

# Amazing Seeds

## State Standards

### Science

#### Standard 1

**Benchmark 1** All students will develop the skills necessary to do full inquiry. Full inquiry involves asking a simple question, completing an investigation, answering the question, and sharing the results with others.

**Indicators 1** Ask questions that they can answer by investigating

**Indicators 2** Plan and conduct a simple investigation

**Indicator 3** Employ appropriate equipment and tools to gather data

**Indicator 4** Being developing the abilities to communicate, critique, analyze their own investigations, and interpret the work of other students

#### Standard 2

**Benchmark 1:** All students will develop skills to describe objects

**Indicators 1:** observe properties and measure those properties using appropriate tools

**Benchmark 2:** All students will describe the movement of objects

**Indicators 2:** Describe locations of objects

#### Standard 3

**Benchmark 2:** All students will observe and illustrate the life cycles of various organisms

**Indicators 1:** Compare, contrast and ask questions about life cycles of various organisms

#### Standard 4

**Benchmark 3:** All students will develop skills necessary to describe changes in the earth and weather

**Indicators 1:** Describe changes in the surface of the earth

## Roots and Shoots

**Materials:** 2 glasses

Water

A damp paper towel

Dried beans example: butter, kidney, cannelloni, blackeye, haricot, soy and aduki

**What to do:** Place a selection of dried beans in a glass. Cover the beans with water and soak them overnight. Prepare another glass with a damp paper towel wrapped around the inside of the glass. When your beans are finished soaking, carefully place them between the glass and the paper towel so you can see them. The paper towel will hold them in place.

After about two days they will begin to sprout. Do the roots go down and shoots go up? What happens if you turn the bean upside down? Remember to keep them moist by keeping the paper towel damp. Which one grew the fastest? Which one grew the tallest?

## Swell Time

**Materials:** 2 small sealable plastic bags  
Dry bean seeds  
Water  
Container or tray

**What to do:** Fill each of the two bags with dry seeds (beans work best). Finish filling one of the bags with as much water as it can hold, then seal both bags and place them on a tray in a sunny location.

**Why:** To begin the growing process, or sprout, seeds need to take in water. Water is absorbed through the skin of the seed (seed coat), and the seeds begin to expand. Because the bag had been filled with the dry seeds and now all the seeds in the bag were absorbing water and expanding, there wasn't enough room in the bag. So, the expanding seed forced the bag open and spilled out. In nature, seeds take in water and expand in the same way.

## How Powerful Are They?

**Materials:** empty coffee can  
2 cups plaster of Paris  
Water  
Four bean seeds

**What to do:** In an old coffee can, mix two cups of plaster of Paris with a little water, until the plaster is like thick cream. Now, "plant" four bean seeds under the surface. When the plaster dries it will be as hard as a rock. You won't see the bean seeds inside. Keep the plaster moist by sprinkling water on it every day. In a few days, the plaster will break up like a sidewalk in an earthquake! That's pure bean seed power!

