

## Section 1

### Understanding Life Systems

#### EXPLORATION 1

## Needs of Seeds

Investigate what seeds need and how they germinate.

Plants are important to us because they give us food to eat, fresh air to breathe, shade to stay cool, and resources to create many things to support our daily life. Since plants are so valuable, we have to take good care of them by learning about their needs and growth.

Most plants begin as a seed. For a seed to become a plant, it must go through germination. Germination is the process of seeds sprouting and beginning to grow into new plants. There are several factors that determine when a seed germinates. Do you know what they are?

*The seed that I planted today will become a small tree one day.*



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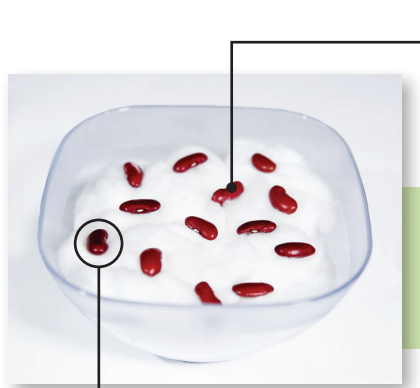
Try this experiment to see what a seed needs to germinate.

### Materials:

- red beans
- cotton balls
- a bowl

### Steps:

Dampen the cotton balls and place them in the bowl. Then place some red beans on the cotton balls.



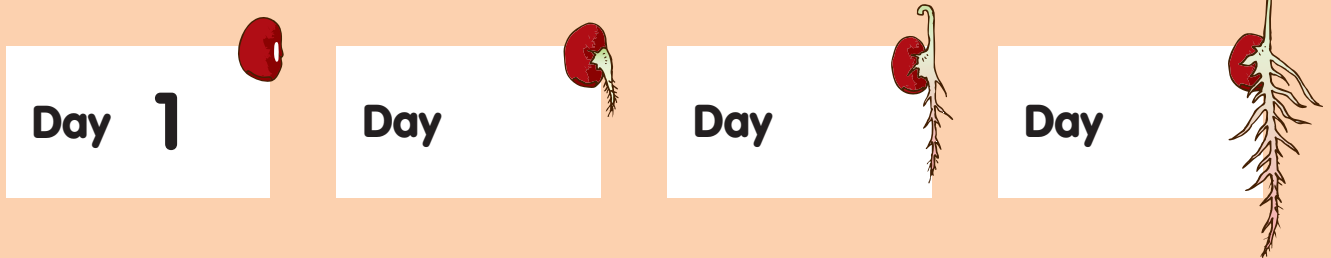
Position some beans facing up and some facing down.

Make sure the cotton balls are kept damp during the germination process.

Pick a sample bean and use it for reference. Observe the beans every day and record your observations in the chart below.

Record the day when the sample seed reaches each of the stages of growth.

### Stages of Growth

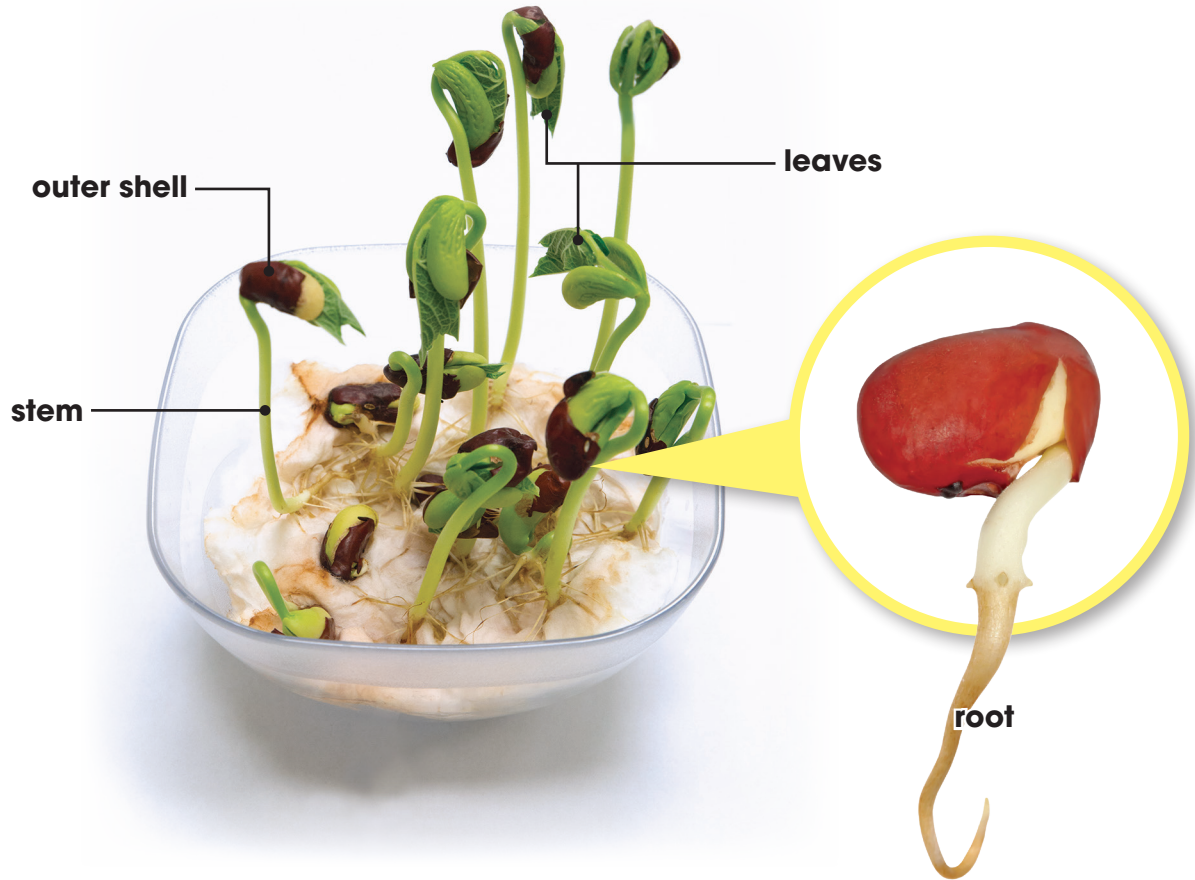


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The outer layer of a seed is not just a tough shell; it helps the seed find out what is happening in its environment! Most seeds need water, air, and the right temperature to start growing. In the experiment, your red beans already had air and the right temperature to grow. All they needed was some water so that they could start germinating. Also, you should have noticed that no matter how a seed was planted – facing up or facing down – its roots always grow downward and its stem and leaves always grow upward. This is because plants need their roots to be in the soil for nutrients, water, and anchorage, while their stems and leaves stay above the soil to get sunlight.

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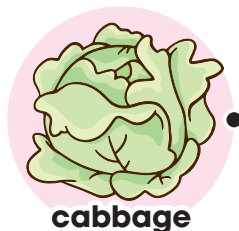
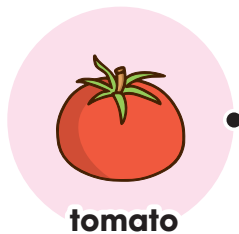
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## Needs of Seeds

**Read about the parts of plants. Then draw lines to identify the parts of plants that we eat.**

Plants have many different parts, including roots, stems, leaves, flowers, and fruits. When we eat fruits and vegetables, we are eating one or several parts of plants.



### Parts of Plants That We Eat

- root
- stem
- leaf
- flower
- fruit

