



Mapping a Floor Plan

Just like with a map, a floor plan is a drawn representation of a building. Both of these types of drawings use a scale or ratio to determine exact real life measurements. Unlike a map, which is used to help people figure out where they are and where they are going, a floor plan can help an architect know the proper measurements of a room or house they are building.

In this activity, we will ask you to map the floor plan of your house or apartment using a scale or ratio. You will need: paper, a ruler, tape measure, pencil, and eraser.

Instructions

- Have your child measure the width and length of one room or every room in the house. If you round to the nearest foot or half foot, this will make the scale for their drawing easier.
- Have the child determine their scale. For a larger house they may need a smaller scale (1 inch : 2 feet). For a small apartment they may need a larger scale (1/2 inch: 1 foot).
- Have the child draw the apartment or house based on their scale, adding in doors, windows or even pieces of furniture
- For an added exercise, depending on the age and grade level of the child, have them determine the perimeter of the rooms and house (by adding all four sides of a room together, or all exterior sides of the house together) or even the square footage (by multiplying the two sides of a room together).

Standards Grade 4 –

Mathematics Measurement and Data 3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

ANSWERS To Exercises (see next page):

1. Scale: $\frac{1}{8}$ " inch = 2.5' feet; $\frac{1}{4}$ " inch = 5' feet; 1" inch = 20' feet ; 2" inches = 40' feet
2. 3" inches = 9 feet; 9" inches = 27' feet; $\frac{1}{2}$ " inch = 1 $\frac{1}{2}$ ' feet; 2 $\frac{1}{2}$ " inches = 7.5' feet
3. Length: $\frac{7}{8}$ " and Width 1 $\frac{3}{8}$ " and Perimeter: 90 feet
4. Length: $\frac{7}{8}$ " and Width 1 $\frac{3}{4}$ "

Exercises in Determining Scale

A scale helps a person looking at a map or architectural plan know how what the size of the real house or land mass is in real life. For example, if a map's scale was 1 inch to 1 foot. Then a room that measured 5 feet in real life would be 5 inches on paper. Here are some math equations to help you learn more about scale.

1. Determine the measuring scale. If $\frac{1}{2}$ " inch equals 10 'feet. How much do the other measurements equal?

$$\frac{1}{8}" \text{ inch} = \underline{\hspace{2cm}}' \text{ feet}$$

$$\frac{1}{4}" \text{ inch} = \underline{\hspace{2cm}}' \text{ feet}$$

$$1" \text{ inch} = \underline{\hspace{2cm}}' \text{ feet}$$

$$2" \text{ inches} = \underline{\hspace{2cm}}' \text{ feet}$$

2. Determine the measuring scale. If 1" inch equals 3' feet.

$$\underline{\hspace{2cm}}" \text{ inch} = 9' \text{ feet}$$

$$\underline{\hspace{2cm}}" \text{ inch} = 27' \text{ feet}$$

$$\frac{1}{2}" \text{ inch} = \underline{\hspace{2cm}}' \text{ feet}$$

$$2 \frac{1}{2}" \text{ inches} = \underline{\hspace{2cm}}' \text{ feet}$$

3. At Belmont, the Central Parlor is 17.5 feet wide by 27.5 feet long. Using the scale in question 1, what would the measurements of a drawing of the Central Parlor look like in inches? What is the perimeter of the room?

Length: $\underline{\hspace{2cm}}$ " inch

Width: $\underline{\hspace{2cm}}$ " inches

Perimeter: $\underline{\hspace{4cm}}$

4. The Dining Room at Belmont is 17.5 feet wide by 105 feet long. Using the scale in question 1, determine the length and width of a drawing of the dining room.

Length: $\underline{\hspace{2cm}}$ " inch

Width: $\underline{\hspace{2cm}}$ " inches