## **NOST** Dissecting a Seed

## Materials

- Water
- Bean or corn kernel (lima bean recommended)
- Cup or bowl
- Tray to dissect on (Optional)

Plants are an essential part of the Earth's biology. Many of the animals on Earth have what's known as a symbiotic relationship with plants, meaning the animal needs the plant, and the plant needs the animal! Plants and humans have a very special relationship. We use plants for many different reasons, from making medicine, to making a salad, to the air we breathe! Most plants have a special ability where they can turn the nonbreathable gas carbon dioxide in the air around them into the breathable gas oxygen. They also produce a type of sugar called glucose which our bodies use for energy when we eat them, all by using the power of the light energy emitted from the sun. This process is called **photosynthesis**. The plant grows by breaking apart the carbon from the oxygen molecules inside the leaf and uses the **carbon** to grow more plant cells! In this activity we will learn more about the anatomy of the seed and explore how our plant friends start their lives.



## **MOST** Dissecting a Seed

Once you have gathered up the required materials, begin by filling a cup or bowl with water and place a few beans or corn kernels inside of the water. You will let this sit overnight to absorb water to make it easy to come apart during the dissection. Beans work the best for this dissection as each part is easily separable, and the overall size of it grows as it absorbs water, making it easier to see the respective parts.



After the beans or kernels have soaked overnight, you can begin to dissect them. They should be soft enough where you can use your fingernail to open the seed. If you're using the bean, the best way to open it is by working your nail along the inside of the curve, along the

thinner longer side of the bean seed, you should find that your nail will slip right through the outer shell and the bean should easily split into two halves. If you're using a corn kernel, begin by breaking off the harder dark tip using your nail right above where it ends and the rest of the seed begins, then split the bean down the middle from top to bottom on the solid yellow side opposite the side of the side with a white oval towards the base. It should unfold into three pieces.



Now that the seed has been opened up, you can begin identifying the parts of the seed. The first part to identify is the **seed coat**. On the bean it will be a translucent skin that should come off easily once opened. On the corn kernel it is the yellow part on the outside of the seed. The seed coat acts kind of like our jackets do, it protects the seed and keeps it comfortable!

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Next let's find the **cotyledon**, the stored energy source for the seed! Before seeds can blossom into plants and grow leaves to create energy, they start off with a bit of stored energy known as the cotyledon. It's kind of like a snack for the plant, in fact when you eat beans or corn you're eating that cotyledon as your snack to be turned into energy! In the bean, this will be the two large halves that broke apart. In the corn kernel, this is the white interior layer that's distinct from the yellow shell of the seed coat.



And finally we can separate out the **embryo**, which is the baby plant that will consume the cotyledon and break through the seed coat to then grow into the plant! For the bean, this will be a little stem and leaf usually found attached to one half of the cotyledon. For the corn kernel this will be the hard white bump in the middle third of the opened kernel, visible as a white oval from the outside.



Now that you've explored the anatomy of seeds and have a background knowledge of plant life, try and find other seeds to dissect to learn more about the world around you and your local environment!

