# Measurement and Geometry In the Garden K, 1st, 2nd

## Purpose & SOL

- Students will use the garden to apply concepts of measurement and geometry in a real world setting. Students will also explore how these concepts can be used to plan a garden.
- Math K.8, K.11(a,b), 1.9, 1.12, 1.13, 2.11 (a), 2.15 (a,b), 2.16

## Materials

- Measuring tape
- Pads of paper and pencils
- Produce tiles representing how much space each plant needs to grow ex. tomato tiles picturing one tomato and carrot tiles picturing 16 carrots, since-tomatoes require more space than carrots

## Preparation

- Make produce tiles so that they will fit evenly in the raised beds to easily illustrate area. For example if your raised beds are 3'x5' you could make the produce tiles 12"x12" and 15 would fill the bed.

## Engage

- Why do you think it's important to plan for our garden?
- What sorts of things are useful to know when planning our garden?

# Procedure

1. Gather the students around the raised beds and discuss the characteristics of the raised beds. What shape are they? What clues did you use to decide on the shape?
2. How many ways can you cut the beds to create two symmetrical pieces? What shape are these piece? Have students use the measuring tape to "cut" the beds to visually demonstrate their ideas (vertically or horizontally=>two smaller rectangles or maybe squares, diagonally=>two right triangles).
3. Show the class the produce representation tiles and ask them to identify the fruit or vegetable pictured, and if they've ever eaten it. Explain how the number of times that the plant is pictured on the tile corresponds to how many of that plant is "planted" when they place the tile in the bed.
4. Divide the class equally among the beds in your garden and number off each student, restarting numbering at each bed (4 raised beds and 20 students= 5 students per bed numbered 1-5).
5. Hand out produce representation tiles to each student and explain that one by one (as you call out their number) they will place one tile in the raised bed so that no two tiles are overlapping. Cycle through all of the students until there is no more space in the bed.
6. Have students count how many individual plants for each type of plant they were able to fit in the bed (for example each carrot tile has 16 individual carrots so if the students were able to place 3 carrot tiles in the bed they will have "planted" 48 individual carrots).
7. Discuss with students how some tiles (carrot) "planted" more of a type of plant while others (tomato) "planted" less and how this corresponds to how much space the different types of plants need to grow.
8. Ask students what they think would happen if you tried to grow too many plants in a contained area, such as a raised bed garden?