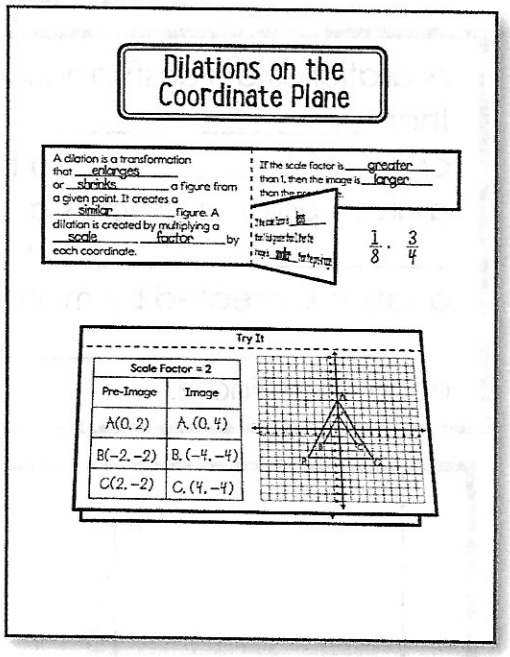
Dilations on the Coordinate Plane

Introduction

Give each student or small group a wide rubber band. Have them draw stick figures or balloons on them. Ask them to watch what happens when they stretch the rubber bands slowly and then relax them. As a group, discuss how the figure changes size but continues to resemble the original figure.



Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Dilations on the Coordinate Plane pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the flap book. Cut on the solid line to create two flaps. Apply glue to the back of the left section and attach it below the title.
4. Complete the explanation. (A dilation is a transformation that **enlarges** or **shrinks** a figure from a given point. It creates a **similar** figure. A dilation is created by multiplying a **scale factor** by each coordinate.)
5. Then, complete the explanations on the flaps. (If the scale factor is **greater** than 1, then the image is **larger** than the pre-image. If the scale factor is **less** than 1 but greater than 0, then the image is **smaller** than the pre-image.) Write two examples of a scale factor that would result in a larger image under the top flap. Write two examples of a scale factor that would result in a smaller image under the bottom flap.
6. Cut out the two flaps. Apply glue to the gray glue section and place the *Try It!* flap on top to create a stacked two-flap book. Glue the stacked flap book to the bottom of the page.
7. On each flap, write the coordinates of the triangle in the *Pre-Image* column. Multiply each coordinate by the scale factor to generate the coordinates of the image. Draw the new figures on the coordinate plane.

Reflect on Learning

To complete the left-hand page, have students think about the effect of the scale factor. Students should describe how a scale factor of 1 would affect the pre-image. Then, have students describe real-world situations where a scale factor other than 1 would be useful.

Answer Key

Table 1: (0, 4), (–4, –4), (4, –4); Table 2: (0, 1), (–1, –1), (1, –1); Reflect: A scale factor of 1 would cause the image to stay the same size.

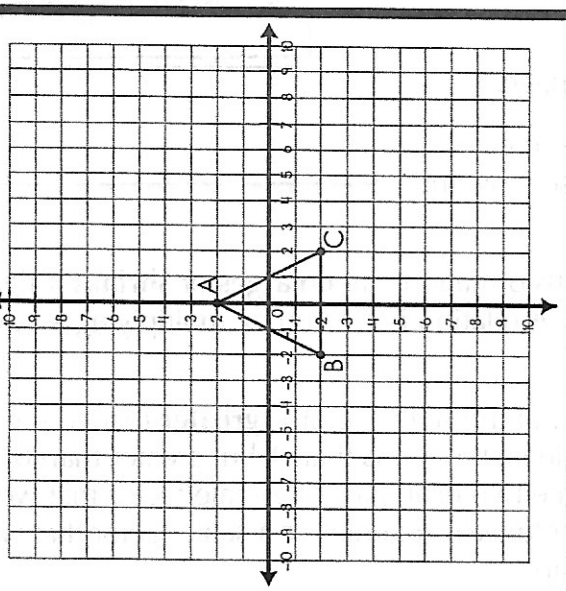
Dilations on the Coordinate Plane

A dilation is a transformation that _____ or _____ a figure from a given point. It creates a _____ figure. A dilation is created by multiplying a _____ _____ by each coordinate.

If the scale factor is _____ than 1, then the image is _____ than the pre-image.

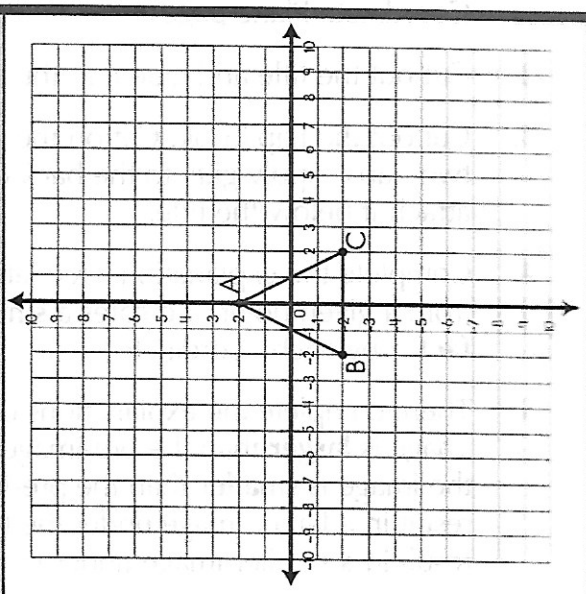
If the scale factor is _____ than 1 but greater than 0, then the image is _____ than the pre-image.

Try It



Scale Factor = 2				
Image				
Pre-Image				

glue



Scale Factor = $\frac{1}{2}$				
Image				
Pre-Image				

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