

Pollination Examination

Note: The following research idea has not been fully developed into an activity but has been tried in some workshops and classrooms. If you try it, let us know how it went by sending a note to epp@mhub.facstaff.wisc.edu.

Background

As plants are nonmobile, they are faced with a special challenge to bring together the male gamete and female gamete (egg and sperm in animals, egg and pollen in plants). Generally, these gametes must travel from one individual to another of the right species at the right time.

This is accomplished by working in partnership with animals, generally insects.

The bargain is as follows: The insect will transfer pollen from one plant to another, and its motivation will be a sweet, highly caloric food reward: nectar (excess pollen is also a foodstuff and reward).

The plant will provide this reward in such a way and at such a time so that, ideally, the insect, foraging for the sweet nectar, will inadvertently transfer pollen to the right place on the right individuals at the right time.

The plant will advertise its availability of nectar (and its ripeness for pollination) by growing a flower--often colorful and odoriferous.

Activity

We want to examine two questions:

How does a pollinator forage for nectar?
How does a plant become pollinated?

Actually this is really the same question from two different points of view. Since the question is very large and broad, have the students brainstorm about some smaller, testable questions that might be more readily examined.

Some possibilities include:

- How long does a pollinator stay on a flower?
- What plants do a given pollinator visit?
- What pollinators visit a given plant?
- Does a pollinator visit a plant more than once?
- Does a pollinator have a trapline which it systematically frequents?

In groups of 5, set up a question. Set up an experiment that will begin to examine your question. Go out and begin to take preliminary data for about 30 minutes.

Reexamine the question and experimental design and modify if necessary. Finalize the design and collect the data.

Write a report stating your question, experimental design, results, and conclusions.