



Vegetable Math

Focus/Overview

Students will measure various items in the garden to complete math problems in an outdoor environment.

Learning Objective(s)

The learner will:

- Measure items in the garden to determine differing measurements such as shape, perimeter and area
- Identify different types of angles
- Identify shapes
- Determine measurements as a percent

Louisiana GLE's/ CCSS

M.4.22 Select and use the appropriate standard units of measure, abbreviations, and tools to measure length and perimeter (i.e., in., cm ,ft., yd., mile, m, km), area (i.e., square inch, square foot, square centimeter), capacity (i.e., fl. oz., cup, pt., qt., gal., l, ml), weight/mass (i.e., oz., lb., g, kg, ton), and volume (i.e., cubic cm, cubic in.)

4.MD.1, 4.MD.3

M.4.25 Use estimates and measurements to calculate perimeter and area of rectangular objects (including square feet) in U.S. and metric units. 4.MD.3

M.4.32 Draw, identify, and classify angles that are acute, right, and obtuse 4.G.1

Grade Level

4

Duration:

1 hour

Setting:

In the model school garden

Vocabulary:

Obtuse, right, acute, circumference, radius, diameter, shape, area, percent

Materials:

- Math worksheet
- Pencil
- Tape measure

Background Information:

Circumference is the distance around a circle. The area of a triangle can be determined by measuring both the base and the height of the triangle and using the following formula $\frac{1}{2} \text{ base} * \text{height} = \text{area}$.

Procedure:

1. Twenty backpacks are available for use. If you have 20 or less students they will each have a back pack and can be further divided into groups of 5. If you have 40 students simply break the groups into 10 students each with 5 backpacks per group. Students within the group should have matching backpacks. There are four sets of backpacks, tomatoes, corn, peppers, and carrots.
2. Tell the students to use the tape measures in the backpacks and their team members to answer the questions on the worksheet.
3. Have students work in teams to complete the vegetable math worksheet. Allow them at least 40 minutes in the garden to determine the answers.
4. As a group discuss student answers.

Student Name _____

Garden Math

Using your tape measure and your team member to answer the questions on this worksheet as you explore the garden!

1. Broccoli plants can be found in six garden beds. Find four of these beds and name the shape of each bed that broccoli is planted in?

Garden bed 1 shape _____

Garden bed 2 shape _____

Garden bed 3 shape _____

Garden bed 4 shape _____

2. Find the large tire in the garden.

Measure the large tire's circumference in

_____ (in) _____ inches.

_____ (ft) _____ feet.

What two plants are planted in the large tire _____
and _____?

3. Find the tires with Brussels sprouts growing in them. Hint these are small tires.

Pick one. Measure its:

Diameter in centimeters (cm) _____

Radius in centimeters (cm) _____

4. Find the raised garden beds that have cabbage planted in them. Count the total number of right angles in all beds that have cabbage growing in them.

_____. Hint: A right angle is 90° . Draw a shape in the box below with a right angle. Circle the right angle in your picture.



5. Find a triangle shaped garden bed. What's growing in it

_____?

Measure the perimeter of the bed in inches _____(in)_____

Convert the perimeter you just measured into centimeters (cm)

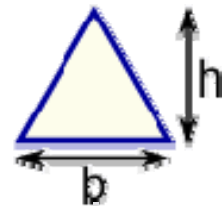
What is the area of the bed? The area of a triangle can be found by measuring the base and the height. The formula is $\frac{1}{2}$ the base * height =

The base is _____ inches

$\frac{1}{2}$ of the base is _____ inches

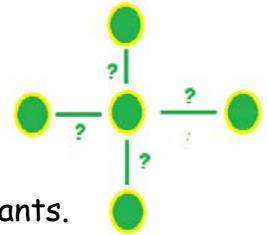
The height is _____ inches

The area is _____



6. Find the garden bed with the okra in it.

How many okra plants are in the bed? _____



Measure the distance from one okra plant to four other okra plants.

Hint: See the diagram to the right? Measure the middle plant and the distance to 4 other plants around it. Record the distance in inches in the spaces below.

_____ inches, _____ inches, _____ inches,
_____ inches.

If okra is supposed to be planted 10 inches apart from one another. Is this okra planted too close? Circle one: Yes or No

7. Measure the length of the arbor (HINT: it has grapes planted on it). How long is the arbor in

Feet _____

Inches _____

Centimeters _____

Meters _____

8. Cauliflower is planted in an Isosceles Triangle shaped beds. Meaning they have two equal sides and two equal angles. Measure 3 sides of the triangle bed in inches

Side 1 _____

Side 2 _____

Side 3 _____

What types of angles are in this bed, acute, right, or obtuse? Circle the correct one.

9. Pick one square bed in the garden.

What is growing in it? _____

Take the following measurements.

Length _____ft

Width _____ft

Total square feet _____sqft.

10. Measure the alligator from the tip of his nose to the back of his tail.

How long is the alligator in meters? _____

How long is the alligator in cm? _____

How long is the alligator head in cm? _____

Write the measurement of the alligators head as a percent . Hint:

$$\frac{\text{cm of alligator head}}{\text{cm of total alligator length}} = \underline{\hspace{2cm}} \%$$