Use this GO to consolidate and organize your knowledge on the three rigid transformations: rotations, reflections, and translations.

**Reflections**

1. In your own words, describe what a reflection is.

2. On the grid at right, reflect $ABCD$ four different ways. For example, reflecting across the $x$-axis would be different than reflecting across a diagonal line. At least one line of reflection should pass through the interior of $ABCD$. Color-code each reflection with its line of reflection.

3. What happens to a shape’s reflection if the line of reflection is moved farther away from the object? What happens if it is moved closer?

4. If a line segment connects a point with its reflected image, explain the relationship between this line segment and the line of reflection. Draw an example at right.

5. Draw several geometric shapes you have studied so far that have this type of symmetry. How is reflection symmetry related to reflection?
Transformation GO (Graphic Organizer)

Rotations
1. In your own words, describe what a rotation is.

2. On the grid at right, rotate $FGH$ three different ways. Each way should have a different point of rotation and a different angle of rotation. At least one point of rotation should be a vertex of $FGH$. Color-code each point of rotation with its rotated image.

3. Explain everything you know about rotation angles. For example, can you give an example of two possible rotations that would create the exact same image? When is it not necessary to identify if the rotation is counter-clockwise versus clockwise?

4. Explain the relationship between rotations and reflections. How can you use reflections to rotate a figure? Create an example of a way to use reflections to rotate a figure $90^\circ$ clockwise on the grid at right. Be sure to show the lines of reflection as well as the point of rotation.

5. Draw several geometric figures you have studied so far that have this type of symmetry. How is rotation symmetry related to rotation?
Transformation GO (Graphic Organizer)

Translations

1. In your own words, describe what a translation is.

2. On the grid at right, translate XYZ three different times to three different locations. For each translation, describe the translation (such as “up 2 units and to the right 4 units”) below. Color-code the translated image with the description below.

3. Explain the relationship between translations and reflections. How can you use reflections to translate a shape? Create an example of a way to use reflections to translate a figure 8 units to the right on the grid at right. Be sure to show the lines of reflection.

4. Explain everything you know about naming transformations. For example, if a figure PQR is transformed repeatedly, what should the images be named? And if you are given the names of a shape and its image, what does the letter order convey?