Shape Detectives

Sort figures by the rules for polygons.

3.MG.4.a "Describe a polygon as a closed plane figure composed of at least three line segments that do not cross."

NAME _____ DATE _____

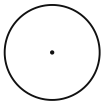
POLYGON

A polygon is a closed, flat shape made of at least three straight line segments. Its sides do not cross.

A triangle 

NOT A POLYGON

A figure in this group is not a polygon. It may be open, have a curved side, or have sides that cross.

A circle 

1 SORT

8 items

For each figure, circle its category, then pick two figures and explain how you knew where each one belongs.

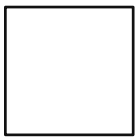
1. 

Figure 1

POLYGON **OTHER**

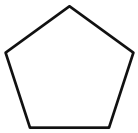
2. 

Figure 2

POLYGON **OTHER**

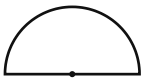
3. 

Figure 3

POLYGON **OTHER**

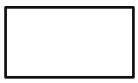
4. 

Figure 4

POLYGON **OTHER**

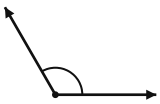
5. 

Figure 5

POLYGON **OTHER**

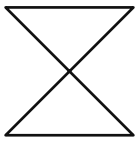
6. 

Figure 6

POLYGON **OTHER**

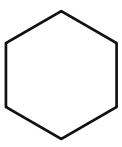
7. 

Figure 7

POLYGON **OTHER**

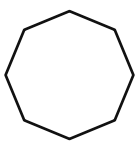
8. 

Figure 8

POLYGON **OTHER**

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

Write one new example of a polygon and one new example that is not a polygon.

POLYGON _____

OTHER _____

CHALLENGE

Draw a figure that is closed but is not a polygon, then explain why it is not a polygon.

ANSWER KEY # Shape Detectives

GRADE 3 · 3.MG.4.a

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	**POLYGON**	It is closed and has four straight sides that do not cross.
2	Figure 2 (pentagon)	**POLYGON**	It is closed and has five straight sides that do not cross.
3	Figure 3 (semicircle)	**OTHER**	It has a curved edge.
4	Figure 4 (rectangle)	**POLYGON**	It is closed and has four straight sides that do not cross.
5	Figure 5 (angle 120°)	**OTHER**	It is open, not closed.
6	Figure 6 (polygon)	**OTHER**	Its line segments cross.
7	Figure 7 (hexagon)	**POLYGON**	It is closed and has six straight sides that do not cross.
8	Figure 8 (octagon)	**POLYGON**	It is closed and has eight straight sides that do not cross.

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)

- **POLYGON**: A closed seven-sided figure made of straight line segments that do not cross.
- **OTHER**: A closed oval with a curved edge.

Challenge: A closed oval. It is not a polygon because its edge is curved, not made of line segments.

Sort answers are 1 POLYGON, 2 POLYGON, 3 OTHER, 4 POLYGON, 5 OTHER, 6 OTHER, 7 POLYGON, 8 POLYGON. For the two explanations, accept accurate reasons about being closed, having straight line segments, and having no crossing sides.