



Ithaca Children's Garden



Ithaca CITY SCHOOL DISTRICT

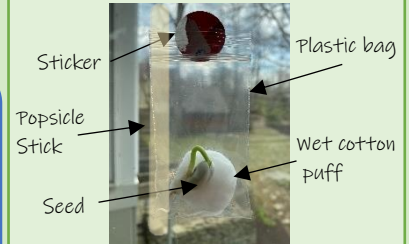


COMMUNITY GROWS

SEED GERMINATION EXPERIMENT:

1. Soak a cotton puff in water
2. Select a seed (How to ID your seeds) or choose both
3. Place the seed and wet cotton together in the bag. Make sure the cotton is touching the seed. Place a popsicle stick inside the bag
4. Using the sticker, attach it to a bright sunny window
5. Seeds should germinate after about 7 days. Monitor the bag every day, marking growth on the stick
6. Once **germinated**, you can track the growth for several weeks. If you want to keep your plant, transplant it (see back).

SUPPLIES



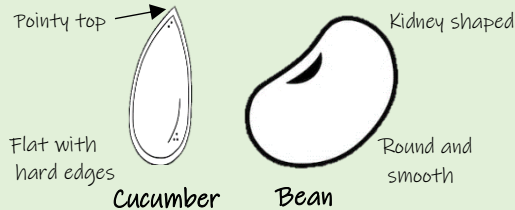
WHAT IS GERMINATION?

Seeds are full of energy and everything needed to grow a new plant. If you keep seeds in a cool dark place, they can last many years. Once your seed gets wet and senses sunlight, the plant will start to grow. When the seed begins to grow into a new plant, it is called **germination**.

FUN FACT:

Lots of small things live on the outside of seeds. It is okay if other things like mold start to grow on your seed. That is natural!

HOW TO ID YOUR SEED



WINDOW GARDEN EXPERIMENT:

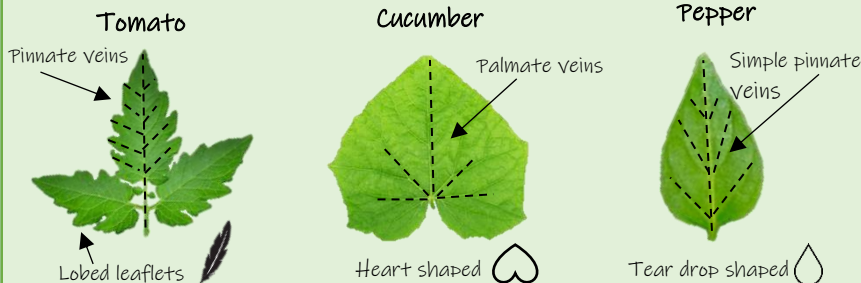
1. Using a popsicle stick, label your plant however you would like.
2. Place your seedling in a sunny window. Put something under it to catch any drips - like a plastic yogurt lid or small plate.
3. Water your plant until the soil is damp. Young plants don't need much!
4. Continue watering your plant when the soil feels dry to the touch.
5. Once the plant has 3 leaves, you can transplant it (see back).

TOP SECRET: PLANTS CAN MOVE!

Although we don't usually think about plants moving, they actually move slowly as they grow. To see this:

1. Take a picture of your plant each morning when you wake up and right before you go to bed for 10 days. (Don't move your plant for best results!)
2. Right after taking a picture of your plant, email it to watchplantsgrow14850@gmail.com or text it to: 607-286-3441
3. At the end of the week, we will compile everyone's plants into a movie available on: ithacachildrengarden.org

HOW TO ID YOUR PLANT BASED ON THEIR LEAVES



ADVANCED SEED DISSECTION EXPERIMENT

1. Soak the bean from your germination kit in a glass of water overnight.
2. Remove the bean in the morning.
3. You should see a layer already peeling off the bean. This is the **seed coat**. Go ahead and remove that.
What do you think is inside the bean?
4. The seed should be very soft. Gently separate the two halves.
What structures do you see inside?
5. Examine the seed and draw what you see.

Parts of a Seed

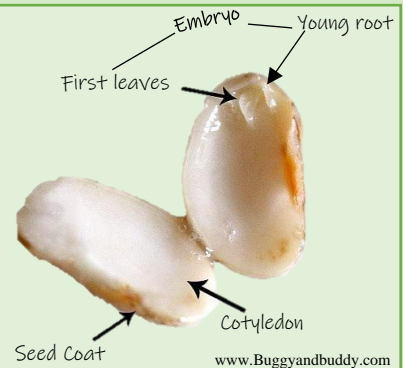
The **seed coat** is a protective layer that prevents the seed from damage or drying out. A mark on the side of a seed coat, called the **hilum**, shows where the seed was attached to the plant.

The scientific term for a baby plant is an **embryo**. The embryo is made up of the initial root, called a **radicle**, and the first leaves and stem, called the **epicotyl** and **hypocotyl**. The embryo will keep getting bigger until it becomes a young seedling.

A **cotyledon** is the first leaf-like structure that emerges from a seed. These are not true leaves. Instead, they act as a nutrient tissue for the developing embryo and fall off after all their energy has been used. A bean is a **dicotyledon**, which means it has two cotyledons. This is different from **monocotyledons**, like corn. The cotyledon makes up most of what you see inside a bean seed.

It's Alive!!!

Inside every seed is a living embryo, which is a baby plant. Most of a bean is made up of energy-rich material to feed the growing plant. Seeds are full of healthy fats and protein. That is why animals (including humans!) like to eat seeds. What is your favorite seed to eat? Corn, beans, edamame, or sunflower seeds?



TRANSPLANTING YOUR SEEDLINGS OUTSIDE



As plants get bigger above ground, they also get bigger below ground. Bigger plants need more room for their roots to grow.



If you can, move your plants to a bigger container. That way they will continue to grow. Anything can be a flowerpot, even a 2-liter soda bottle! Ask for help to prepare your planting container and make drainage holes in the bottom.



If you have outdoor space, plant your veggies in the ground. Tomato, pepper, and cucumber love full sunlight, but bean will be happy in partial sun. Bury several inches of the stem to make the plant stronger. Don't forget to water them!

Visit ithacachildrengarden.org for more experiments and activities!