Playground Designer

3rd Grade Math Project · Design & Building

Grade 3 · Advanced

Name: _____ Date: _____ Class: _____

The Challenge

The school is building a new playground, and you are the designer! Fences, sandboxes, play pads and a garden all need careful math.

You will make: Playground Blueprint

I can…

- I can find perimeter and unknown side lengths.
- I can show rectangles with the same perimeter and different areas.
- I can classify quadrilaterals and split a shape into equal areas.

Materials

- Pencil
- Grid paper
- Ruler

Steps

1. Part 1: Fence the Field
2. Part 2: Sandbox Choices
3. Part 3: Play Pads
4. Part 4: Garden Corner
5. Part 5: Pattern Hunt
6. Check your work and share your playground blueprint.

Part 1: Fence the Field

The grass field is a rectangle 18 meters long and 12 meters wide.

1. How many meters of fence go all the way around?

2. The fence around the climbing area is 48 meters. Three sides are 15, 11 and 9 meters. How long is the fourth side?

Part 2: Sandbox Choices

You have 20 meters of border for a rectangular sandbox (whole-number sides).

Length	Width	Perimeter	Area
9	1	20	
8	2	20	
7	3	20	
6	4	20	
5	5	20	

3. List the rectangles you can make and the area of each.

4. Which sandbox has the most space to play?

Part 3: Play Pads

The play pads are shapes: a square, a rectangle, a rhombus and a trapezoid.

5. Which pads are quadrilaterals?

6. Which pad is both a rectangle and a rhombus?

7. Draw a quadrilateral that is not a rectangle, rhombus or square.

Part 4: Garden Corner

A square garden is split into 4 parts with equal area for 4 classes.

8. What fraction of the garden does each class get?

9. Show two different ways to split it.

Part 5: Pattern Hunt

Look at your sandbox table.

10. What happens to the area as the rectangle gets closer to a square?

11. Use the pattern to predict the largest area for 24 meters of border.

Extension Challenge

Find two rectangles with an area of 12 square meters and different perimeters.

How your project will be scored

Learning target	4 Exceeds	3 Meets	2 Approaching	1 Beginning
I can find perimeter and unknown side lengths.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can show rectangles with the same perimeter and different areas.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can classify quadrilaterals and split a shape into equal areas.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can explain my thinking with pictures, numbers and words.	Clear for every part	Clear for most parts	Some explanation	Little explanation
My playground blueprint is complete and matches my math.	Complete, neat, accurate	Complete	Partly complete	Not complete