

CASE

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?

Due to some insects can fly and some can not.

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

Depending on how much wind there is there can be a lot of plant production.

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

I believe the bee due to everyone knowing that more the bee than any other insect

7. What other factors may influence pollination rates?

Depending on weather and if its safe for the insect to travel.

Name: _____

Activity 7.2.1 Student Worksheet

Table 1. Agents of Pollination

Pollination Type	Description	Is the plant self-pollinated, cross-pollinated, or both?
Anemophily	Wind pollination	Both but most likely cross pollinated
Cantharophily	pollination by beetle	Both but most likely cross pollinated
Chiropterophily	Pollination by bat	Both but most likely cross pollinated
Hydrophily	Pollination by water	Both but most likely cross pollinated
Hymenopterophily	Pollination by a bee	Both but most likely cross pollinated
Myrmecophily	Pollination by an ant	Both but most likely cross pollinated
Myophily	Pollination by plant flies	Both but most likely cross pollinated
Ornithophily	Bird pollination	Both but most likely cross pollinated
Phalaenophily	Pollination by a moth	Both but most likely cross pollinated

Psychophily	Pollination by a butterfly	Both but most likely cross pollinated
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Table 2. Pollination Scenarios

Scenario	Clues	Type of Pollination
1	Pollen from multiple plants in a field.	Hymenopterophily
2	Pollen is found on the top side of multiple flowers in a garden	Psychophily
3	The flower buds had not opened before the previous evening.	Phalaenophily
4	from a night-blooming plant	Chiropterophily
5	A tiny trail of bent filaments is observed	Myrmecophily
6	No sign of animal interference is found on the scene. upstream	Hydrophily
7	No sign of animal interference is found on the scene.	Anemophily
8	A landing area on the bloom was disturbed.	Ornithophily

9	The pollen from a low growth-habit plant	Cantharophily
10	The pollination agent consumed pollen and nectar and left a mass of white eggs on the flower.	Miophily