




Geometry and Measurement: Scale

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Geometry and Measurement

7th grade
Missouri Learning
Standards (MLS)

7.GM.A.1



Objective

Draw and describe geometrical figures and describe the relationships between them.

Solve problems involving scale drawings of real objects and geometric figures, including computing actual lengths and areas from a scale drawing and reproducing the drawing at a different scale.

KEYS:

- **The student will solve problems involving scale drawings of real objects and geometric figures.**
- **The student will be able to compute actual lengths from scale drawings of real objects and geometric figures.**
- **The student will be able to compute actual area from scale drawings of real objects and geometric figures.**
- **The student will be able to produce a scale drawing using a different scale.**



Prior Knowledge Needed

- Students will need to know how to read and write.
- Students will need to know how to set up a fraction.
- Students will need to know how to multiply fractions.
- Students will need to know how to find equivalent fractions.
- Students will need to know how to set up a ratio.



Overview

In this lesson, you will be applying ratios and proportional relationships to geometry. A **scale drawing** is a drawing that is to scale of an original image.

When an object is "to scale," that means it is the same shape, but not the same size. If an actual bee is .5 inches in length, and the drawing is 2 inches, then the **scale factor** would be 2 because $2 \div .5 = 2$. The scale factor is the amount that an image is enlarged or shrunk.

Showa wants to build a new garden on his land. To make sure he has enough room for all his vegetables, he wants to draw a picture to scale. He has enough room to build a garden that is 24' x 24'. What is the scale if he draws in 12" x 12"

$$24' \times 12'' = 288$$

$$288 / 12 = 24$$

The scale drawing would be 1:24.

Let's try it as a class.





Let's try it on your own.

Everyone has to find one object from your home and draw it to scale. Be sure to measure the actual object. Once you scale your drawing, calculate the scale that you shrunk it or enlarged it.