World's Smallest Seed Vault

Activity: Seed Vault

Plants are important to the life cycle of everything on earth. Plants undertake a process called photosynthesis. Photosynthesis is the most abundant way that an organism can make its own food! Here's a formula for photosynthesis:

Sunlight + Chlorophyll + Carbon dioxide + Water = Glucose + Oxygen

Chlorophyll is what makes plants green. Plants don't put chlorophyll in parts of the plant that don't get sunlight, which is why seeds aren't green. The glucose – that's a type of sugar! – they create, they keep: it's what they use to grow. Oxygen is a byproduct they release into the world. You can think of it like this: plants breathe in carbon dioxide and breathe out oxygen.

Every living ecosystem needs organisms that photosynthesize. That's why plants and their seeds are so important!

Each seed contains: a miniature plant called the embryo, and a nutritious food material called the endosperm. These parts are protected by a hard outer shell called the seed coat. Seeds can stay dormant – like they are asleep – for many years before growing into a plant. All seeds can grow into plants, but some seeds are edible. Grain seeds such as rice, wheat, corn, and oats are staple foods around the world. Mustard, nutmeg, and anise seeds are used as spices. We can even get oils from peanut, corn, and coconut seeds!

Let's find out what conditions the seeds need to germinate.

Materials:

Two empty, see-through containers around 1 cup in volume, with lids (empty jam jars work well for this), dry beans/seeds (grocery beans like lima or black beans work well, but really any bean will do. Bird seed can also work here), and one cup of water.

Directions:

Fill both containers halfway with dry seeds.

Pour water into one container until all seeds are covered.

Put the caps on both containers – one with seeds and water, the other with only dry seeds.

Leave in a room-temperature, dry place undisturbed for 10 to 24 hours.

Questions:

1. What happened in the container that only had seeds?
2. What happened in the container that had both seeds and water?
3. How have the seeds that were in the water changed?

Did You Know?

Around the world there are places called seed vaults where dormant seeds of thousands of plants are stored in case they are needed. While your container of dry seeds is like a little seed vault for one type of plant, the seed vaults around the world are carefully controlled for temperature and moisture, so the seeds inside can last longer than they normally would.

Further Reading:

Svalbard Global Seed Vault https://kids.kiddle.co/Svalbard_Global_Seed_Vault

Millennium Seed Bank https://www.natgeokids.com/nz/discover/science/nature/all-about-kews-millennium-seed-bank/