Math in Focus
Singapore Math
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# Family Letters and Activities

Dear Family,

In this chapter, your student will learn about geometric transformations. Some of the skills your student will practice are:

- *recognizing translations, reflections, rotations, and dilations*

- *drawing the image of a figure after a translation, a reflection, a rotation, or a dilation*

- *finding the coordinates of points after a given translation, reflection, rotation, or dilation*

Activity

Recognizing the effects of transformations is a useful skill that students may use in their future math classes. You can help your student understand this concept with this activity.

- In the diagram below, *ACEG* is a square, and *B*, *D*, *F*, and *H* are the midpoints of the sides of the square. The eight small triangles are all congruent.
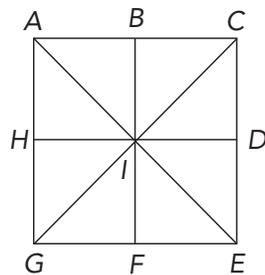
- With your student, choose two of the small triangles and describe a transformation that maps one of the triangles onto the other. For example, a reflection in $\overleftrightarrow{GC}$ maps Δ*AIH* onto Δ*EIF*.

- Next, try to find another way to map one of the triangles onto the other. For example, another way to map Δ*AIH* onto Δ*EIF* is to rotate it 90° clockwise about point *I*, then reflect it in $\overrightarrow{HD}$.

- Repeat the activity with more pairs of triangles.

Vocabulary to Practice

A geometric **transformation** maps every point in a plane onto its **image**.

A **reflection** about a line, or flip, maps a figure to its mirror image on the opposite side of the line.

A **translation**, or slide, moves every point on a plane the same distance in the same direction.

A **rotation**, or turn, moves a figure through a given angle about the center of the rotation.

A point that is mapped onto itself by a transformation, such as the center of a rotation or the points on a line of reflection, is called an **invariant** point.

Online Resources

For additional Parent Resources *my.hrw.com*