



## **Growing from the Ground Up**

### **Activities Packet**

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Note: These activities/lessons are appropriate for elementary school students and are somewhat generalized. BPMM educators encourage teachers to adjust the difficulty to fit the standards of the individual classroom or school as they see fit. See the extension/adjustment section of each lesson plan for ideas.

## **Growing from the Ground Up** **Pre-Visit Activity #1**

**Title:** Plant Parts

**Content:** Vocabulary; introduction to some program themes

**Objectives:**

- Identify the basic parts of a plant and their functions
- Observe and document similarities and differences between parts of plants

**Class Level:** Grades K–3

**CCSS Goals:** Speaking and Listening (SL)

- Kindergarten: SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.5, SL.K.6
- Grade 1: SL.1.1, SL.1.2, SL.1.3, SL.1.4, SL.1.5, SL.1.6
- Grade 2: SL.2.1, SL.2.2, SL.2.3, SL.2.4, SL.2.5, SL.2.6
- Grade 3: SL.3.1, SL.3.2, SL.3.3, SL.3.4, SL.3.5, SL.3.6

**Time Requirement:** 20–30 minutes

**Materials:** Plant parts drawing, vocabulary list, pen, or pencil

**Introduction:** These exercises will introduce students to some terms they will hear at BPMM and familiarize them with the vocabulary of plant parts.

**Activity:** Explain to the students that when they visit BPMM they will enter a garden with edible plants. Distribute the plant picture. It shows parts of a sunflower, one of the plants grown in the Children's Garden. Review the vocabulary word bank on the next page and ask the students to label each part on the drawing (p. 4).

Discuss with the students: Each plant part plays a different role. The roots **support** the plant and **take in water** and **nutrients**. The leaves **conduct photosynthesis** which **produces food for the plant**. The fruit of the plant **contains seeds** for reproduction. People eat different parts of plants, including carrot roots, spinach leaves, and the fruit of the tomato plant.

Ask: What other leaves do we eat (chard, kale, lettuce)? What other roots (turnips, beets, onions)?

### Extensions/Adjustments:

- On a walk outside, have a plant-part scavenger hunt. The idea of the scavenger hunt is for students to find and match similar plant parts (roots, stems, and leaves). Look for different types of leaves, fruit, seeds, and roots. Students can identify plant parts and see the differences between plants (color, shape, and size).
- In fall, collect leaves of different types of trees. Notice differences between the leaves: color, shape, texture.
- Have a class discussion about favorite foods and determine which plant parts are used in their creation. Create a list on chalkboard or on large paper with roots, leaves, and fruit, and determine at the end of the discussion how many of the favorites are in the same category.

### Vocabulary

Root Seed	Stem Oxygen	Flower Fruit Leaf
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Root—the part that holds the plant upright. It also takes in water and nutrients from the soil.

Seed—the embryo of the plant.

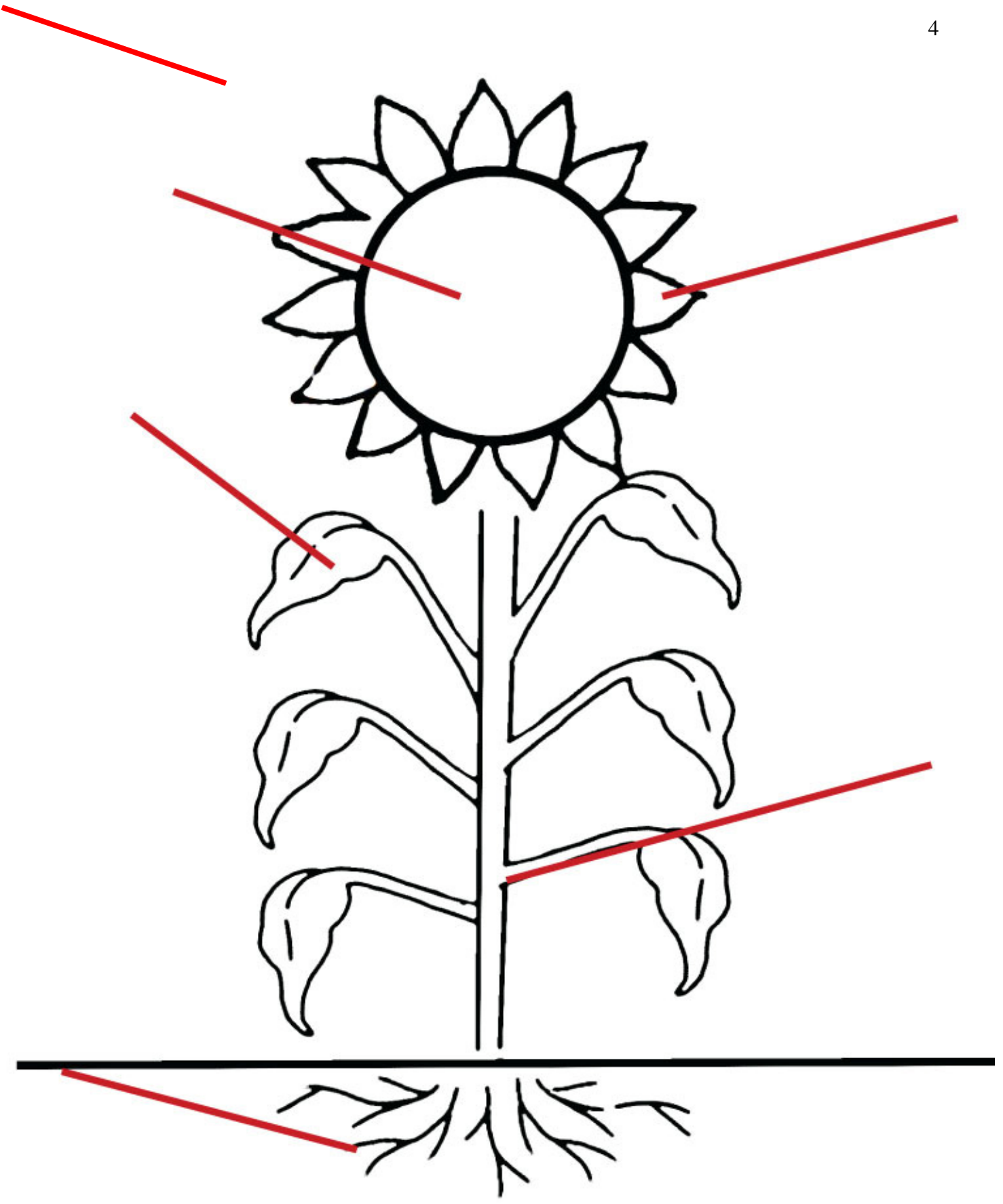
Stem/Trunk—the part that carries water and nutrients throughout the plant.

Oxygen—part of the air; plants release oxygen during photosynthesis and take in carbon dioxide.

Flower—the blossom whose purpose is to attract a pollinator by color and fragrance.

Fruit—the plant part that develops from a flower and contains seeds.

Leaf—the leaves produce food for the plant through photosynthesis.



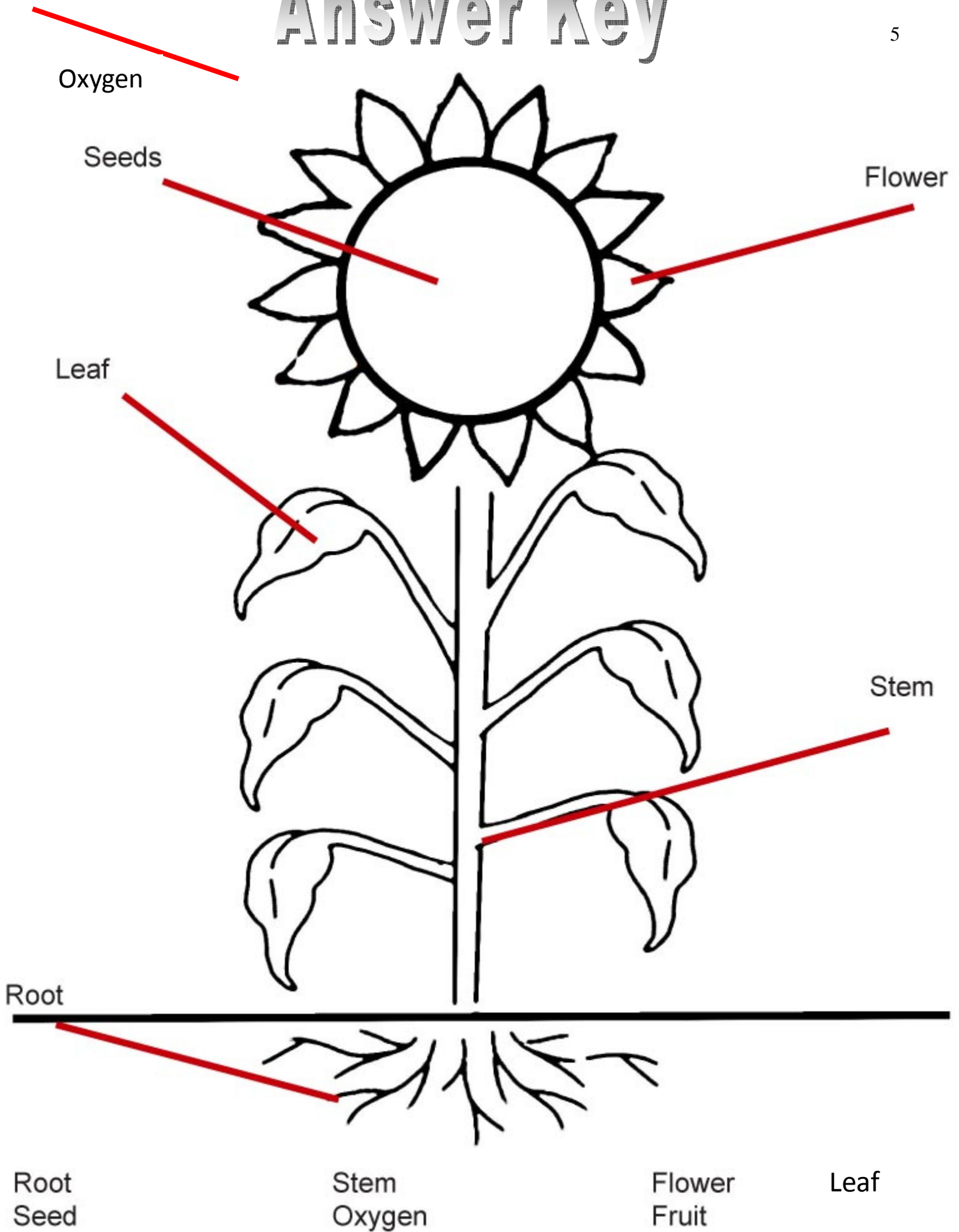
Root  
Seed

Stem  
Oxygen

Flower  
Fruit

Leaf

# Answer Key



Oxygen

Seeds

Flower

Leaf

Stem

Root

Root  
Seed

Stem  
Oxygen

Flower  
Fruit

Leaf

## Growing from the Ground Up Pre-Visit Activity #2

**Title:** Orientation to the Garden and Garden Tools

**Content:** Vocabulary; introduction to some program themes

**Objectives:**

- Identify the basic areas of a vegetable/flower/herb garden
- Observe and document similarities and differences between garden tools
- Use context clues to hypothesize the meaning of unfamiliar words

**Class Level:** Grades K–3

**CCSS Goals:** Speaking and Listening (SL)

- Kindergarten: SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.5, SL.K.6
- Grade 1: SL.1.1, SL.1.2, SL.1.3, SL.1.4, SL.1.5, SL.1.6
- Grade 2: SL.2.1, SL.2.2, SL.2.3, SL.2.4, SL.2.5, SL.2.6
- Grade 3: SL.3.1, SL.3.2, SL.3.3, SL.3.4, SL.3.5, SL.3.6

**Time Requirement:** 20–30 minutes

**Materials:** Garden pictures and vocabulary list

**Introduction:** These exercises will introduce students to some terms they will hear at BPMM and familiarize them with the vocabulary of gardening.

**Activity:** Explain to the students that when they visit BPMM they will enter a garden with edible plants. Distribute the garden picture. It shows different areas of the garden.

Discuss with the students: Gardens have paths where people walk and beds where plants grow. In the Bartow-Pell Children's Garden, paths are made of wood chip mulch. Garden beds are made of soil. The soil is very loose to allow root growth. When gardeners work in the space, they occasionally go into the rows to plant, sow, weed, and inspect the plants. What tools are used for digging?

Ask: Where are the beds in the pictures? Where are the paths in the pictures? What tools are used to till the soil?

Activity: Have students sketch a picture of their own ideal kitchen garden. Ask them to include paths for walking and beds for plants to grow.

**Extensions/Adjustments:**

- Have a class discussion about students' garden drawings. What type of food would they like to grow? What is the climate where we live? Is the food they want to grow suitable for our climate? How would you grow food from a warmer climate in our colder climate? (Answer: In a greenhouse)
- At BPMM, we use wheelbarrows to transport items to and from the garden. Have students draw/write about other vehicles—real or imaginary—that are used in gardens and on farms.

## Vocabulary

Path Wood chip Garden bed	Mulch Weed Sow	Till Shovel Trowel	Garden hose Watering can Wheelbarrow
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Garden Path—a walkway through a garden.

Wood chip—small pieces of wood and bark used to cover the ground in a garden.

Garden bed—the sections of a garden where plants live.

Mulch—material placed around plants to keep them from drying out. This can be straw, grass clippings, shredded newspaper, or a variety of other materials.

Weed—a plant growing in the wrong place that takes nutrients away from garden plants and causes other problems. Gardeners pull them out.

Sow—planting seeds.

Till—turning over soil in the garden to break up clumps or to destroy weeds.

Shovel—a tool for digging.

Trowel—a hand tool for digging.

Garden hose—used for getting water into the garden. It is attached to a spigot.

Watering can—used to transport water to plants.

Wheelbarrow—a one-wheeled push cart used for hauling items for gardening.



Photo of the Children's Garden. Where are the paths? Where are the garden beds?



Shovel – a tool used for digging



Trowels – tools used for digging soil by hand



Watering can for giving water to plants



Wheelbarrow for carrying items



## Growing from the Ground Up Pre-Visit Activity #3

**Title:** Seed Germination

**Content:** Vocabulary; introduction to some program themes

**Objectives:**

- Identify the basic parts of a seed
- Observe and document growth of plant from seed

**Class Level:** Grades K–3

**CCSS Goals:** Speaking and Listening (SL)

- Kindergarten: SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.5, SL.K.6
- Grade 1: SL.1.1, SL.1.2, SL.1.3, SL.1.4, SL.1.5, SL.1.6
- Grade 2: SL.2.1, SL.2.2, SL.2.3, SL.2.4, SL.2.5, SL.2.6
- Grade 3: SL.3.1, SL.3.2, SL.3.3, SL.3.4, SL.3.5, SL.3.6

**Time Requirement:** 30–45 minutes over several days

**Materials:** Bag of (raw) pinto, red, or white beans (from the grocery store); paper towels; clear drinking cups or small glass jars; pitcher of water; vocabulary list

**Introduction:** These exercises will introduce the students to seed germination in a fun and interesting way. Pass out 5 or 10 bean seeds and 1 jar or cup to each student.

**Activity:** Explain to the students that they will be germinating seeds in jars.

Day 1: Have students place 5 or 6 beans in the bottom of their jar/cup. Add paper towel to the inside of the cup. Add 1" or so of water to wet the beans and paper towel. Leave overnight.

Day 2: Add water if the paper towel is dry.

Day 3: Repeat day 2 and check beans for germination. Beans should be enlarged and the seed coat should begin to split.

Continue until the beans have sprouted. They can then be observed in the jar or pulled out and studied on a paper towel. These are best viewed using a magnifying glass.

Discuss with the students: Seeds are dormant but can be "woken up" if water, warmth, and oxygen are present.

Distribute: Bean drawing. Ask students to identify parts of their sprouted seed by looking at the drawing.

**Extensions/Adjustments:**

- Buy various types of beans and track germination times using a chart where the type of bean is on the vertical axis, and germination time (in days) is on the horizontal axis.
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**Vocabulary**

Stem	Root	Germination
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Stem—the plant part that carries water and nutrients throughout the plant.

Root—the plant part that holds the plant upright. It also takes in water and nutrients from the soil.

Germination—the process when seeds begin to grow.

