


# Playground Blueprint

4th Grade Math Project · Building & Design

**Grade 4 · Standard**

Name: _____ Date: _____ Class: _____

## The Challenge

The school has money for a new playground, and the principal wants YOUR blueprint. Builders need exact measurements, so every number on your plan matters.

**You will make:** Playground Blueprint

## What you will learn

- Use the area and perimeter formulas for rectangles.
- Find an unknown side length.
- Convert from a larger unit to a smaller unit.
- Solve measurement word problems about time, money and liquid volume.

## Materials

- Grid paper
- Ruler
- Colored pencils

## How to do it

1. Part 1: The Play Area
2. Part 2: The Sandbox
3. Part 3: Fence and Units
4. Part 4: Building Day
5. Check your work and share your playground blueprint.

## Part 1: The Play Area

The main play area is a rectangle 24 meters long and 15 meters wide.

**1.** What is the area? Write the formula you used.

**2.** What is the perimeter?

**3.** Which measurement tells how much rubber matting to buy: area or perimeter? Why?

## Part 2: The Sandbox

The sandbox is a rectangle with an area of 96 square meters. One side is 12 meters long.

**4.** How long is the other side? Write an equation with a letter.

**5.** What is the perimeter of the sandbox?

## Part 3: Fence and Units

A fence goes all the way around the main play area (78 meters). Fencing costs $8 for each meter.

| Meters | 1 | 2 | 5 | 10 |
|---|---|---|---|---|
| Centimeters | 100 | | | |

**6.** How much does the fence cost?

**7.** How many centimeters long is the fence? (1 meter = 100 centimeters)

**8.** Complete the conversion table.

## Part 4: Building Day

Workers start at 8:30 AM. The job takes 3 hours 45 minutes.

**9.** How many minutes does the job take?

**10.** What time do the workers finish?

**11.** The workers drink 6 liters of water. How many milliliters is that?

**12.** Draw your blueprint on grid paper. Label every length, the area and the perimeter.

## ⭐ Extension Challenge

A garden must have an area of 36 square meters. Find the whole-number side lengths that need the least fence.

## How your project will be scored

| Category | 4 Excellent | 3 Good | 2 Developing | 1 Beginning |
|---|---|---|---|---|
| Math accuracy | All answers correct | Most answers correct | Some answers correct | Few answers correct |
| Shows work | Clear work for every step | Work for most steps | Some work shown | Little work shown |
| Explains thinking | Clear, complete explanations | Mostly clear explanations | Some explanation | Little explanation |
| Final product | Complete, neat and creative | Complete and neat | Partly complete | Not complete |