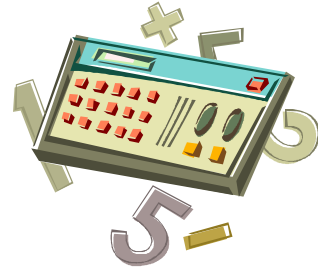


Algebra/Geometry Institute Summer 2004

Lesson Plan 2

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School: Eastwood Cleveland, MS
Grade Level: 8th



- 1 Teaching objective(s)
The students will solve geometric problems using formulas.
The students will measure line segments.

- 2 Instructional Activities
The lesson is started by giving a few review problems about area and perimeter on the board and a worksheet of line segments for the students to practice measuring. The activity in this lesson will require the students to perform all of these objectives.

After reviewing the boardwork and the worksheet, the teacher will explain the activity to the students.

“This activity that we are going to do today will require you to take the objectives that you have learned and apply them to a real life situation. Your real life situation is an outside setting where you will lay out a frame for a flowerbed by measuring the dimensions given. Then you have to find the perimeter of the area so you can see how much fencing to buy and find the area of each flowerbed so you can buy mulch to place inside your bed.”

The teacher will then pass out the worksheet (see attachment 1). The activity outside will require students to be in groups of four or five and each group will work one of the problems on the worksheet. The students should share the responsibilities of the activity. The roles they play are:

Analyst – This student makes sure all the measurements are right.

Technician – Two students are technicians, which use the tools and lay out the frame of the flowerbed with the flags.

Supplier – This student holds the tools until needed.

Recorder – Every student in the group records the information on their paper.

Once all the groups have their flowerbed laid out then they will move from one bed to the other so they can fill in their worksheet.

The students will start by placing one flag in the ground where they want to start. Then they will use a meter stick, yard stick, or tape measure to measure the distance to place the next flag. The distances are on the worksheet. They will

need to follow the direction of the worksheet for the placement of their flags. Once they have their flags placed, they will tie string around the flags to make a certain shape. They will indicate the shape of their flowerbed on their worksheet. Then they will need to find the perimeter and area of their shape. To find the perimeter and area they may have to do more measuring to have all the numbers they need (this is true for the trapezoid and the triangle). This will give them the reality of the sizes of objects they have measured on paper up to this point.

After they find the perimeter and area of their shape then they will go to each of the other flowerbeds and determine the shape the other groups laid out and find the perimeter and area for each of the flowerbeds. They will need to fill in their worksheet for each flowerbed. When you grade their worksheets there might be a slight error in the calculation due to several different variables. Some of the variables might include: measuring not accurate, the cut of the grass and how flush they can get the measuring tools on the ground, or the measuring of the other distances not being exactly whole numbers.

Once they come in, there are other activities that you could do to extend the activity. You could get them to make scale drawings of the objects outside. You could then find out how much the fencing and mulch would cost. They could convert between yards to feet to inches and also convert between meters to centimeters to millimeters.

- 3 **Materials and Resources**
 - Whiteboard
 - Dry erase marker
 - Worksheet
 - Pencil
 - Attachment 1
 - Meter stick
 - Tape measure (feet)
 - Yard Stick
 - Flags (used to lay out the corners)
 - String (yarn)

- 4 **Assessment**
 - Teacher Observations
 - Grade Worksheet

Flowerbed Worksheet

Follow the directions and lay out each flowerbed by using a meter stick, yard stick, or tape measure. Find perimeter and area of each flowerbed. To find the perimeter and area you might have to measure some sides or heights to be able to calculate the formulas.

1. Flowerbed One - Place a flag in the ground where you want to start. With the meter stick, measure from the right side of the flag 2 meters and place a second flag. Go to the first flag and take about three steps diagonally on the left side of the flag. Place a third flag which appears to be parallel to your first line then measure to the right of the flag 4 meters and place another flag. Now take string and start at the first flag. Tie string to the first flag, wrap it around the second flag then to the flag that is parallel to it then to the last flag.
 - a. Draw the shape you have laid out.
 - b. Find the perimeter of the shape so you can buy fencing for the flowerbed.
 - c. Find the area of the shape so you can buy mulch for the flowerbed.
2. Flowerbed Two -Place a flag in the ground where you want to start. With the yard stick, measure to the right of the flag 3 yards and place a second flag. Next you want measure down from the second flag 1 yard and place a flag. Determine the shape you want and place a fourth flag so it makes the shape. Now take string and start at the first flag. Tie string to the first flag, wrap it around the second flag then to the third flag to the last flag.
 - a. Draw the shape you have laid out.
 - b. Find the perimeter of the shape so you can buy fencing for the flowerbed.
 - c. Find the area of the shape so you can buy mulch for the flowerbed.

Flowerbed Worksheet

Follow the direction and lay out each flowerbed by using a meter stick, yard stick, or tape measure. Find perimeter and area of each flowerbed. To find the perimeter and area you might have to measure some sides or heights to be able to calculate the formulas.

3. Flowerbed Three - Place a flag in the ground where you want to start. With the tape measure, measure to the right of the flag 4 feet and then place a second flag. Next you want to measure down 3 feet and place a flag. Now take string and start at the first flag. Tie string to the first flag, wrap it around the second flag then to the third flag then back to the first flag.
 - a. Draw the shape you have laid out.
 - b. Find the perimeter of the shape so you can buy fencing for the flowerbed.
 - c. Find the area of the shape so you can buy mulch for the flowerbed.
4. Flowerbed Four - Place a flag in the ground where you want to start. With the yard stick and tape measure, measure to the left of your flag with the yard stick 48 inches from the first flag and then place a second flag. Next you want to measure down 4 feet with the tape measure and place a flag. There is a fourth flag and you need to determine where that flag will go to make the shape of your flowerbed. Now take string and start at the first flag. Tie string to the first flag, wrap it around the second flag then to the third flag then to the last flag.
 - a. Draw the shape you have laid out.
 - b. Find the perimeter of the shape so you can buy fencing for the flowerbed.
 - c. Find the area of the shape so you can buy mulch for the flowerbed.

Flowerbed Worksheet

Answer Key

Follow the directions and lay out each flowerbed by using a meter stick, yard stick, or tape measure. Find perimeter and area of each flowerbed. To find the perimeter and area you might have to measure some sides or heights to be able to calculate the formulas.

1. Flowerbed One – The measurements on this flowerbed will vary due to where the students place the other parallel line.

- a. trapezoid
- b. $p = 8 \frac{9}{25} \text{ m}$
- c. $a = 1 \frac{23}{100} \text{ m}^2$

2. Flowerbed Two

- a. rectangle
- b. $p = 8 \text{ yards}$
- c. $a = 3 \text{ yard}^2$

3. Flowerbed Three

- a. triangle
- b. $p = 5 \text{ feet}$
- c. $a = 6 \text{ feet}^2$

4. Flowerbed Four

- a. square
- b. $p = 16 \text{ feet or } 192 \text{ inches}$
- c. $a = 16 \text{ feet}^2 \text{ or } 2304 \text{ inches}^2$