Fit4Kids

Measurement and Geometry In the Garden 3rd, 4th, 5th

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 3.6, 3.9(a,d), 3.10(a,b), 3.14, 4.4(a,b,d), 4.7, 4.10 (a,b), 4.12, 5.4, 5.5, 5.8 (a,b,e), 5.13 (a,b)

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?
- What is area? How do we measure area? Do the same with volume for 5th grade.

Procedure

1. Discuss the characteristics of the raised beds. Which edges of the beds are parallel? Which are perpendicular? Can you estimate what degree is made when the edges meet? What do we call this angle?
2. Divide the class into groups of three or four. Each group will receive a measuring tape, a pad of paper and a pencil. Assign groups to each of the raised beds, some groups may have to share a bed.
3. Students will measure and record the width and length of their raised bed, and then work as a group to calculate the perimeter and area of their raised bed.
4. 5th grade: Have students also measure the height of their bed, then calculate the volume.
5. Ask students which measurement they would use to calculate how much soil the beds can hold? What about how many plants (assuming you know how much space each plant requires) will fit in the bed?
6. Show the class the produce representation tiles and 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.
7. Distribute the tiles among the groups so that each group has a different type of tile or "plant". Have each group work together to estimate how many of their tiles and how many individual plants will fit in the bed.
8. 3rd grade: Lay out their tiles in the bed so that they aren't overlapping, count the number of tiles that fit in their bed, count the number of plants pictured on each tile and then multiply to calculate how many individual plants they've "planted" in the bed.
9. 4th and 5th: Measure the sides of the tiles, calculate the area and then calculate how many tiles they would be able to fit in the bed based on their previously calculated area of the bed. Have students then calculate how many individual plants they will be "planting" based on how many tiles they've calculated will fit.
10. 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?