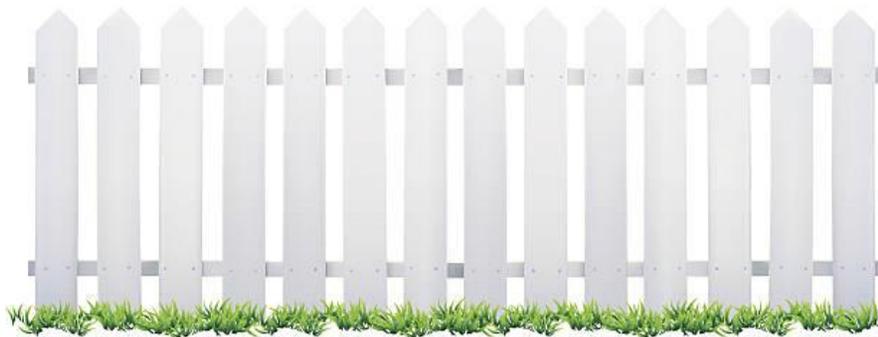


4.MD.3

Area and Perimeter Tasks



Sources: K-5 Math Teaching Resources, Howard County, Illustrative Mathematics, and ND Dept. of Public Instruction

Area and Perimeter Tasks

Materials:

- Grid paper
- Rulers
- Square Tiles (optional)

Directions:

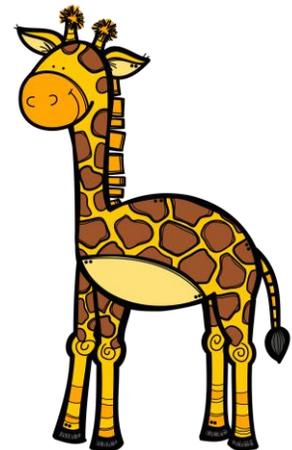
- 1) Choose a task card.
- 2) Follow the directions on the card.
- 3) Be sure to show your thinking in drawings, numbers and words.

Task 1 - Designing a Zoo Enclosure

Materials: grid paper, ruler

Solve the task below. Be sure to show your thinking in pictures, numbers, and words.

1. You have been asked to design an enclosure for a zoo animal. The enclosure must have an area of 40m^2 . You need to consider:
 - What type of animal are you designing the enclosure for?
 - What shape will the enclosure be?
 - What other features need to be included in the enclosure?
2. Draw two possible enclosures. Be sure to include measurements.
3. Which enclosure do you think would be most suitable for the zoo animal you chose? Explain your reasoning.



Task 2 - Fencing a Garden

Materials: rulers

Solve the task below. Be sure to show your thinking in pictures, numbers, and words.

1. Farmer Brown spent \$144.00 to build a fence around the perimeter of his vegetable garden. He paid \$6.00 per meter for fencing.
2. Draw two possible plans for Farmer Brown's vegetable garden. Include the measurements.
3. Explain the steps you took to solve the problem.
4. Which plan do you think is the best design? Why?



Task 3 - Karl's Garden

Materials: rulers, grid paper

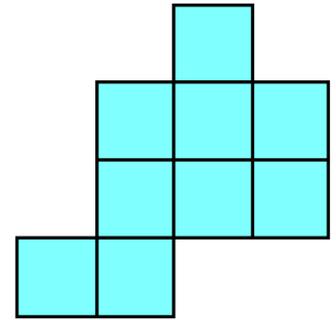
Solve the task below. Be sure to show your thinking in pictures, numbers, and words.

Karl's rectangular vegetable garden is 20 feet by 45 feet, and Makenna's is 25 feet by 40 feet. Whose garden is larger in area?



Task 4 - Area and Perimeter Exploration

Materials: rulers, grid paper



Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

Activity 1:

- Create all the possible arrays with an area of 36 square units.
- Draw them on grid paper and label their dimensions.
- How can you be sure that you found all the possible arrays with an area of 36 square units?
- What do you notice about the shapes and their perimeters?
- What is the relationship between the perimeter and the shape of an array?

Activity 2:

- Create all the possible arrays with a perimeter of 36 units.
- Draw your arrays on grid paper and label their dimensions.
- Use a chart to keep track of the area and dimensions for each rectangle.
- How can you be sure that you found all the possible arrays with a perimeter of 36 units?
- What do you notice about the shapes and their perimeters?
- What is the relationship between the area and the shape of an array?

Activity 3:

- What generalizations can be made about the relationship between the area and perimeter of a figure?
- How could this information be used to solve a problem in real life?
- When might it be useful to have this information?

Task 5 - Putting Down Carpet

Materials: rulers, grid paper

Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

Part 1:

You want to carpet 3 rooms of a house. Using the dimensions below, determine how much carpet is needed.

- Room 1: Perimeter is 38 yards and the width of the room is 12 yards.

- Room 2: Perimeter is 50 yards and the width is 13 yards.

- Room 3: Perimeter is 46 yards and the width is 10 yards.

For each room, determine how much carpet is needed.

Part 2:

In writing, explain how you solved this task.



Task 6 - Fencing Yards

Materials: rulers, grid paper

Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

Part 1:

For a summer job, your older brother is working for a fencing company. Determine how much fencing is needed for each of these rectangular yards.

- Yard 1: Area is 500 square meters. Length is 25 meters.
- Yard 2: Area is 567 square meters. Length is 9 meters.
- Yard 3: Area is 736 square meters. Length is 4 meters.

Part 2:

In writing, explain how you solved this task.



Task 7 - Making a Dog Pen

Materials: rulers, grid paper

Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

Part 1:

You want to make a rectangular dog pen using 20 yards of fencing. The side lengths must be in whole yards. Create as many different rectangular pens as you can?

Part 2:

Which dog pen gives your dog the most space to run around and play in? Write a sentence explaining how you know.

Part 3:

You want to build the rectangular dog pen with 20 yards of fencing against your house which is 20 yards wide. Which dimensions will give you the most space for your dog?



Task 8 - Puppy Fencing

Materials: rulers, grid paper

Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

1. Sasha is fencing an area in her backyard to create a play space for her pet dog. The fencing she chose was \$6.00 per yard and she spent \$288.00 altogether on fencing.
2. Draw two possible plans for the dog's play space in Sasha's backyard.
3. Explain your strategy.
4. Which plan is the best choice? Why?



Task 9 - Soccer Party Planning

Materials: rulers, grid paper, color tiles (optional)

Solve the tasks below. Be sure to show your thinking in pictures, numbers, and words.

You are hosting the end of season soccer party for your team and want to sit all the players together around one large table. Your parents can only rent small square tables, but they can be arranged into one large table for the team. Each small table has a side length of 3 feet and can sit 4 players (one at each side). The tables cost \$8.00 each to rent for the day and chairs are included in the price.

1. Draw 3 ways you can combine the small square tables to create a large table for all 24 players together, with no extra places. Draw a picture of each large table on grid paper. Be sure to label the sides, perimeter, and area for each of your large table arrangements.
2. For each large table you create, determine the total cost. Show your work.



Graphics and Fonts

