SEED GERMINATION

MATERIALS

Dried Beans | Paper Towel
Clear Cup | Water

PROCEDURE

1. Cut or fold the paper towel so it fits around the inside of the cup.
2. Dampen the paper towel and secure it inside the cup.
3. Place a bean between the cup and the paper towel. Leave space between the bean and the bottom of the cup.
4. Leave the bean in a sunny area for about five days. Try to observe the bean every day and record observations. What happens to the bean over time?
WHAT’S GOING ON?

Seeds contain everything a developing plant needs to *germinate*, or start growing, but they stay dormant until the right conditions are met. Water is a signal to the seed that conditions might be right, starting a chain of steps to begin growth. The hard protective seed coat begins to soften in order for the embryo to sprout. The embryo begins to utilize nutrients from the cotyledons in order to grow. It begins by growing a *radicle*, or root that extends downwards to absorb water and nutrients. The cotyledons become the first leaves that the plant grows as it sprouts upwards, in the opposite direction from the radicle, seeking sunlight. This process of germination takes differing amounts of time for different seeds, but beans generally germinate within five to seven days.

Want to keep experimenting? Try placing the seeds in different conditions! Will they germinate better in the dark or the sun? In a warm place or a cold one? With more water or less water? Does the way they’re oriented make a difference? Does the root always grow first? Make a prediction and have fun setting up your experiment!

NYS P-12 SCIENCE LEARNING STANDARDS

This activity connects to the following components:

- Disciplinary Core Idea - LS1.A - Structure and Function
- Science & Engineering Practice - Planning and Carrying Out Investigations
- Crosscutting Concept - Cause and Effect

"What you do makes a difference, and you have to decide what kind of difference you want to make."

- JANE GOODALL