

Mrs. Polk's 4th Grade Area and Perimeter Extension Unit



Common Core State Standards that are being met:

Solve problems involving measurement and conversion of measurements.

CCSS.MATH.CONTENT.4.MD.A.1

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...

CCSS.MATH.CONTENT.4.MD.A.2

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

CCSS.MATH.CONTENT.4.MD.A.3

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

**First: Use this time to review over some concept by locating the website
Everything You Wanted to Know About Perimeter and Area:**

http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/perimeter_and_area/index.html

Review over each level. Then play the games!

Click on Perimeter. Select Level of Difficulty.

Record your score here _____. **Play** the Area Game.

Record your score here _____.

Directions: Place a 1 in the first activity you will complete. Continue this for the second choice you will complete, then the third, so on and so forth... Make sure you print and attach final products. You will need to store all pieces of information in your MATH FOLDER. The daily log is attached. Each day track your progress! You need to be on task and accountable for your time during math class. I will be checking in to see your progress and answer any questions you may have!

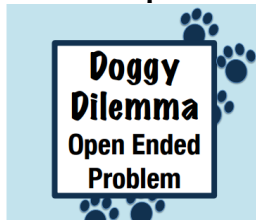
*Paper, rulers, scissors, etc. can be found in the top two drawers under the giraffe print table! Access these materials whenever necessary. Some assignments are not attached to save paper. Please make sure you ask Mrs. Polk for these resources! No need to skip an activity you really want to do because you can't find a resource or attachment!

<p style="text-align: center;">Activity 1</p> <p style="text-align: center;">Adding and Subtracting Decimals Math in Focus Challenge Packet</p> <p style="text-align: center;"><i>*Ask Teacher for a copy*</i></p>	<p style="text-align: center;">Activity 2</p> <p style="text-align: center;">Fold a white piece of paper in half. Label one side perimeter. Define perimeter in that section. Write a word problem below the definition that uses perimeter. Label the other section area. Define area in that section. Write a word problem below the definition that uses area.</p>
<p style="text-align: center;">Activity 3</p> <p>Use 8 square tiles. Arrange them so that one side of each square touches one side of at least one other square. Determine the arrangement that forms the greatest perimeter. Draw and label your arrangement on grid paper. Make sure you create a scale of what each tile equals on the grid paper. For example one tile might equal four squares on the grid paper. Make sure you write down the equivalent grid on the bottom! Determine the arrangement that forms the least perimeter. Draw and label that shape on your paper.</p>	<p style="text-align: center;">Activity 4</p> <p>You have been hired by Hickory Grove Elementary School to complete “Project Playground”. The length of the playground is 41 ft. The width of the playground is 25 ft. Using graph paper, design your playground using as many or as few of each type of equipment as you'd like. Each of the boxes represents space on the playground that is one foot long and one foot wide, otherwise known as one square foot. Remember, there must be room for kids to play on the playground once you've gotten your equipment built.</p>

Activity 5

Complete the “Doggy Dilemma” Activity

Directions and samples are attached



Activity 6

“Trace, Trace, Tace!”

Trace your bare foot on a piece of graph paper. **Color** in the shape. **Trace** your hand with your fingers and thumb together onto another sheet of graph paper and **color** in that shape. Using a Double Bubble map, **compare** and **contrast** the results for your hand and foot to **determine** which has the largest area.

Activity 7

Complete “The Frame Shop” Activities.

Directions are attached

Or go to this link. The image below will appear!

<http://greenhopeaig.weebly.com/area-and-perimeter-enrichment-activities.html>



AREA AND PERIMETER ENRICHMENT ACTIVITIES

The scroll down and click on the Frame Shop activities I, II, and II. If you are on a computer at home, print out these Microsoft Word Documents.

Activity 8

Locate the WebQuest **Using Area and Perimeter to Design a Fun House** from the website below.

http://www.sikeston.k12.mo.us/jreaves/Webquest/building_a_house.htm

Make sure you type it all incorrectly to find the proper place. The main page looks like this:



First read the introduction the Area Explorer and Perimeter Explorer tasks. **Complete** Tasks 1-3. Having a partner will require Mrs. Polk’s permission. It will depend on time and students who have passed the pretest! You might be flying solo on this one!

A recording Sheet can be found in this packet! Print out progress you create on the Internet.

Activity 10

Complete “The Dream House” Activity.

Directions are attached



Activity 11

Test your knowledge and prove what you know by completing the “**Challenge Problems Packet**”

Request copy from teacher to move ***forward!***

<p style="text-align: center;">Activity 12 Complete the “Perimeter and Area Investigation”</p> <p>Ready for some Trial and Error? This activity will really get your wheels turning. Once you have the reward of knowing you met the goals, you get to put your artistic abilities to good use!</p> <p style="text-align: center;">*Directions are attached*</p>	<p style="text-align: center;">Activity 13 Complete the “Perfect Patio”</p> <p>Imagine warm weather and fun summer nights on a patio created just by you! Found Activity 13 to find out how to complete this activity.</p> <p style="text-align: center;">*Directions are attached*</p>
<p style="text-align: center;">Activity 14 Complete the “Area and Perimeter Cut and Paste” Challenge</p> <p>Who said cutting and gluing was easy? This is no task for a Kindergartener!</p> <p style="text-align: center;">*Directions are attached*</p>	<p style="text-align: center;">Extension Option of Your Choice</p>
<p style="text-align: center;">Extension Option of Your Choice</p>	<p style="text-align: center;">Extension Option of Your Choice</p>

Activity 12

Perimeter and Area Investigation

Perimeter/Area Investigation!

Your challenge:

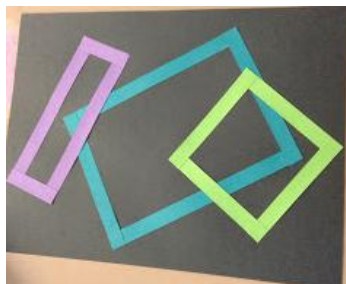
Build 3 different rectangles with perimeters and areas that fit into the following rules.

	Rectangle 1	Rectangle 2	Rectangle 3
Perimeter between	12-16 inches	16-20 inches	20-24 inches
Area between	8-12 sq. in.	12-16 sq. in.	28-35 sq. in.

1. On grid paper, draw the following three rectangles. Each one will have to meet the specifications from the box above.
2. If you draw one on grid paper and it does not work, simply put an X through it. I want to see your trial and errors! Failure builds character and shows me you are trying!
3. Next, you will be building your rectangles with $\frac{1}{2}$ inch strips of paper. Use the construction paper from the top drawer and measure each $\frac{1}{2}$ inch strip with a ruler from the second drawer! They will need to be the length and width of your drawings on the grid paper!



4. Glue them down to form some neat art work and label the dimensions of each figure. An example of a final product can be found below:



Activity 13

THE PERFECT PATIO



Read all of the directions to get an idea of what your accomplished task will be like. Then, follow each direction carefully. Be sure to include a separate sheet of paper to show your work.

Using the graph paper, draw a rectangular patio that is 25 ft. wide and 40 ft. long. Imagine that each square of the graph paper is 1 foot long and 1 foot wide.

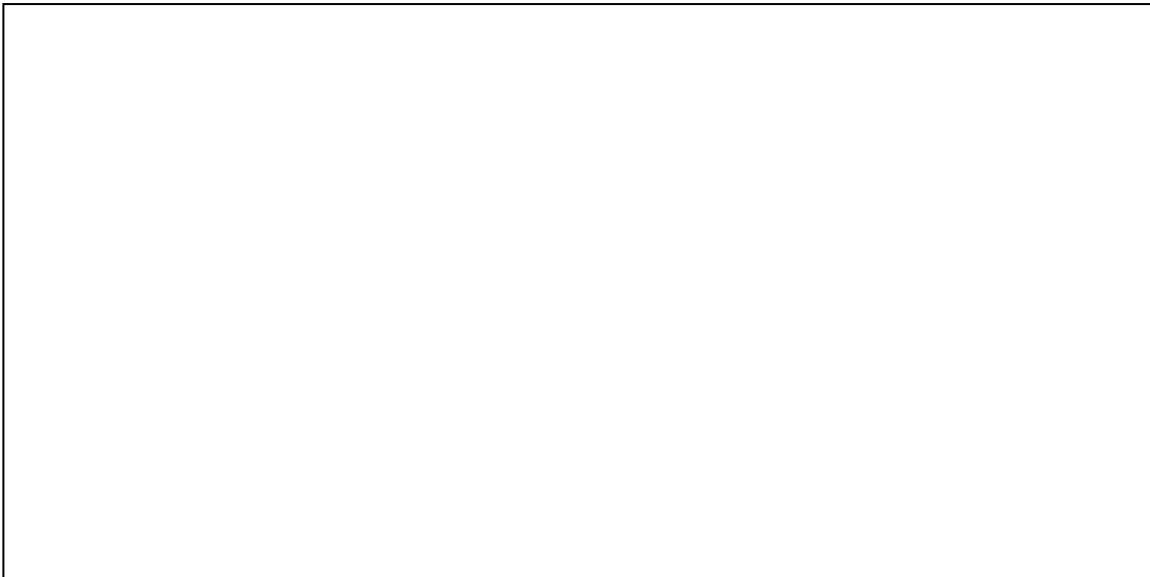
1. What is the perimeter of your patio?
2. What is the area of your patio?
3. Which number is larger, the perimeter or the area? Why?

You want to tile your patio to give it some personal style. The tiles come in black or white. Each tile is sold as a square that is 2 ft. wide, but it is made so you can cut the pieces into squares, rectangles or triangles easily. Use the graph paper to color in your black tiles in any pattern you desire. When you are finished drawing your tiles, answer the questions below.

4. What is the area of your patio that is covered with black tiles?
5. What is the area of your patio that is covered with white tiles?
6. If each pack of tiles contains ten tiles that are 2 ft., how many packs of black tiles will you have to buy?
7. How many packs of white tiles will you have to buy?
8. If the white tiles cost \$15.40 a pack and the white tiles cost \$12.75 a pack, how much will you spend on white tiles?
9. How much will you spend on black tiles?
10. What are some ways you could save money next time?

Activity 14
Area and Perimeter Cut and Paste Activity

1. Cut out the rectangle below.
2. Using what you know about symmetry and the shape and size of the rectangle, make one cut to turn the rectangle into two squares.
3. Cut one of the squares into two right triangles of equal shape and size.
4. Cut out the vocabulary words and the definitions.
5. Match them up correctly.
6. Lay the newly cut shapes out on a construction piece of paper so that they are separate, but still resemble a rectangle.
7. Use the vocabulary words to label and measure your shapes in inches.



area	The amount of surface covered by a figure measured in square units
Base	A unit of area equal to the area of a square with one-unit sides; it can refer to a standard or non-standard unit
Height	The distance around a figure
perimeter	The perpendicular distance from a base of a figure to the highest point
square centimeter	A metric unit for measuring area that is one centimeter on each side

square unit	Any side of a triangle or a parallelogram
----------------	-------------------------------------------

AREA AND PERIMETER FOLLOW-UP PRACTICE

1. How many degrees make up this rectangle? How can you prove it?
2. If this rectangle was broken up into $\frac{1}{2}$ in. square tiles, how many square units would make up this rectangle?
3. What type of triangles are made when following the directions above? What would be the angle measurements for these triangles?
4. If the area of a rectangle can be measured $L \times W$, what is another formula you *could* use for the area of a square?
5. What can you guess is the formula for the area of a triangle, based on the measurements you have just found?

4th Grade Area and Perimeter Unit Rubric



Criteria	1 point	2 points	3 points	4 points	5 points
Accuracy using area.					
Accuracy using perimeter.					
Demonstrates understanding of area.					
Demonstrates understanding of perimeter.					
Presentation of Products					
On task capabilities					

TOTAL = _____/30 points

1 point = Well below expectation

2 points = Below expectation

3 points = Meets expectation

4 points = Above expectation

5 points = Well above expectation

Extra Sheet for spare notes, scratch paper, or any other resource you may need!