Outside Edge Detectives

Name each joined shape by its outside sides.

3.MG.4.f "Combine no more than three polygons, where each has three or four sides, and name the resulting polygon (triangles, quadrilaterals, pentagons, hexagons, octagons)."

NAME _____ DATE _____

PENTAGON

A joined shape with 5 outside sides is a pentagon. Do not count sides where pieces touch inside the shape.

Sample outline: Count 5 outside sides. This is a pentagon.



HEXAGON

A joined shape with 6 outside sides is a hexagon. Trace all the way around the outside edge as you count.

Sample outline: Count 6 outside sides. This is a hexagon.



1 SORT

8 items

Part 1: Look at each joined outline and circle PENTAGON or HEXAGON, then Part 2: pick two item numbers and explain how counting the outside sides helped you sort them.

1.

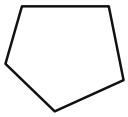


Figure 1. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

2.

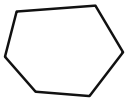


Figure 2. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

3.

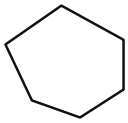


Figure 3. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

4.

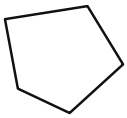


Figure 4. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

5.

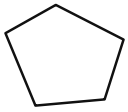


Figure 5. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

6.

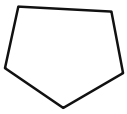


Figure 6. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

7.

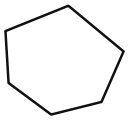


Figure 7. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

8.

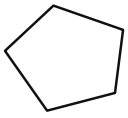


Figure 8. Circle: PENTAGON or HEXAGON

PENTAGON HEXAGON

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

Part 3: Draw one new joined outline for each category using two or three triangles or quadrilaterals, and write PENTAGON or HEXAGON under each drawing.

PENTAGON

HEXAGON

CHALLENGE

Challenge: Draw a shape made by joining exactly 3 triangles or quadrilaterals. Name the final polygon and write how many outside sides it has.

ANSWER KEY

Outside Edge Detectives

GRADE 3 · 3.MG.4.f

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1. Circle: PENTAGON or HEXAGON (polygon)	**PENTAGON**	The outline has 5 outside sides.
2	Figure 2. Circle: PENTAGON or HEXAGON (polygon)	**HEXAGON**	The outline has 6 outside sides.
3	Figure 3. Circle: PENTAGON or HEXAGON (polygon)	**HEXAGON**	The outline has 6 outside sides.
4	Figure 4. Circle: PENTAGON or HEXAGON (polygon)	**PENTAGON**	The outline has 5 outside sides.
5	Figure 5. Circle: PENTAGON or HEXAGON (polygon)	**PENTAGON**	The outline has 5 outside sides.
6	Figure 6. Circle: PENTAGON or HEXAGON (polygon)	**PENTAGON**	The outline has 5 outside sides.
7	Figure 7. Circle: PENTAGON or HEXAGON (polygon)	**HEXAGON**	The outline has 6 outside sides.
8	Figure 8. Circle: PENTAGON or HEXAGON (polygon)	**PENTAGON**	The outline has 5 outside sides.

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)

- **PENTAGON**: Join one triangle and one quadrilateral along a full side, with no outside sides in a straight line. The outside edge has 5 sides, so label it PENTAGON.
- **HEXAGON**: Join two quadrilaterals along one full side, with no outside sides in a straight line. The outside edge has 6 sides, so label it HEXAGON.

Challenge: Join a triangle to a quadrilateral along one full side, then join a second triangle to another outside side. Keep the outside corners bent. The final outline is a hexagon with 6 outside sides.

Answers: 1 PENTAGON, 2 HEXAGON, 3 HEXAGON, 4 PENTAGON, 5 PENTAGON, 6 PENTAGON, 7 HEXAGON, 8 PENTAGON. In Part 2, students should explain that they counted only the outside sides, not sides where joined pieces touch.