



YCS Farm to School Committee
School Garden Curriculum

Plant Magic: Super Seed Skills

Overview

Students explore how seeds grow into plants

Grade Level

3 - 5

Objective

Students learn that seeds need water, the right temperature, and the right amount of light to sprout

Students learn that a seed contains everything to make a new plant except soil, water & light

Students learn that seeds “know” which way to send out their roots

Standards ?

Time

30 minutes

Materials

Each student needs:

- Paper and pencil/pen to sketch with

Background Information

Watch this video on how seeds grow: <https://youtu.be/tkFPyue5X3Q>

Read this article on how seeds grow: [How Does A Seed Grow Into A Plant?](#)

Read this article on plants and gravity: [How Do Plants Know Which Way Is Up And Which Way Is Down?](#)

Procedure

As a class, discuss what we know about plant seeds



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1. Ask, *Can anyone name the part of a plant that can grow another plant?* Seeds
2. Ask, *How do you think seeds grow another plant just like the one that made them? Can a pumpkin seed grow a tomato plant?* A seed can only grow the kind of plant it came from. Seeds contain a special part called the embryo that is like a baby plant; a pumpkin seed contains a pumpkin embryo.
3. *What does the seed need to have in order to sprout, or start growing?* Explain that seeds have an outside part called the seed coat; the seed coat will only open when the seed has enough water and is at the right temperature. Different kinds of seeds need different temperatures in order to sprout.
4. Ask, *How do you think the embryo gets nutrients to grow?* We might think it uses leaves to turn the sun's energy and oxygen into food (like grown plants do), but seeds that have just sprouted still have their leaves underground where there is no light. Seeds have a part called the endosperm, which is food the emerging plant uses until the plant's leaves break the soil surface and it can start making its own food.

Share your screen or a link for students to watch *Sci Show: How Does a Seed Become a Plant?* <https://youtu.be/tkFPyue5X3Q>

Review the main points of the video with students as they sketch a seed

1. Seeds have three parts: the seed coat, the embryo and the endosperm
2. Have students draw the seed with its parts labeled
3. Seeds need three things to start sprouting: water, the right temperature, and the right amount of light
4. Seeds can tell which way is up and which way is down

Share your screen or a link for students to watch [Time lapse of bean seed growing](#)

1. Ask, *In which direction did the roots grow?* Down
2. *In which direction did the stem and leaves grow?* Up
3. *Why do you think the roots grow down?* To get to water & nutrients in the soil
4. *Do you think the bean seed would have grown the same way if it had been planted sideways or upside down?*



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Share your screen or send a link for students to read [How Do Plants Know Which Way Is Up And Which Way Is Down?](#)

Review the main points of the above document with students

1. Plants can tell which way is up and which way is down
2. Plants “feel” the pull of Earth’s gravity
3. Plants have special cells at the end of their roots that contain parts that move in response to gravity (like the tiny crystals inside human ear cavities)
4. Plant seeds can send the stem and leaves upwards toward air and send roots downwards farther into the soil no matter the direction in which the seed is planted

Evaluation

Lead a discussion about what seeds contain, what seeds need to sprout, and how seeds know in which direction to send their roots

Extension Activities

Watch more time lapse videos! There are lots of time lapse videos of seeds sprouting and plants growing; it’s helpful to include the word “timer” in your search so viewers can see how long the process takes.

See if you can “confuse” a seed. Place a wet paper towel in a plastic bag with a bean in the middle so it can be seen through the bag. Tape the bag to a wall or window; as the bean sprouts roots, turn the bag one quarter rotation every two days and observe the pattern of root and stem growth.