10</b>	"is found from another plant"	Cross-Pollination