

## Overview

Students will collect data in the garden and create various graphs to represent the data. Students will solve real world and mathematical problems using the graphs.

## Engage & Explore

Before going into the garden, pose the following question to the students: How many different ways can we measure things in our garden? Give students time to explore the garden and get ideas of how they can measure in the garden. Allow students to share some of their ideas. Tell students that today we are going to use different ways to measure, collect and display data from our garden.

## Activity

1. Determine what is to be measured and begin collecting data.
2. Display the data using various graphs.

What and how data is collected and displayed will vary according to grade level, below you will find some grade level suggestions.

### Kindergarten

- Graph the soil and air temperature twice a day for a week and also once a week throughout a season change.
- Describe measurable attributes of crops.
- Count and display any or all of the following using a bar or pictograph:
  - The number of each type of plant
  - The number of leaves on different plants of the same type or different types
  - The number of each color you find in the garden

**Grade Level:** K - 5

**Subject Area:** Math

**Time Frame:** 30 - 60 minutes

**Materials:**

Snap Cubes or other form of non-standard unit (K - 1)  
Rulers (2 - 5)  
Thermometers  
Weather station (2 - 5)

**Standards:**

K.MD.1, K.E.1  
1.MD.4  
2.E.1.1, 2.MD.10  
3.MD.3  
4.L.2.1, 4.MD.4  
5. P.3.2  
5.E.1.1, 5.E.1.2  
5.G.1,2

## First Grade

- Display any or all of the following using a bar or pictograph:
  - Count the number of each type of plant and record.
  - Count the number of leaves on different plants of the same type and record.
  - Count the number of each color you find in the garden and record.
  - Measure the height of plants using snap cubes or other non-standard units.

## Second Grade

- Display any or all of the following using a bar or pictograph:
  - Count the number of each type of plant and record.
  - Count the number of leaves on different plants of the same type and record.
  - Count the number of each color you find in the garden and record.
  - Measure the height of different plants in centimeters and inches.
  - Measure the temperature in different locations (air, soil, and water) in the morning and afternoon. How does the temperature change? Why does the temperature change? Is the temperature different on cloudy days compared to sunny days?
  - Graph various data from the weather station.

## Third Grade

- Count the number of each type of plant and record.
- Count the number of leaves on different plants of the same type and record.
- Count the number of each color you find in the garden and record.
- Measure the height of different plants to the nearest  $\frac{1}{4}$ -inch.

## Fourth Grade

- Record what fraction of the whole each different crop represents.
- Harvest carrots and measure the length of each.
- Make a graph of food and non-food items in the garden.
- Make a line plot of crops in the garden.

## Fifth Grade

- Graph the temperature of air, soil, and water over several days and at different times of the day. How does the material (air, soil and water) affect the heating and cooling?
- Graph data from the weather station and use this information to predict the weather and observe the daily and seasonal changes.
- Using the square foot grid in the garden as a coordinate plane, identify the coordinates represented by each crop or square. (Use the left bottom corner of the square as its location).

## Your Notes & Ideas