

Symmetry Learning Stations

Grades 2-5 | With Differentiation & Answer Key

Name: _____ Date: _____

Instructions for Teachers: These 5 stations can be set up in the classroom. Students work at each station for 10-15 minutes and then switch to the next. Answer sheets at the end allow self-checking.

1 Identify Mirror Lines Introduction

Task: You will receive 5 different patterns (on cards). Draw the symmetry axis/axes. There may be more than one!

- Examined all 5 patterns
- Drew mirror lines
- Compared with a classmate

2 Mirroring Patterns (with template) Introduction

Task: The left half of a pattern is given. Complete the right half symmetrically. Use colored pencils!

(3 different patterns to mirror - predefined on worksheet)

- Completed all 3 patterns symmetrically
- Used colors correctly
- Checked with a mirror

3

Multiple Axes (Challenge) Medium

Task: Design a pattern with **at least 2 axes of symmetry** (vertical AND horizontal). Use at most 3 colors.

Size: 8x8 or 10x10 beads. Use grid paper!

- Designed the pattern
- Both axes of symmetry are visible
- Double-checked with a mirror

4

Explore Rotational Symmetry Medium

Task: You receive 4 cards with different letters/shapes. Turn the worksheet by 180° (upside down). Which ones look the same?

Example letters: A, H, N, S, Z, O

- Examined all cards
- Identified rotationally symmetrical shapes
- Understood the difference between reflection \leftrightarrow rotation

5

Design Ornaments (Creative) Advanced

Task: Design a symmetrical ornament (border or grid ornament). The basic pattern is repeated 3–4 times. It should look "pleasing"!

Tip: Look at real ornaments (tiles, wallpapers, artworks). Use grid paper and colored pencils.

- Designed basic symmetrical pattern
- Repeated it at least 3 times
- Ensured color harmony
- Discussed with classmates: "Do you like the pattern?"

Student Tracking Sheet

Station	Task Completed	Teacher Signature
1 – Mirror Lines	<input type="checkbox"/>	
2 – Mirroring Patterns	<input type="checkbox"/>	
3 – Multiple Axes	<input type="checkbox"/>	

4 - Rotational Symmetry	<input type="checkbox"/>	
5 - Ornaments	<input type="checkbox"/>	

Answer Key: Symmetry Learning Stations

These solutions are for student self-checking after completing the stations.

Station 1 – Identify Mirror Lines

- **Butterfly:** 1 axis of symmetry (vertical in the middle)
- **Rectangle:** 2 axes of symmetry (1 vertical, 1 horizontal)
- **Regular Pentagon / Star:** 5 axes of symmetry
- **Circle:** Infinitely many axes of symmetry (any line through the center)
- **Letter F:** 0 axes of symmetry (asymmetric)

Station 2 – Mirroring Patterns

The right half must be a mirror image of the left half. Pay attention to the same distance of the colored pixels to the red center line (e.g. if a pixel on the left has a distance of 2 squares, it must also have a distance of 2 squares on the right).

Station 3 – Multiple Axes

Your pattern must match both when folded vertically (left/right congruent) and when folded horizontally (top/bottom congruent). Examples include: crosses, squares, or uniform flowers/diamonds.

Station 4 – Rotational Symmetry

- **Rotationally symmetrical by 180°:** The letters **H, N, S, Z, O** look exactly identical when turned upside down.
- **Not rotationally symmetrical by 180°:** The letter **A** (stands on its tip when turned upside down).

Station 5 – Design Ornaments

An ornament is correct when the basic symmetrical pattern (e.g., 4x4 or 5x5 fields) is repeated exactly and without gaps or shifts in a chain or pattern.