1.2 Rotation Symmetry and Transformations

Explore Symmetry of a Rotation

The following notes provide guidelines to help you adapt the Explore Symmetry of Rotation section from *MathLinks 9*.

- Using a protractor, review the number of degrees in a complete turn (a circle), and how to read a protractor from both directions when measuring angles.
- Review how to rotate an image around a point.
- Students may benefit from working through this exercise as a teacher-led activity.
- To avoid frustration with #2, use **BLM 1–6 Section 1.2 Explore Symmetry of a Rotation**. Provide each student with a copy of the symbol on paper and a copy of the symbol on an overhead transparency. Demonstrate how to rotate the symbol on an interactive whiteboard or overhead projector.
- Make sure students have a protractor for #2c).

Examples

- For the Working Examples and the Show You Knows, provide students with overhead transparencies to trace instead of tracing paper, or photocopy the shapes on an overhead transparency for them to cut out and use. This way, they can rotate the symbols until they see the shapes are aligned.
- Allow students to use calculators to assist with division.

Communicate the Ideas, Practise, and Apply

- It may be beneficial to copy the shapes from the questions onto overhead transparencies for students to cut out and use as manipulatives.
- In #8b), demonstrate what it looks like when you hold cards in your hand, or supply cards for students to use to experiment.
- To promote discussion, have students complete #7 to #9 in pairs.
- Provide students who need additional practice with **BLM 1–7 Section 1.2 Extra Practice**.

Math Link

- Provide students with **BLM 1–8 Section 1.2 Math Link** so students can cut out a larger version of the design.
- Once students have tried the example in the Math Link, have them cut out a different shape from **BLM 1–8 Section 1.2 Math Link** and create their own design.

Common Errors

- Students may have difficulty rotating shapes.

$\mathbf{R}_x$ Pair these students with strong role models who can assist and guide them through the rotations.

- Students may confuse the order of rotation and angle of rotation.

$\mathbf{R}_x$ Post examples as visuals. Remind students that the word *angle* means they need to have degrees in the answer.