Duke Gardens Summer Fun at Home: Gardening with Community

SEED SEARCH & GERMINATION EXPERIMENT

VISIT YOUR SIT SPOT

1. Start by spending 6 minutes making observations from your sit spot. Has anything changed since your last visit? What plant parts do you notice around you?
2. After 6 minutes, use your nature journal to write or draw what you remember observing.

CHECK ON YOUR ADOPTED PLANT

- Has it changed since yesterday?
- Does it have any seeds?
- How else can you help your plant grow? Try talking or singing to it.

SEARCH FOR SEEDS OUTSIDE

Look for seeds around your sit spot. Seeds might be attached to a plant or on the ground.

Pine cones have small seeds in between scales, close to the middle. Spiky sweetgum balls have seeds that can be shaken out. Helicopter seeds come from maple trees. The white, fluffy part that blows off dandelions contain seeds.




Where else can you find seeds outside?

SEEDS IN YOUR KITCHEN

Did you know that your kitchen is probably filled with seeds? All dried beans are seeds. This includes things like black beans, chickpeas, lentils and kidney beans. Nuts are seeds, including peanuts and almonds. Many spices are seeds, including cardamom, poppy seeds, and mustard seeds.

Seeds are also found inside of fruits. In fact, that is what makes a fruit as a fruit—a botanist (a scientist who studies plants) defines a fruit as the part of a plant with seeds inside it.

SEEDS ARE USED TO MAKE	
Bread	Crackers
Cereal	Cookies
Oatmeal	Grits
Flour	Mustard
Tofu	Pepper
Canola oil	Coffee

Some varieties of fruits have been developed to have smaller seeds. This includes bananas—have you ever noticed the tiny black spots inside a banana? Those are the seeds, but they are won't grow a new plant—they have been bred to be as small as possible and are no longer able to grow. Some varieties of fruits have been developed to have no seeds at all. This includes seedless watermelons and oranges.

DID YOU KNOW? THESE ARE ALL FRUITS					
Bananas	Peppers	Cucumbers	Grapes	Tomatoes	Cherry
Blueberries	Pickles	Olives	Apples	Oranges	Craisins
Avocado	Watermelon	Peaches	Squash	Pineapple	Pear

SEARCH FOR SEEDS INSIDE

Look for seeds around your kitchen, in the refrigerator, cabinets, and anywhere else food is stored where you live.

- How many seeds can you find?
- Where did you find the most seeds? Were more seeds in the refrigerator or stored at room temperature?
- Choose one seed you found and learn more about the plant it comes from. What does the plant look like? Where in the world does it grow?

SEED GERMINATION EXPERIMENT

GATHER THESE SUPPLIES

- Seeds you find outside or in your kitchen
- Paper towels
- Sandwich size zip-close plastic bag
- Permanent marker
- *Optional*: tape

Once you have found some different seeds, turn your kitchen into a seed-starting laboratory! Germination is another word for sprouting. When a seed sprouts, it germinates.

1. Select the **seeds** for your experiment. You can experiment with any seeds you can find to see what happens. Here are some suggestions:
   - Seeds you found outside
   - Fruits: tomato, bell pepper, apple, cucumber, watermelon, cantaloupe
   - Dried beans, lentils and chickpeas (soak in water overnight to soften their seed coat before step 2)
   - Spices: cardamom, mustard seed, poppy seed
2. Tear a **paper towel** in half and moisten one of the halves.
3. Place four or five **seeds** on half of the **paper towel** and fold the other half over the **seeds**.
4. Open a clear, **sandwich size zip-close bag**.
5. Place the **paper towel** with **seeds** inside the bag and reseal the bag. Be sure to label the bag with the name of the seed inside, using a permanent marker.
6. Place the bag in a sunny place. You could tape it to a window or leave it on a sunny flat surface.
7. Check on the seeds every day. If the paper towels dry out, open the bag to add just enough water to get them damp. You could use a spray bottle if you have one.
8. Wait and see what happens.

Did any seeds germinate?

If any of your seeds do not germinate, there could be many reasons why. Some seeds are treated to prevent them from germinating. Some seeds won't germinate after a certain amount of time. Some fruit seeds might not be mature when the fruit they are inside is ripe. Some seeds take a long time to germinate. Some seeds need soil to germinate.

CONTINUE EXPERIMENTING WITH GERMINATION

Try planting some seeds in soil.

GATHER THESE SUPPLIES

- Containers
- Soil
- Seeds
- A label for each container (you could write on a piece of tape or a popsicle stick)

1. Find your containers. You can use a cardboard egg carton as a container for the soil. You could also use yogurt cups, but you will need to poke drainage holes in bottom so that water doesn't get trapped inside.
2. Fill containers with soil, leaving about ¼ inch of space from the top of the container.
3. Push the tip of your finger or the tip of a pencil into the soil to make a small dent in the soil.
4. Place a seed or two in the dent and cover it with more soil. Label the container so you remember what kind of seeds are planted.
5. Water it to keep the soil moist and keep it in a sunny spot. Add water when the soil dries out.
6. If the seed germinates, once the plant is big enough you can transfer it to a larger container or find a place outside to plant it.

WHAT'S INSIDE A SEED?

A seed contains everything it needs to grow a new plant. When a seed gets the right amount of moisture and sunlight, it can germinate. Here is an image of the inside of a peanut, with parts of the seed labeled. The seed coat, on the outside, protects all of the parts inside the seed. The radicle will grow into the root. The cotyledon will become the first leaf. The plumule will grow into a stem. The endosperm, which is not labeled in this image, surrounds these other parts and provides a source of food to help the seed to start grow.

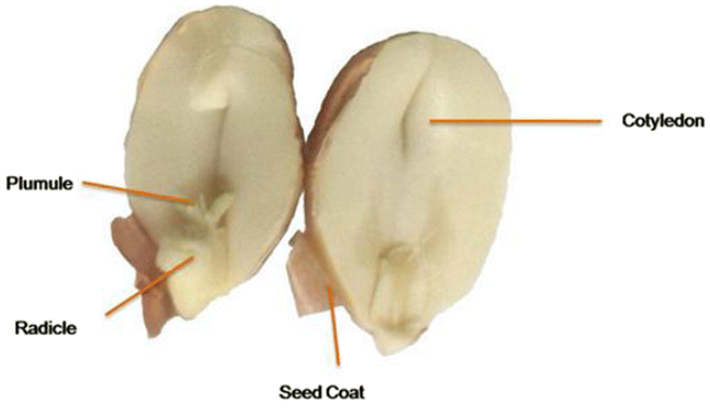

Image from: https://doi.org/10.1186/s13065-017-0238-8

The biggest seed in the world is the Coco de Mer, which is also called the double coconut. It can weigh as much as 40 pounds!