

Match the Halves

Decide whether a cut makes two matching pieces.

2.MG.3.c "Describe the two resulting figures formed by a line of symmetry as being congruent (having the same shape and size)."

NAME _____

DATE _____

CONGRUENT PIECES

A line of symmetry makes two pieces with the same shape and the same size. You could fold one piece over the other, and they would match.

A butterfly is divided down the middle from top to bottom. Its two sides match.

NOT CONGRUENT PIECES

Some cuts make pieces with different shapes or different sizes. These pieces do not match, so the cut is not a line of symmetry.

A three-sided paper shape is cut from one side to another near a corner. It makes a small triangle and a four-sided piece.

1 SORT 8 items

For Part 1, circle MATCH or NO MATCH for each item, then for Part 2, choose two items and explain how you knew.

1. A square is split from its top left corner to its bottom right corner.

2. A rectangle is split from its top left corner to a point halfway along its bottom side.

3. A circle is split by a straight line that does not go through its center.

4. A rectangle is split straight down the middle from top to bottom.

5. A square is split straight across the middle from left to right.

6. A circle is split by a straight line near its bottom edge.

7. A square is split from the middle of its left side to the middle of its right side.

8. A circle is split by a straight line through its center.

2

PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ HOW I KNEW _____

ITEM # _____ HOW I KNEW _____

3

MAKE YOUR OWN

One of each

For Part 3, write one new example that would be MATCH and one new example that would be NO MATCH.

MATCH

NO MATCH

CHALLENGE

Draw a rectangle with a line of symmetry, then name the two congruent pieces it makes.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A square is split from its top left corner to its bottom right corner.	MATCH	The diagonal makes two triangles with the same shape and size.
2	A rectangle is split from its top left corner to a point halfway along its bottom side.	NO MATCH	The cut makes a triangle and a four-sided piece.
3	A circle is split by a straight line that does not go through its center.	NO MATCH	The two circle pieces are different sizes.
4	A rectangle is split straight down the middle from top to bottom.	MATCH	The cut makes two equal rectangles.
5	A square is split straight across the middle from left to right.	MATCH	The cut makes two equal rectangles.
6	A circle is split by a straight line near its bottom edge.	NO MATCH	The small bottom piece and the larger top piece are not the same size.
7	A square is split from the middle of its left side to the middle of its right side.	MATCH	The cut makes two equal rectangles.
8	A circle is split by a straight line through its center.	MATCH	The cut makes two equal half-circles.

PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **MATCH:** A heart is split straight down its middle.
- **NO MATCH:** A rectangle is split from its top left corner to a point near the right end of its bottom side.

Challenge: Draw a rectangle with a horizontal line through its center. It makes two congruent rectangles.

Items 1, 4, 5, 7, and 8 are MATCH. Items 2, 3, and 6 are NO MATCH. Accept student explanations that say the pieces have the same shape and size, or that the pieces would match when folded.