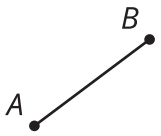
Unit 1, Lesson 15

Symmetry

Let's describe some symmetries of shapes.

15.1 Back to the Start

Here is a segment AB:



If we translate the segment up 5 units then down 5 units, it looks the same as it did originally.

1. What other sequences of rigid transformations create an image that fits exactly over the original segment?

2. Are there any *single* rigid motions that do the same thing?

15.2 Self-Reflection

Determine all the **lines of symmetry** for the shape your teacher assigns you. Create a visual display about your shape. Include these parts in your display:

- The name of your shape
- The definition of your shape
- A drawing of each line of symmetry
- A description in words of each line of symmetry
- One nonexample in a different color (a description and drawing of a reflection *not* over a line of symmetry)

Are you ready for more?

Look at all of the shapes the class explored and focus on those which had more than one line of symmetry.

1. What is true for all the lines of symmetry in these shapes?

2. Give an example of a shape that has two or more lines of symmetry that do not intersect at the same point.

3. What would happen if you did a sequence of two different reflections across lines of symmetry for the shapes you explored in class?

15.3 Diabolic Diagonals

Kiran thinks both diagonals of a kite are lines of symmetry. Tyler thinks only 1 diagonal is a line of symmetry. Who is correct? Explain how you know.

Lesson 15 Summary

A shape has **symmetry** if there is a rigid transformation which creates an image that fits exactly over the original shape. A shape has **reflection symmetry** if there is a reflection that takes the shape to itself, and the line of reflection in this case is called a **line of symmetry**. A regular hexagon has many lines of symmetry. Here are 2 of them. What other lines create a reflection where the image is the same as the original figure?

