KIDS IN THE BIOSPHERE

United Nations Educational, Scientific and Cultural Organization

GEORGIAN BAY BIOSPHERE MNIDOO GAMII

Kids in the Biosphere Club

Monday: Spectacular Seeds

Make a Terrarium

A terrarium is a miniature environment that recycles water and need very little attention. Any watertight container can be made into a terrarium!

MATERIALS

1 two-litre pop bottle, soil, small stones, seeds from trees or flowers, water, scissors

1. **Ask an adult to cut off the top of the pop bottle then fill the bottom 3 cm with stones. Stones allow water to drain so the roots don't get too wet.**
2. **Add 7 cm of soil on top of the stones. For no weeds, use potting soil, or, if you'd like to see some weed surprises, use garden soil.**
3. **Use your finger to make holes as deep as your fingernail in the centre of the terrarium and plant 1-2 seeds in each, covering lightly with soil.**
4. **Gently add a small cup of water.**
5. **Features such as moss or twigs can also be added.**
6. **Put the top back on the bottle with the cap still on. It should fit over the rim or just inside the rim of the bottle.**
7. **Watch your terrarium to ensure it is moist enough and keep it in a warm, sunny location.**
8. **Record what happens! How tall does it become? How often do you water it? What species might it be? How is it like the environment outside?**
9. **The plant may grow too big for the terrarium. If so, dig a small hole in a safe spot outside to transplant it.**

Starting Seeds Inside

Seeds can be started in a container or in the ground. The steps to take are almost the same. If you decide to use a container there is a huge variety to choose from! Look at your recycling bin to see if you can reuse a container.

MATERIALS

Fruit and veggie seeds, small containers (check your recycling!), potting soil, water

1. Make a few holes in the bottom of your container so that water can drain out.
2. Fill your container with soil.
3. Read the planting instructions on your seed packet. Some seeds need to be planted deeply in the soil while others need to be planted near the surface. Check what your seeds need.
4. When the seeds are placed in a shallow (a few millimetres) or deeper (a centimetre) holes in the soil, add a small amount of water directly to the seed.
5. Cover the seeds lightly with soil, pat the soil gently, and add more water to the surface carefully. Make sure not to overwater and create puddles!
6. Check the soil every day. Water it when it feels dry on the surface.
7. Place your container in a sunny window when the seeds start to sprout. If your plants seem to get crowded, carefully trim back the smaller plants close to the soil with a small pair of scissors.

Tomatoes

Bok Choy

Broccoli

Corn

Cauliflower

Great fruits and vegetables to grow:

Iceberg Lettuce

Parsley

Carrots

If you are planting something that won't need to be in a container for very long (e.g., beans, lettuce, peas), you can use an egg carton or toilet paper role instead. You could also use an eggshell that has been rinsed and dried!

Seed Paper

MATERIALS

Paper (any kind that isn't shiny or coated), water, small seeds (wildflower, herb, or vegetable seeds work best), blender, mixing bowl, washcloths or towels (you could also use paper towel), cookie cutters (optional), hairdryer or cooling rack (optional)

1. **Tear your paper into small pieces and place it in a blender. Then, add double the amount of water to the blender. (Example: if you have 1 cup of paper pieces, add 2 cups of water).**
2. **Blend until the mixture is smooth and there are no lumps or big pieces of paper left, and then pour it to the mixing bowl.**
3. **Squeeze the mixture to get rid of any excess water. It should have the texture of lumpy oatmeal and should still feel wet.**

4. **Mix in your seeds using your hands or a spoon. You can add as many or as few seeds as you like depending on how many seeds you want in your paper. Make sure not to use the blender as that will damage the seeds!**
5. **If you are using a cookie cutter as a mold, place the cookie cutter on a towel. Spread a thin layer of paper pulp in the cookie cutter. You could also make bigger pieces of seed paper by spreading your pulp out on a towel or washcloth without a mold. Remember, the thinner your layer, the faster the paper will dry.**
6. **Using another washcloth or the other end of the towel, soak up the excess water by pressing down on the pulp.**

7. **Very carefully, transfer the paper to another washcloth or a dry spot on your towel and let dry. The paper will be very fragile!**
8. **Once you can handle the paper without it falling apart, you can place it on a drying rack to let it dry completely. If the paper stays wet, the seeds will sprout too soon!**

Source: www.thesprucecrafts.com/how-to-make-seed-paper-2905562, https://thegraphicsfairy.com/diy-handmade-seed-paper/

Dissecting a Bean Seed

To dissect something means to split it apart so that you can look inside to see how it works. In this experiment, you will dissect a bean to investigate the parts of a seed!

MATERIALS

Large beans (kidney, pinto, or lima beans), magnifying glass (optional), pencil or pen

1. **Before you start your dissection, soak your beans in water for 12-24 hours.**
2. **Once your beans are ready, pick one up and inspect it.**
    a. **What does the bean look like and feel like on the outside? What do you think it will look like on the inside? Record your prediction in the proper space below.**
3. **Rub the bean between your fingers until the seed coat comes off.**
    a. **Why do you think the seed coat is important? Record your answer in the proper space below.**
4. **Split the bean in half along the seam.**
5. **Inspect the inside of the bean. You can use a magnifying glass if you have one.**
    a. **Describe and/or draw what you observed. Were your predictions correct?**

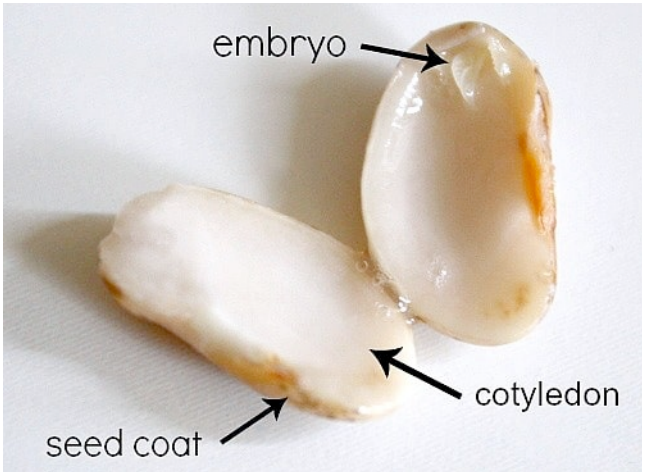
Source: https://buggyandbuddy.com/dissect-a-bean-seed-science-invitation-saturday/

What does the bean look like and feel like on the outside?
What do you think it will look like on the inside?

Why do you think the seed coat is important?

Describe and/or draw what you observed.
Were your predictions correct?

A seed has three parts to it: the seed coat, the embryo, and the cotyledon. The seed coat is like the skin, and it protects inner parts of the seed. The embryo is the part of the seed that sprouts into a plant with a stem and leaves. The cotyledon (cot-i-LEE-don) feeds the embryo as it germinates and grows into a sprout.



Spore Prints

There is a common sight growing in dark, wet places: mushrooms! Mushrooms are not plants. They are types of fungi and they produce spores. Spores grow into fungi, just like seeds grow into plants. Spores also make art!

MATERIALS

Large mushroom, white or dark paper, hairspray (optional)

1. Remove the stem and place the mushroom gill-side down on white and/or dark paper. Different coloured papers will show different coloured spores.
2. Simply leave it overnight and by morning you've made a spore print! Each of the tiny flecks on the paper is an individual spore, with the power to become an individual fungus!
3. You can fasten the spores in place with hairspray or release them outside (while facing away from the wind).

Additional Resources

Check out these Kids in the Biosphere Activities at www.gbbr.ca/kids-in-the-biosphere/

Kids Can Grow Pollination Power Seeds of Life The Buzz About Bees