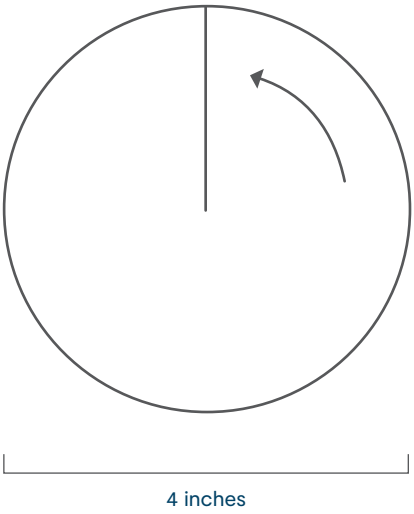
CURIOSITY AT HOME

BLOWING IN THE WIND

Not all flowers are pollinated by animals. For some plants, all it takes to be pollinated is a blustery day. How can you tell which plants rely on animals and which ones only require a passing breeze? The shape of a flower can give you some clues, and this experiment will show you how to look for them!

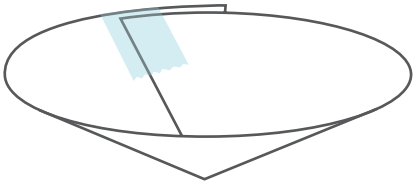
MATERIALS

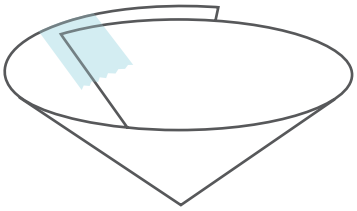
- Two sheets of paper
- Scissors
- Tape
- Markers or crayons
- 1/8th cup of flour or cornmeal (optional)
- Science notebook or writing paper
- Something to write with

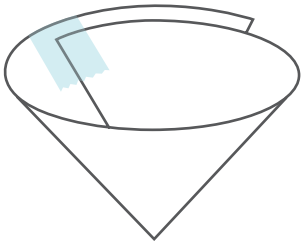


PROCEDURE

- First, cut three circles from your paper, each approximately four inches in diameter. Make a cut in each circle from the edge to the center.
- Then, decorate this circle to be a flower. Add petals, other flower organs, and your favorite colors.
- Take one circle and pull the two cut edges over each other to form a shallow bowl shape. Tape the edges so your new flower stays closed.
- Repeat this process with the two remaining circles, making each flower with steeper sides than the last one. Your third flower should look like a tulip or ice cream cone.
- Tear the remaining paper into small pieces and ball them up. Make about twenty tiny paper balls. These represent your pollen grains.
- Put the paper ball pollen grains into the steepest-sided flower. Hold the flower upright and blow on the flower as though you are the wind. How difficult is it to get the pollen to fly away?
- Try this again with the other two flowers. Which shape of flower is it easiest to blow the pollen out of? Make sure to pick up the paper ball pollen when you're done experimenting!







In order for a flower to be wind-pollinated, the pollen needs to fly away in a gust of wind. By testing what shape of flower lets go of pollen most easily, you've found a clue about which flowers are likely to be wind-pollinated!

Experiment continued on next page...

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EXPLORE MORE

You've demonstrated that the shape of a flower affects how easily it is pollinated by wind, but there are other factors, too. The pollen grains themselves also affect the process. Try the same experiment you just did, but instead of changing the shape of the flower, change the size of the pollen grain. Use only the shallowest flower and try making the paper balls bigger. Then try replacing them with flour or cornmeal. What size of 'pollen' stays airborne the longest?

DID YOU KNOW?

Many wind-pollinated flowers hardly have petals at all! Their pollen rests on structures called catkins that hang from the plant. You can model a catkin by covering a string in flour and hanging it in the wind.

The pollen of wind-pollinated species is smaller, lighter, and less sticky than that of other plants, which means it can travel greater distances.

Most allergenic pollens are spread by wind. If your allergies flare up, you can blame anemophilous ("wind-loving") pollen.

Willow catkin

Hazelnut catkin

Experiment continued on next page...

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GRADE 6–8 EXPLORATION

- Other plants have to compete for the attention of animal pollinators. What are some strategies flowers use to attract animals? What does a wind-pollinated plant gain from skipping this competition? What would a flower without these animal-attracting qualities look like?
- Different pollination methods have different ratios of pollen produced to successful fertilizations. Where do you think wind pollination ranks in this scale of pollen "efficiency", and why? What other environmental factors might make wind pollination a good strategy, even if much of the pollen is lost?
- Think about the four following ecosystems: an open prairie, a tropical rainforest, an alpine wildflower meadow, and a volcanic island recently emerged from the ocean. Which ecosystem(s) rely more on wind pollination, and which on animals? Write your reasoning in your science notebook.