

Measurement

Unit 12: 2D Shapes

Lesson 62: Reflections

Objective

*Perform reflections on a grid.

*Create and extend symmetrical designs and patterns resulting from reflections.

*Identify and describe reflections and patterns made by reflection. [ME4-11](#) and [ME4-12](#)

Complete *all* OR a selection of the following activities

Warm-up: Mirror Me

Materials:

- Open space, working in pairs

Steps:

1. Pair up and face each other. One is the "mover," the other the "mirror."
2. The mover makes slow, simple gestures. The mirror copies in real time.
3. Switch roles.

Discuss:

- "Was it always easy to mirror? What made it hard?"
- "What helped you *anticipate* a move?"

Teaching Activity A: Reflect It on the Grid

Materials:

- Grid paper
- Pre-drawn figures (triangle, letter F, house shape)
- Mirror line drawn on grid (e.g., x-axis or y-axis)

Steps:

1. Model: "If the point is (3,2), and we reflect across the y-axis, where does it land?"
2. Students complete reflections of pre-drawn figures.
3. Label all reflected coordinates.

Scaffold:

- Start with vertical/horizontal lines of symmetry.
 - For added challenge, try diagonal lines or double reflections
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Teaching Activity B: Symmetry Pattern Builder

Materials: Colored tiles or pattern blocks, symmetry mats, grid paper

Steps:

1. Students use pattern blocks or draw patterns on **half** of a grid (above/below or left/right of a reflection line).
 2. Then they **complete the reflection** to build a **symmetrical design**.
 3. Encourage the use of **color patterns** and **shape repetition**.
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Real-Life Anchoring: Math in the World and Life

Show examples of reflection in the real world:

- Butterflies
- Snowflakes
- Faces
- Buildings near water
- Road signs and logos

Ask:

"What happens when you look in a mirror?"

"Why is symmetry important in design, nature, and art?"

Mini Activity: Students find one symmetrical object around them and sketch or describe it.

Exploration Stations: Playing with Math

Station 1: Grid Flip Challenge

- Flip shapes across lines (pre-drawn or student-made)
- Predict before you draw the reflection

Station 2: Symmetry Hunt

- Search home or outdoors for symmetrical objects
- Sketch or photograph them

Station 3: Inkblot Creations

- Folded paper + paint drops → open to reveal a symmetrical blot
- Name what you see!

Station 4: Code-a-Reflection

- Give coordinates and directions
"Start at (4,1). Reflect across y-axis. Where do you land?"

Questions for Understanding: Perspective-taking and application

- ☐ Can a shape look symmetrical but not be a reflection? Can it be a reflection but not look symmetrical?
- ☐ How can you tell if a shape has been reflected or just moved?

Wrap-Up Reflection: Learning into life

- ☐ Do reflections make shapes look more like twins, shadows, or dance partners? Why does the image feel that way to you?
- ☐ When a shape flips across a line, what changes and what stays the same? How does the "flipped" shape still remember its original self?

Extend Learning: Creative Invitation

Reflective Art Challenge

Steps:

1. Fold a piece of grid paper in half vertically or horizontally.
 2. On one half, draw part of an image using shapes, color, and pattern.
 3. Reflect it carefully on the other side using counting and symmetry rules.
 4. Give the creation a name and write 2–3 sentences describing:
 - How reflection helped build the design
 - What was challenging or satisfying
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JUMP Math 4.2 Lessons

Perform reflections on a grid.

Create and extend symmetrical designs and patterns resulting from reflections.

Identify and describe reflections and patterns made by reflection. [ME4-11](#) and [ME4-12](#)

Lesson co-created by Open AI (2025), [Aiden Cinnamon Tea, Chat GPT 4.5], Jump Math Teacher Resources and Laura Mann @ NIDES, June 2025.