

3.20.2019

# LINE(S) OF SYMMETRY

## Subject

Mathematics

## Prepared By

[Instructor Name]

## Grade Level

2

## Overview

This lesson plan covers teaching content for;

1. Line(s) of symmetry

## Objectives

Students should be able to;

1. Identify shapes with line(s) of symmetry.

## Activity Starter/Instruction

1. Hold up a piece of paper and fold in half.
2. Ask students for "help" on how to make a heart.
3. Guide students toward the idea that you need to make half of a heart, then unfold it.
4. Think aloud as you cut half of a heart about how both sides will match and be symmetrical since you folded the paper evenly.
5. Open up and display the two halves that made a whole heart.
6. Point to the middle and draw an invisible line from the top to the bottom. Explain that this invisible line, where the fold was, is the line that divides in half two sides that match. Add that this line is called a line of symmetry.

## Teacher Practice

### Lesson 1-20 Mins

1. Draw a face on the board, with ears. Draw a line in down the middle of the face and

## Guided Practice

### Lesson 1-15 Mins

1. Let your students know that the next activity will involve using a mirror to check figures for symmetry. Model the checking process before having students begin the activity.
2. Explain to students that if a picture can be divided into two matching halves that mirror each other, we say that it has symmetry.
3. Hold up the construction paper heart, then hold up a mirror across its center to reflect its left half. Lift the mirror and ask students whether the reflection matches what's

## Materials Required

- Pre-cut alphabets
- Small open container filled with shapes cut from (Heart, triangle, and square cut from construction paper)
- White paper
- Scissors
- Pencils

## Additional Resources

- <https://www.cpalms.org/Public/PreviewResource/Details/12345>
- <https://www.teacher.org/lesson-plan/symmetry>
- [http://www.teach-nology.com/lessons/lsn\\_pln\\_view\\_lessons.php](http://www.teach-nology.com/lessons/lsn_pln_view_lessons.php)
- <https://www.brighthubeducation.com/elementary/teaching-the-concept-of-symmetry>

## Additional Notes

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### Assessment Activity

1. Give each student a piece of construction or chart paper.
2. Have students divide their paper into two columns: "Has Symmetry" and "Does Not Have Symmetry."
3. Pass out pre-cut capital letters and ensure that students have a mix of letters, so that some have symmetry and some do not.

Capital letters that have symmetry: A, B, C, D, E, H, I, K, M, O, Y, U, V, W, X, Y

Capital letters that do not have symmetry: F, G, J, L, N, P, Q, R, S, Z

4. Have students fold each letter to make a decision on whether it has symmetry or not. Students should then sort their letters into the two columns on their paper.
5. For all letters in the "Has Symmetry" column, students should draw any lines of symmetry that they found.

- explain that our faces are symmetrical; we have two eyes and two ears, with one of each on each side.
2. Tell students we will now draw an invisible line from the top of our heads to our shoes.
  3. Direct students to put their hands together directly in front of the middle of their bodies, as though they were in the middle of clapping.
  4. Demonstrate "drawing" a line of symmetry down the middle of your face. Complete the body line of symmetry by moving your hands down to between your shoes.
  5. Direct students to do the same.
  6. Explain that we just created an invisible line of symmetry down the middle between the left and right sides of ourselves. Add that we can do this with shapes.
  7. Hold up the heart from the Symmetrical Shapes sheet and ask students to remember what happened to the heart cutout from the Introduction. Ask them to think about where the line of symmetry would be.
  8. Fold the heart shape in half, on the line and emphasize only the vertical line works to show matching half.
  9. Fold the heart shape horizontally to demonstrate that this does not cut the shape in half, nor does it create matching halves.
  10. Repeat the above procedure with the triangle, demonstrating that the line of symmetry only works when it's folded horizontally.

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behind the mirror.

4. Think aloud to confirm whether the figure is symmetrical. Ask and answer the following questions: The right half seems to match the reflection of the left half, but would the two halves match if I were to fold it? Are the two halves the same size and shape? If the answer is yes for both, then the heart is symmetrical.
5. Check for symmetry in other directions by holding the mirror across different parts of the heart and repeating the process of thinking aloud.
6. Show the class that the heart is only symmetrical in one direction. Fold the heart vertically and horizontally to show where the halves match and do not match.

### Grouping

7. Organize your students into groups of 2-3 students. Give each group a hand mirror, a bag of shapes.
  8. Have the groups repeat the process you modeled to check their shapes for symmetry.
  9. As each shape is discussed, reinforce why it does or doesn't have symmetry.
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	11. Hold up the square and show how it works both horizontally and vertically. Ask students why this is. Make sure they understand the importance of the fact that a square has four equal sides.	
Summary		
1. Review the meanings of "half," "symmetrical," and "line of symmetry."		