AR Remediation Plan – Area, Perimeter, and Circumference

Finding Area and Perimeter

STRAND: Measurement and Geometry

STRAND CONCEPT: Area, Perimeter, and Circumference

SOL 4.7, 5.8a

Remediation Plan Summary

Students determine the perimeter and/or area of given figures.

Common Misconceptions

- Students may use the formula for perimeter when finding the area or use the formula for area when finding the perimeter.
- Students may confuse the units for area and perimeter and include units squared for both or for neither.
- Students may add the length and width of a rectangle when finding the area instead of multiplying.
- Students may forget to multiply by $\frac{1}{2}$ or divide by 2 when finding the area of a triangle.

Materials

- Rulers or meter sticks
- Boxes of toothpicks
- Perimeter and Area recording sheet
- Area and Perimeter Reflection exit ticket

Introductory Activity

Tell students that you are going to redo the bulletin board in your classroom. You need to replace the paper and the border. Ask students if they know have a way to determine how much paper you need to cover the bulletin board. Next ask them if they know a way to determine how much border it will take to outline the bulletin board. (You may actually want to allow students to measure the bulletin board and determine the amount of materials you will need.) Have the students write the definitions of *perimeter* and *area* in their own words, and then ask them to share their definitions with the class. Refine the students' definitions to form official class definitions of these terms.

Plan for Instruction

1. Give half a box of toothpicks to each pair of students.
2. Ask each pair to determine the perimeter of a desktop, using the toothpicks as the unit of measure. Have each pair write their finding on the board. (Note: All desktops measured must be the same size.)
3. Have the students compare the various measurements written on the board. If they vary, is the difference between the largest and the smallest a big one? Or are all perimeter

measures close to the same? Ask the students to explain *how* they made their measurements. List on the board the techniques the students used, such as
- laying toothpicks end-to-end around the edge of the desk and then counting the toothpicks
- counting the number of toothpicks around one length and one width and then doubling this number
- placing one toothpick over and over end-to-end around the edge.

4. Distribute copies of the "Perimeter and Area" recording sheet, and point out how the techniques previously discussed can be used to solve problems 1 through 4. Allow students time to complete the perimeter calculations, and assist students who need help.
5. When students have finished these first four problems, ask them to work in pairs to find the area of a desktop in toothpicks. Allow plenty of time for exploration.
6. Once pairs have completed the task, ask them to write a description of *how* they found the area—what procedure they followed.
7. Have a class discussion when the pairs have completed the task, asking pairs to describe how they found the area. Did they find a length and width in toothpicks and then multiply the two measurements? Did they cover the desktop in "toothpick squares" and count? List all student responses.
8. Have students solve problems 5 through 8 on the worksheet, using a method discussed in step 7. Give assistance as necessary.
9. Introduce finding the area of a triangle, as follows:
   - Draw a rectangle on the board, and measure the length and width in toothpicks.
   - Mutliply the length times the width to calculate the area in toothpick squares.
   - Draw a diagonal to cut the rectangle in half, creating two triangles.
   - Ask the students for the area of one of these triangles. They should recognize that it is half the area of the rectangle.
10. From this demonstration, ask the students how to find the area of *any* triangle, using a rectangle. (The base and height of any triangle can be equal to the length and width of a rectangle, as in the example on the board. If you multiply the base by the height of any triangle and then divide by 2, you get the area of one of the two triangles that form a rectangle with the same length and width. This can be expressed algebraically as $A = \frac{b \times h}{2}$ or $A = \frac{1}{2}bh$).
11. Assign number 9 and 10 on the worksheet, and give assistance as needed.
12. Chek over the answers to the problems as you finish each section and correct any errors students may have made.

Pulling It All Together (Reflection)

Have students complete the "Reflection" exit ticket.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

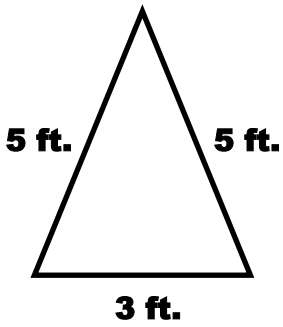
Virginia Department of Education 2018

Name:

Perimeter and Area

Find the *perimeter* of the following polygons.

1.



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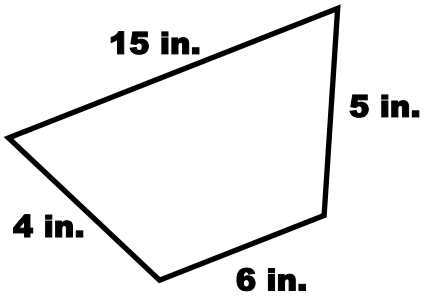

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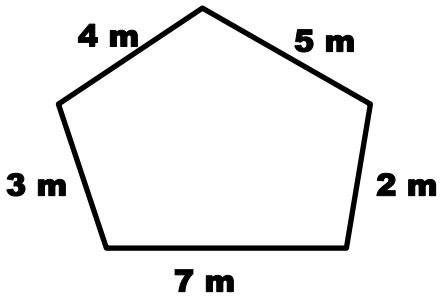

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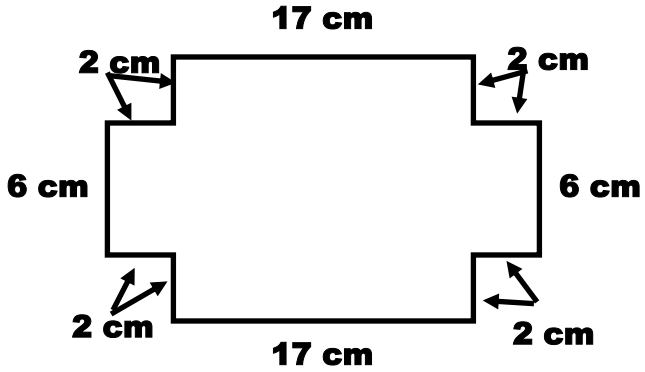
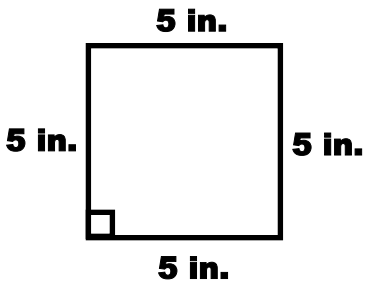


Find the *area* of the following figures.

5.



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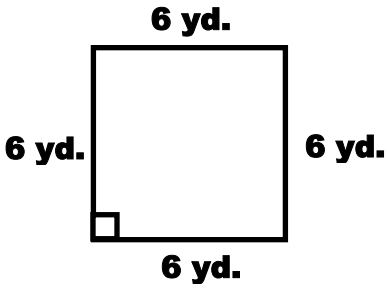
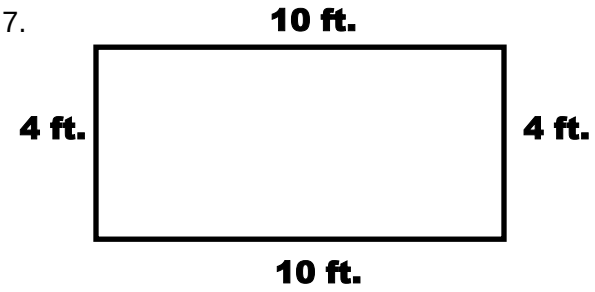


7. 

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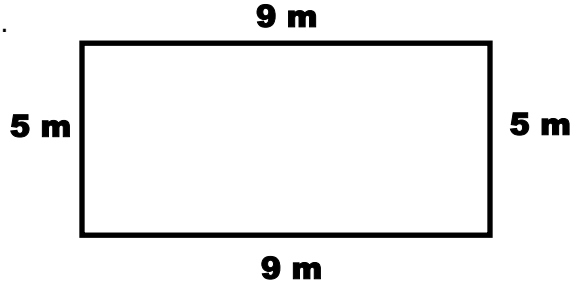
8. 

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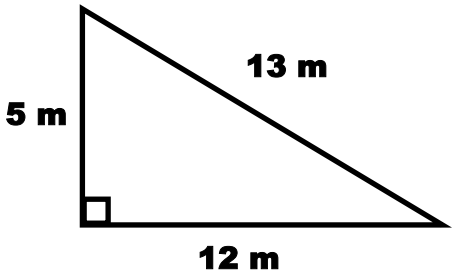
9. 

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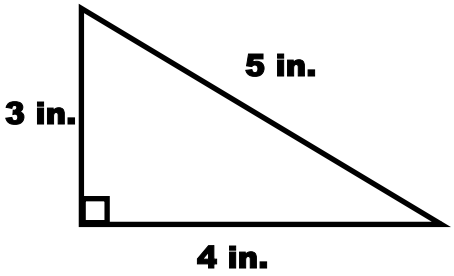
10. 

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Name:

Area and Perimeter Reflection

How is finding the area and perimeter of a rectangle similar?
How is finding the area and perimeter of a rectangle different?
Use the table below to record your answer.

Similarities	Differences