

ACTIVITY

Scale a Comic

Objective

Students will predict dimensions on an enlarged scale drawing of an image and then create the scale drawing.

Grouping

individual students (suggested)

Materials

- 1 frame from a comic strip per student (approximately 1 to 2 inches square in size)
- 1 centimeter ruler per student
- 1 sheet of graph paper per student (4 squares per inch)

Teacher Preparation

Be sure that students have the required materials. Students may bring a comic strip from home or use a frame from the comic strip provided.

Key Concepts

Students will:

- choose a scale for a scale drawing of an image
- predict measurements in a scale drawing before drawing it
- make a scale drawing of an image
- compare predicted measurements in a scale drawing to the actual measurements in the completed drawing

Encourage students to use an equation or a proportion to help them predict measurements on the scale drawing to be sure they are interpreting the scale ratio correctly.

Activity

Scale a Comic

INSTRUCTIONS

STEP 1 Choose a single frame from the comic strip below or from another comic strip of your own. The comic strip below has three frames.

STEP 2 Carefully draw a 1 cm grid on the comic, starting at the bottom left corner of the frame.



STEP 3 Choose a scale that will enlarge the comic, but will allow the drawing to fit on an $8\frac{1}{2}$ in. \times 11 in. sheet of quarter-inch graph paper. An example of a scale is 1 cm : 1.25 in. Record the scale below.

Scale _____ *Answers will vary. Check students' answers.*

Visual Element	Original Measurement	Predicted Measurement	Scale Drawing Measurement

STEP 4 Measure four visual elements of your original comic and record the measurements in the table in Step 3.

STEP 5 Use your scale to predict corresponding measurements for the four visual elements on the scale drawing. Record the predicted measurements in the table.

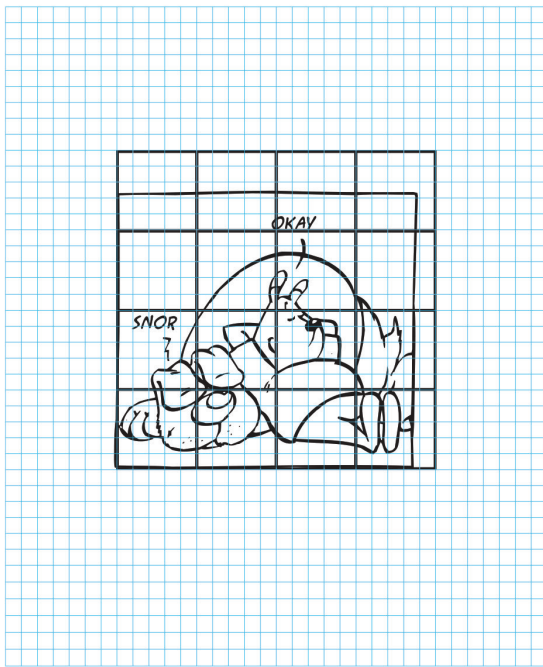
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WARM-UP EXERCISES

A scale drawing of the first floor of a house has a scale of 3 cm:2 m. Find the length and width in the actual house of a rectangular region on the scale drawing with the given dimensions.

1. length = 6.75 centimeters; width = 4.5 centimeters
actual length = 4.5 m; width = 3 m
2. length = 6 centimeters; width = 2.25 centimeters
actual length = 4 m; width = 1.5 m
3. length = 7.5 centimeters; width = 5.4 centimeters
actual length = 5 m; width = 3.6 m

STEP 6 Use your chosen scale and the grid lines to help you draw the scaled-up comic *square by square* on an $8\frac{1}{2}$ in. x 11 in. sheet of quarter-inch graph paper. Depending on the size of your comic, the scale you use, and the shape of the comic, the scaled-up comic may not fill the page.



STEP 7 Measure corresponding lengths on the scaled-up drawing for the visual elements previously measured. Record the measurements in the last column of the table.

STEP 8 Compare your predicted measurements to the scale drawing measurements.

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Instructions

STEP 1 Students choose a single frame from the comic strip shown in Step 2 or from another comic strip of their own choosing.

STEP 2 Students carefully draw a 1 cm grid on the comic, starting at the bottom left corner of the frame. A sample is given on the student page.

STEP 3 Students choose and record a scale that will enlarge the comic, but will allow the drawing to fit on an $8\frac{1}{2}$ in. x 11 in. sheet of quarter-inch graph paper. An example of a scale is 1 cm:1.25 in.

STEP 4 Students measure four visual elements of their original comic and record the measurements in the table in Step 3.

STEP 5 Students use their scales to predict corresponding measurements for the four visual elements on the scale drawing. Students record the predicted measurements in the table.

STEP 6 Students use their chosen scale and the grid lines to help them draw the scaled-up comic square by square on an $8\frac{1}{2}$ in. x 11 in. sheet of quarter-inch graph paper. Depending on the size of their comic, the scale they use, and the shape of their comic, students' scaled-up comics may not fill the page.

STEP 7 Students measure corresponding lengths on the scaled-up drawing for the visual elements previously measured and record the measurements in the last column of the table.

STEP 8 Students compare their predicted measurements to the scale drawing measurements.

TEACHER NOTES

- **Discussion** Ask students what length on the original comic corresponds to one quarter-inch grid square on the scale drawing if the scale is 1 cm:1.25 in. Discuss the possible advantages of using such a scale. **Sample answer:** At this scale, 2 mm on the original comic corresponds to one grid square on the scale drawing. This makes it easier to produce an accurate drawing.
- **Extension** Have students exchange their scale drawings and draw new scale drawings from each other's drawings at a reduced scale.
- **Whole Class Variation** Use the given comic. Pass one or two sheets of graph paper around the class and have each student complete just one grid square at a scale you provide.

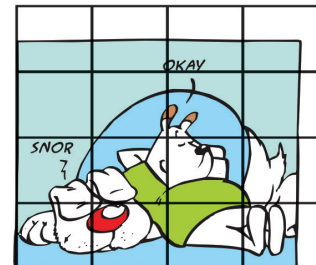
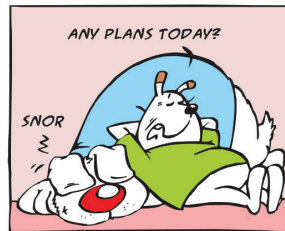
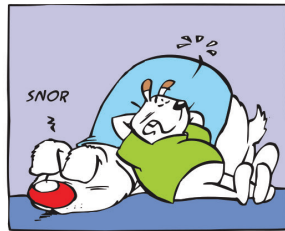
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Scale _____

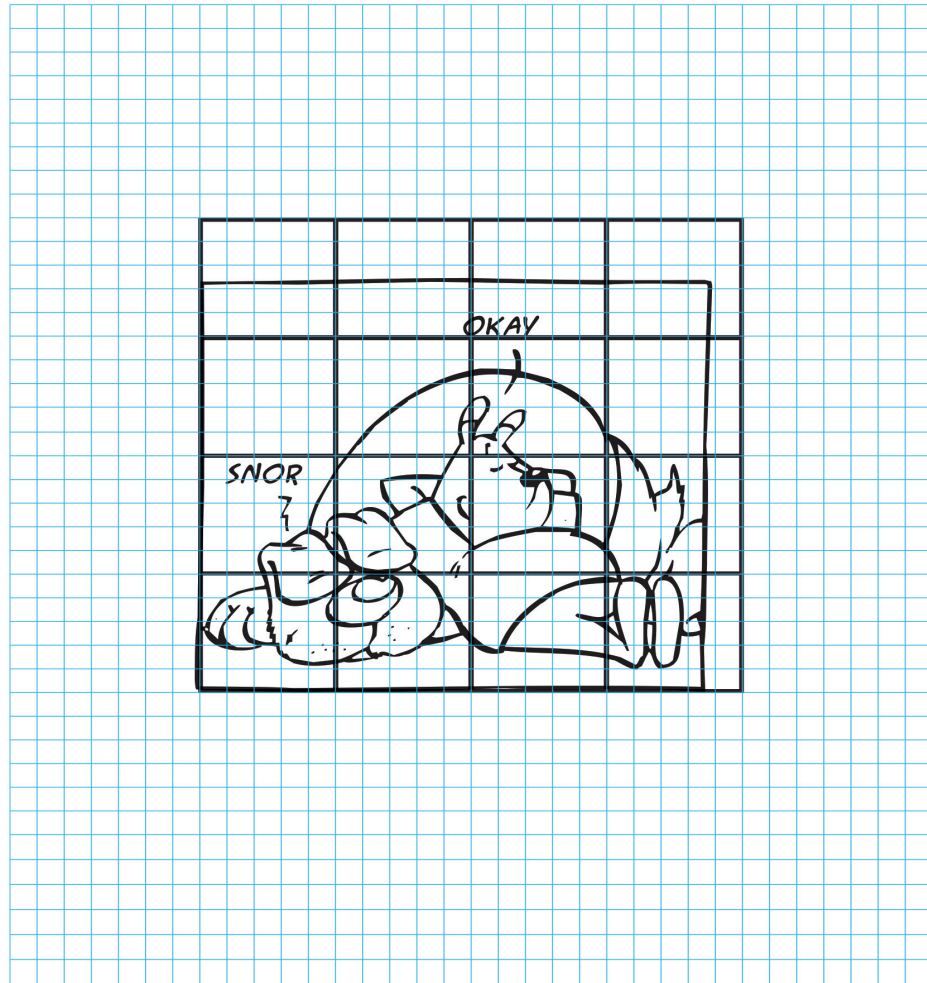
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STEP 6

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**STEP 7**

Measure corresponding lengths on the scaled-up drawing for the visual elements previously measured. Record the measurements in the last column of the table.

STEP 8

Compare your predicted measurements to the scale drawing measurements.