

# Planting Parts

## Description

In this activity, students identify and describe the parts of a plant and determine whether it forms a system.

## Time Frame

2 lessons (45 minutes each), plus a 10-minute observation period every two days for two weeks

## Correlation to Texas Essential Knowledge and Skills

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

**Note:** Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

**(2.6) Science concepts.** The student knows that systems have parts and are composed of organisms and objects. The student is expected to:

- (C) observe and record the functions of plant parts; and

**(2.7) Science concepts.** The student knows that many types of change occur. The student is expected to:

- (A) observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement;

**Note:** The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

## Materials

Clear plastic 8-ounce cup (1 per student)  
Dry lima beans (2 per student)  
Permanent marker  
Spray bottle with water  
Paper towel (1 per student)  
Unifix® cubes (5–10 per student)  
Systems poster  
Bean Growth Chart (included at the end of this activity)  
Bean Growth Graph (included at the end of this activity)

## Background Information for the Teacher

The natural world is made up of large and complex systems. These systems are made of individual parts that work together to form a whole. Students, like scientists, learn to understand complex systems by investigating simple systems. Students can analyze simple toys, plants, and themselves to see how the parts of these systems function. The explanation of these simple systems enables students to understand the more complex systems in their everyday world, such as the school, the playground, and the community.

## Advance Preparation

1. Prepare copies of the Bean Growth Chart for each student.
2. Prepare copies of the Bean Growth Graph for each student and a transparency for the teacher.
3. Prepare a systems poster by writing the following questions on one side:
  - Can a plant be a system?
  - What are its parts?
  - What is the function of each part?
  - Does this system have a cycle?
  - Can a part of this system be removed that does not change how the system functions?
  - Can a part of this system be removed that changes how the system functions?
  - Can a part of this system be separated from the system that will cause it not to work or function?
  - Can a part be separated from the system that will change how the system works or functions?

## Procedures

1. Give each student an 8-ounce plastic cup, two lima beans, and a paper towel. Students should label the cup with their name in permanent marker, fold and place the paper towel inside the cup, and then mist it with the spray bottle until it is wet. The beans should be placed between the paper towel and sides of the cup. Place the cups in a warm sunny area throughout the growing period.

**Note:** The paper towel should be kept damp throughout the growing period, but caution students not to leave water standing in the cups.

2. Every two days for the next two weeks students should record observations of their lima beans on the Bean Growth chart. Once the bean plants sprout, have students measure the height of their plants using Unifix cubes and record their measurements, in number of Unifix cubes, on the Bean Growth Chart.

**Note:** It would be best to start this activity on a Monday. That way, the first measurements would be taken on Wednesday and then Friday. The weekend would count as one day, and measurements would then be taken again on Monday, Wednesday, and Friday of the following week. If you start on other days, remember to consider how the weekend will fit into the cycle.

3. While the lima beans are growing, show students the new plant structures that are appearing. Discuss the role these parts play for the plant. Students should draw and label each part of the lima bean seed and plant on the Bean Growth Chart.
4. At the end of two weeks have students graph their plant height data on the Bean Growth Graph. Use a transparency of the Bean Growth Graph to model how to graph the data.
5. Pick a few students' completed Bean Growth Graphs. Ask students to predict where the point for Day 16 would be located on the graphs.
6. Show students the systems poster. Discuss the questions on the poster:
  - Can a plant be a system?
  - What are its parts?
  - What is the function of each part?
  - Does this system have a cycle?
  - Can a part of this system be removed that does not change how the system functions?
  - Can a part of this system be removed that changes how the system functions?
  - Can a part of this system be separated from the system that will cause it not to work or function?
  - Can a part be separated from the system that will change how the system works or functions?
7. Display other plants or pictures of plants, such as succulents, that are very different from the bean plants. Ask students the systems questions about the plants.
8. Ask students to think about animals. Are animals systems? Ask students to think about themselves, and then ask them the systems questions from the poster. Have students brainstorm about what parts of themselves make up a system.

## Bean Growth

Day	Observations and Drawings	Height (in Unifix Cubes)
<b>Start</b>		
<b>Day 2</b>		
<b>Day 4</b>		

Day	Observations and Drawings	Height (in Unifix Cubes)
Day 6		
Day 8		
Day 10		

<b>Day</b>	<b>Observations and Drawings</b>	<b>Height (in Unifix Cubes)</b>
<b>Day 12</b>		
<b>Day 14</b>		

### Bean Growth Graph

