

LESSON 9:

POLLINATORS

Students will create an innovative way to disperse seeds over a wide area of land.

OBJECTIVES



How could you act as a pollinator and design a tool or machine to disperse seeds?

SUPPLIES

TEACHER PURCHASES

- None

CREATOR BOX

This is a Creator Box experiment, which means the kids can use the materials in the creator's box and small materials bin freely to make their creations. Please be careful to leave enough supplies for other Creator Box Experiments. For information about the specific materials, refer to the supply guide.

OTHER SUPPLIES

The remaining supplies for this experiment can be found in the following locations in your bin

PENCIL BOX

- Pencils/Markers
- Tape, glue, scissors, and other crafting supplies as needed

FOLDER


- Printer paper (for sketches and prototypes)
- Construction paper for making fans, building, and decoration

LESSON 9:

POLLINATORS

Students will create an innovative way to disperse seeds over a wide area of land.

HOOK


 2-3 min

Can you imagine never being able to have a sweet treat at a birthday party or holiday?

Many foods we like to eat come from plants. These plants need certain processes to happen to continue to survive. Today, we are going to be talking about the process of pollination.



DISCUSSION

 3-5 min

One very important process to help plants grow is called pollination. Pollination is when a plant's pollen grains (or seeds) spread from one plant to another. That is how they reproduce and make more of that plant for years to come.

Plants can't get up and walk around, so they need help from nature! Sometimes, the wind or rain can help to pollinate plants. Think about dandelions— their seeds are designed to float through the air when the wind blows on them.

There are animals that help plants pollinate, too. These animals are called pollinators.

Today, we're going to talk about a few examples of pollinators. Think about what makes these animals good at pollinating— then, we will use these ideas to design our own pollination machines!

BIRDS

Birds are great pollinators. How do you think birds help to pollinate plants?

Plants produce a yummy, sweet substance called nectar. Birds love to eat the nectar from plants, and when they do, they get some pollen stuck to their beaks. When they fly to the next plant to drink more nectar, some of the pollen from the last plant rubs off onto the new plant.

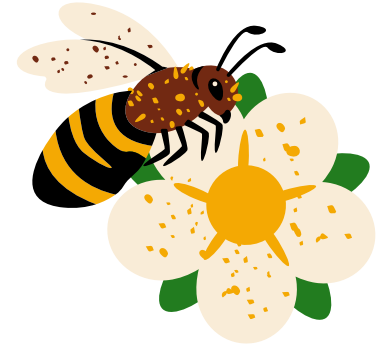


BEES

Bees are also pollinators. What do you know about bees? How do you think bees help to pollinate plants?

Bees pollinate plants the same way that birds do. Instead of picking up pollen in their beaks, however, the pollen sticks to the bee's fuzzy body!

Over 1/3 of all food eaten by Americans is pollinated by bees!



BATS

What do you remember about bats? If the class has done lesson 8, then they've already learned a little bit about bats.

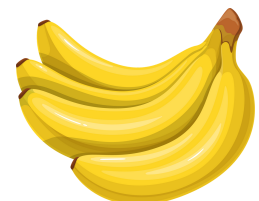
Bats are amazing mammals. They have a very unique way of hunting for their prey called echolocation. They also eat insects that humans would like to get rid of, like mosquitos.

Bats are also... pollinators! Pollen sticks to their faces and bodies, and they spread it from plant. Birds and bees pollinate plants in the daytime, but bats usually come out at night. They even use echolocation to find flowers! Bats actually disperse a larger number of pollen seeds than birds do.

One species of bat has a tongue that is over 8.5cm long, which is 150% it's own body length. That's like a 5 foot tall person having a 7.5ft long tongue! It uses it's long tongue to feed on nectar.



All of these foods are pollinated by birds, bees, or bats– and there are many more!



HYPOTHESIS

🕒 3-5 min

What would happen if we didn't have bats and other pollinators to do the pollinating work for plants?



My pollinator uses hot air balloon technology!

–Ian

EXPERIMENTATION

🕒 20-25 min

Pollination is incredibly important– without it, there would be way less food to eat! More than half the population of bat species in the United States are declining. Bees are also disappearing at an alarming rate. It is crucial that we taken action to save these animals from extinction, like preserving their natural habitats. But what if these animals did go extinct? How would we pollinate certain fruits, vegetables and flowers?!

Your challenge today is to create a model of a tool or a piece of machinery that acts as a "Seed Spreader" or "Pollinator." This is different than a farmer planting seeds in the ground – we need to spread a massive amount of pollen seeds onto gigantic areas, making sure they land on the plants. Think like an agricultural inventor and have motivation like a bat and see what you can create!

Place students into groups of 2 or 3 and remind them of all the supplies available in the Creator Box. It might be a good idea to encourage them to draw their ideas on paper first before they begin building.



My pollinator hovers like a drone and has a long tongue like a bat!

–Andreas

OBSERVATION & EXPLANATION

🕒 10-15 min


Have each group share their inventions, (or doing a "walk around") describe how it works, and how the group came up with the design.

Talk about how humans pollinating extremely large expanses of land would be a very difficult job and how important pollinators are to the environment.

EXTENSION

Have the kids present some of their inventions and even let other kids vote on their favorite or talk about how they could improve their classmates projects.


CONCLUSION

 5-7 min

Fill out Hypothesis/Observation/Conclusion charts on the white board together as a group.

Instruct students to clean their stations. Make sure to leave the classroom the way you found it.

ASSESSMENT

 3 min

Students may write this answer on their sheet of paper or verbally tell the instructor as they leave:

Why are pollinators so important?

SCIENTIST'S WORKSHEET

Tip: Can draw or write the following down on whiteboard!

Hypothesis	Observation	Conclusion
What would happen if we didn't have bats and other pollinators to do the pollinating work for plants?	What are the positives and negatives to the tool you created to act as a pollinator? What about the projects of other groups?	Would it be difficult to replace bats, bees, and birds? Think about what we can do to preserve these species.