ATLANTA BOTANICAL GARDEN

At Home Science!
Spectacular Seeds

This science observation can be done at your home. Learn about the important pollinators in your neighborhood.

What You'll Need:

- Paper or plastic bag
- Pencil
- Cloth, sock, or towel
- Tub of water (tupperware works great)
- Measuring tape (optional)
- Standing fan (optional)

Getting Started

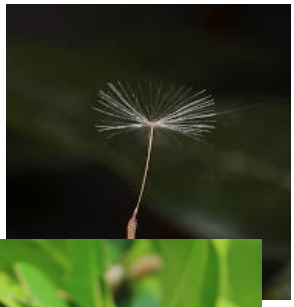
Seeds are how plants make new plants! Most seeds need nutrients from the soil, water, and sunlight to grow and become a strong new plant. Each type of seed has a unique and special way they help themselves find a suitable habitat to grow. What shapes, sizes, colors, and textures of seeds have you noticed in your yard or in your neighborhood? Go outside in your yard or in a safe space outdoors to collect seeds you find on the ground. Use the seed scavenger hunt to help you identify different seeds you may see.

Seed Scavenger Hunt

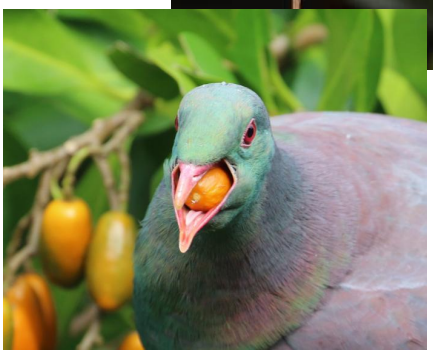
	**Maple** 	**Oak** 
Dandelion 	**Redbud** 	**Pine** 
Mulberry 	**Hickory** 	**Magnolia** 

Traveling Seeds

Seeds have lots of different methods of travel. Use the seeds you collected to test the different ways your seed may travel.



Air- some seeds drift in the wind to a new location. These seeds are lightweight and are sometimes winged shaped to help them glide through the air.



Animals- Animals play a big role in the dispersal of seeds. Sometimes seeds are hidden inside delicious tasting fruits that birds, squirrels, or other animals may like to eat. Although not the most glamorous way to get around, these seeds travel through an animal's digestive system then are deposited on the ground through the animal's poop.

Hitchhikers- Have you ever come inside and found seeds stuck to your socks or sleeves? If so, you encountered a hitchhiking seed! These seeds are sticky and prickly and attach to animal fur, bird feathers, or even human clothes to travel from one place to another.

Water- For some seeds, the best way to travel is by water. Most plants that live near water have seeds that can float. This allows the seeds to drift to a new place to sprout and grow.

Time to test the seeds you collected to see how they might travel! Do you have any hypothesis about how some seeds might travel based on your observations?

Air- Test 1: Place your seed on a cleaned table or surface. Blow gently on the seed, as if you're blowing out birthday candles. Watch how the seed reacts. Did it move easily? How far did it travel? Repeat with all of your seeds. Which of your seeds moved the farthest? Test 2: Carefully stand in a chair or at the edge of a balcony and drop each seed one by one. If you have a standing floor fan, turn it on to create an air current. Repeat your observations. Did the seed float gently to the ground or drop quickly? Did any seeds travel farther than others?

Animals- Look for animals eating seeds or berries outside. What do you notice about the types of seeds and berries animals are attracted to. Animals aren't the only ones who eat seeds. Can you think of any seeds you like to eat? Things like rice, corn, beans, walnuts, and lentils are all examples of seeds humans may enjoy eating. Take a look in your kitchen for seeds you like to eat, and for any foods that have seeds inside them that you *don't* eat.

Hitchhiking- Take your seeds and place them flat on a cleared surface. Gently lay your sock, cloth, and/or towel on top of the seeds. Carefully lift up your fabric, and see if any seeds are attached. These seeds are likely to be hitchhikers. What do you notice about the attached seeds that help them hitchhike?

Water- Fill a container with water. Place seeds one by one in the water and observe if they float or sink. What happens to the seeds if you create a wave or movement in the water?

Can you think of other ways seeds may travel? Design your own experiment to test your seeds.

Diving Deeper

Seed Sounds

Use seeds to make a musical maraca! Fill seeds in an empty container of any kind that you can close. Get creative with your maraca containers. Things like empty vitamin/medicine bottles, spare tubberware, and socks are all options! Even an empty tin can will work if you cover the top with paper and secure it with a rubber band. Notice how the size and shape of the seeds affect the sound they make in your maraca. Which seed maraca sounded the best to you?

Heat and Seeds

Heat can change the texture and taste of foods, including seeds. There are some seeds humans can eat raw like almonds and walnuts, but most seeds we cook to make them digestible. Popcorn is a great example! If you have any bags of popcorn or raw corn seeds, observe how the raw corn seeds can turn into a fluffy, crunchy, tasty treat when heated. Open an unpopped bag of popcorn, and divide the kernels into three different ziplock bags. Store one bag back in the popcorn box, place one bag in the

fridge, and place the last bag in the freezer. The next day, have an adult pop each bag one at a time in a covered saucepan with at least a tablespoon of cooking oil. Notice if the temperature of the seeds affected their ability to pop. If so, why do you think that is?

Seed Mosaic

Like plants, seeds need to be diverse to survive in varying types of habitats, climates, and ecosystems. Some seeds like those of the longleaf pine ecosystems of south Georgia actually need to be burned by fire in order to germinate! Celebrate the diversity of seeds by creating a seed mosaic. You can do this using playdough, juice lids, a flat rock, an empty CD container, or popsicle sticks glued together in your favorite shape. Use seeds you collect from outside and/or seeds from your kitchen (like apple and orange seeds!). While creating your mosaic, take note of the colors, shapes, and sizes of the seeds. Arrange your seeds in whatever pattern you like on your selected medium. Try to make a circular design if able. Use glue to keep your seeds secure if you're not using playdough. Use your seed mosaics to decorate your favorite place to be outdoors near your home. They also make great paperweights.

Plant a Seed

Plants are the backbone of our ecosystems. They provide clean air, homes for animals, resources and materials for humans, and food for both humans and animals alike. Plants do even more amazing things for us from providing cool shade in the summer, to roots holding soil together to prevent mudslides. The list of plant benefits is long and lengthy. In order to keep the Earth healthy, we have to take care of our plants. And what better way than to plant more plants! Use any seed you like, but beans, lentils, or seeds you buy from the store will all work well. Take an empty toilet paper roll and cut the top into fourths. Fold each flap over to close one side of the tube. If you need help, watch this video. You can also use planting pots, cups, or other tools if you'd like; but the cool thing about toilet paper rolls is that you can plant the entire tube in the ground and it will decompose! Fill your container with potting soil or dirt from your yard. Press your seed down into the soil and cover. Gently water and place in a sunny spot. Watch your seed grow!

Additional Resources

Seed Dumplings
Exploding Seed Snacks

[How Seeds Travel: Virtual Field Trip to Chicago Botanic Garden]
[How Does a Seed Become a Plant?]
[Grow Your Own Avocados]
[Time Lapse of Sunflower]
[The Bad Seed Read Along]
[Got Seeds?]

Standards

SKP1. Obtain, evaluate, and communicate information to describe objects in terms of the materials they are made of and their physical attributes.

c. Plan and carry out an investigation to predict and observe whether objects, based on their physical attributes, will sink or float.

S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects.

c. Provide evidence from observations to construct an explanation that some changes in matter caused by heating or cooling can be reversed and some changes are irreversible. (Clarification statement: Changes in matter could include heating or freezing of water, baking a cake, boiling an egg.)

S3L1. Obtain, evaluate, and communicate information about the similarities and differences between plants, animals, and habitats found within geographic regions (Blue Ridge Mountains, Piedmont, Coastal Plains, Valley and Ridge, and Appalachian Plateau) of Georgia.

c. Use evidence to construct an explanation of why some organisms can thrive in one habitat and not in another.

S7L4. Obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments.

a. Construct an explanation for the patterns of interactions observed in different ecosystems in terms of the relationships among and between organisms and abiotic components of the ecosystem. (Clarification statement: The interactions include, but are not limited to, predator-prey relationships, competition, mutualism, parasitism, and commensalism.)

S8P1. Obtain, evaluate, and communicate information about the structure and properties of matter.

d. Construct an argument based on observational evidence to support the claim that when a change in a substance occurs, it can be classified as either chemical or physical. (Clarification statement: Evidence could include ability to separate mixtures, development of a gas, formation of a precipitate, change in energy, color, and/or form.)