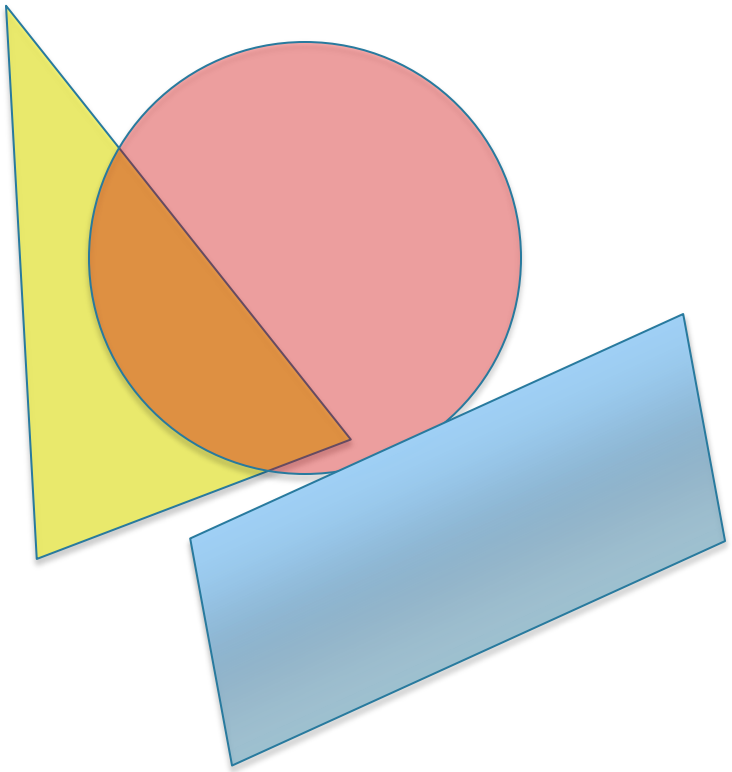
Folding, Cutting, Creating—How Geometry Shapes Up

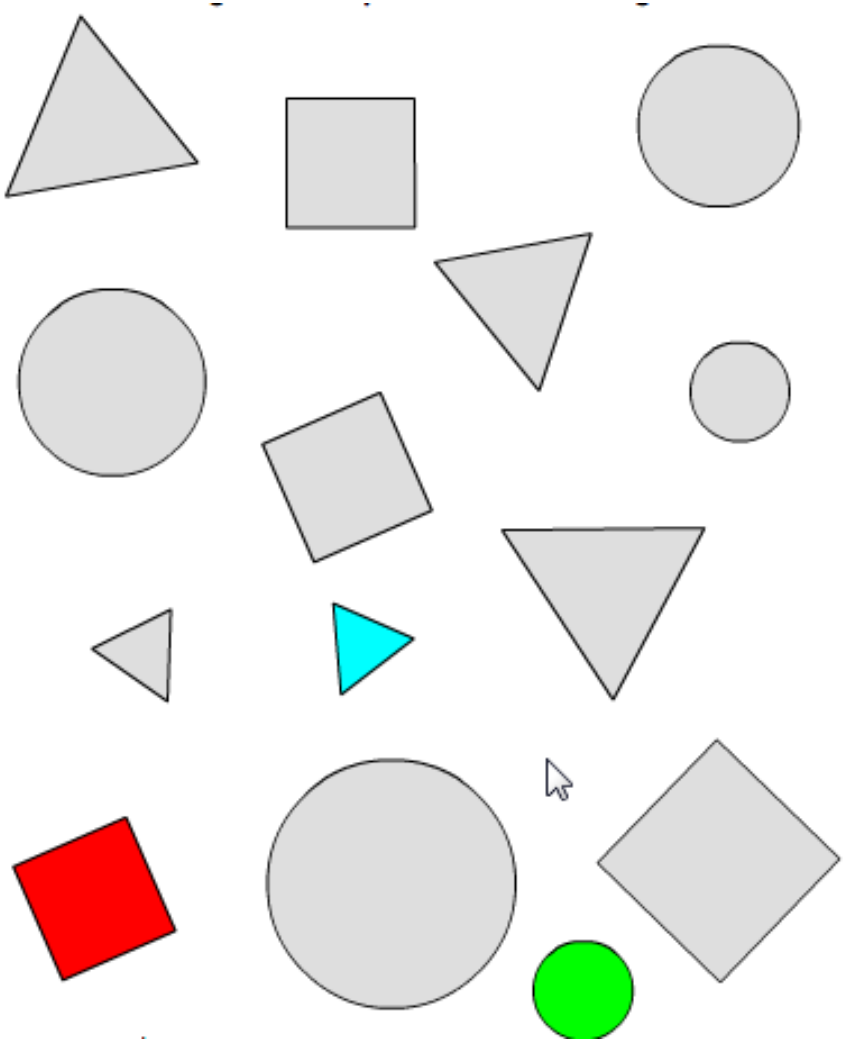
Amy Mayfield

NCTM Annual Meeting

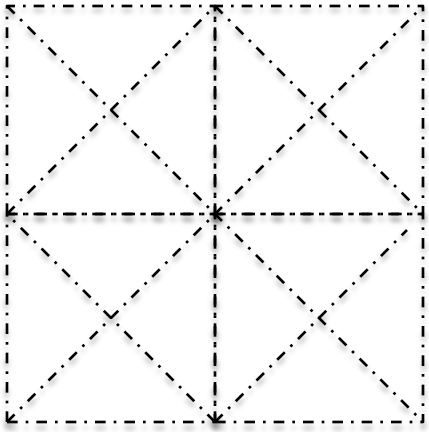
April 2011

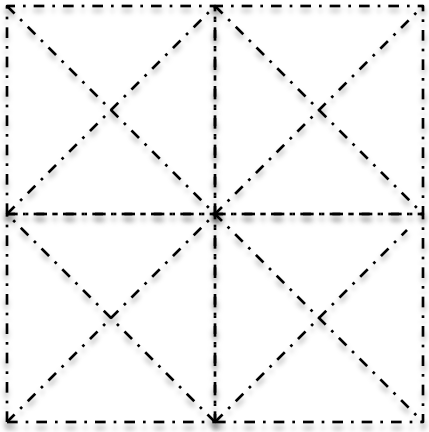


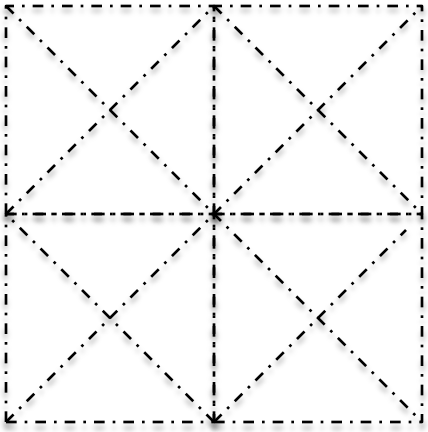
Find and color the shapes.

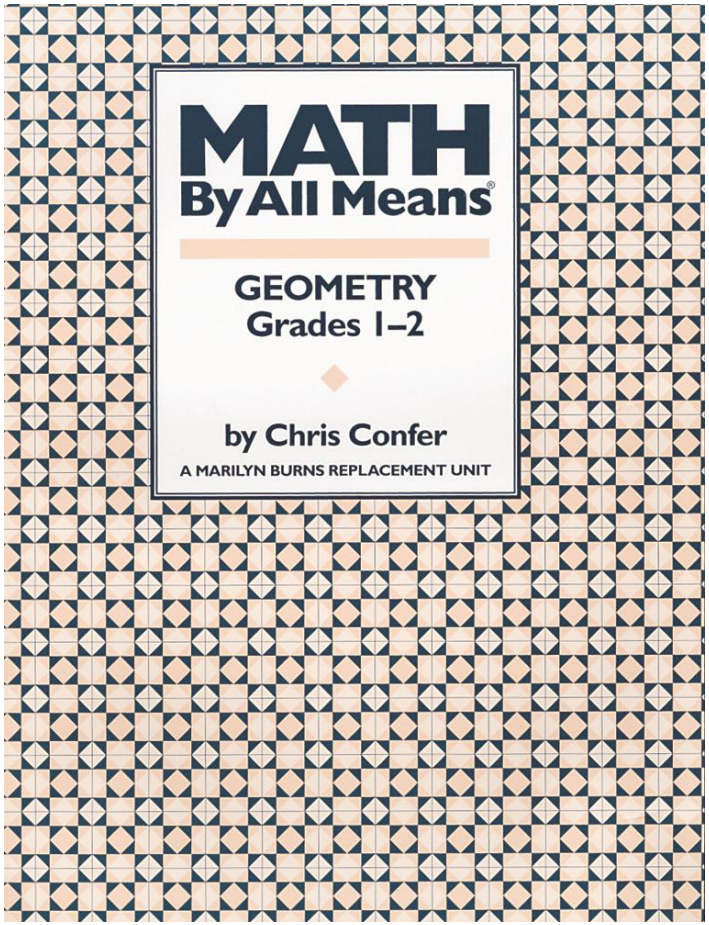


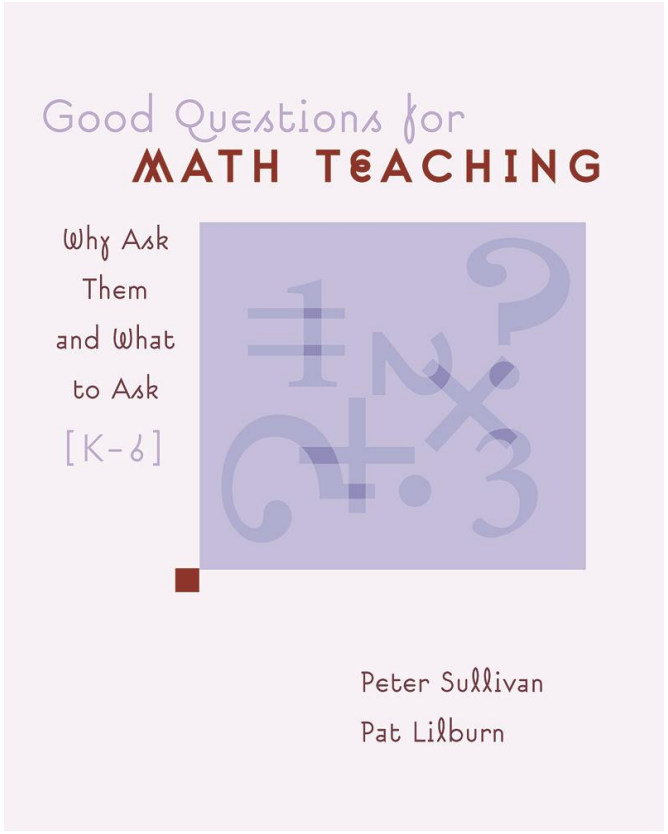
In each figure below, outline a square. The squares must not be the same size.

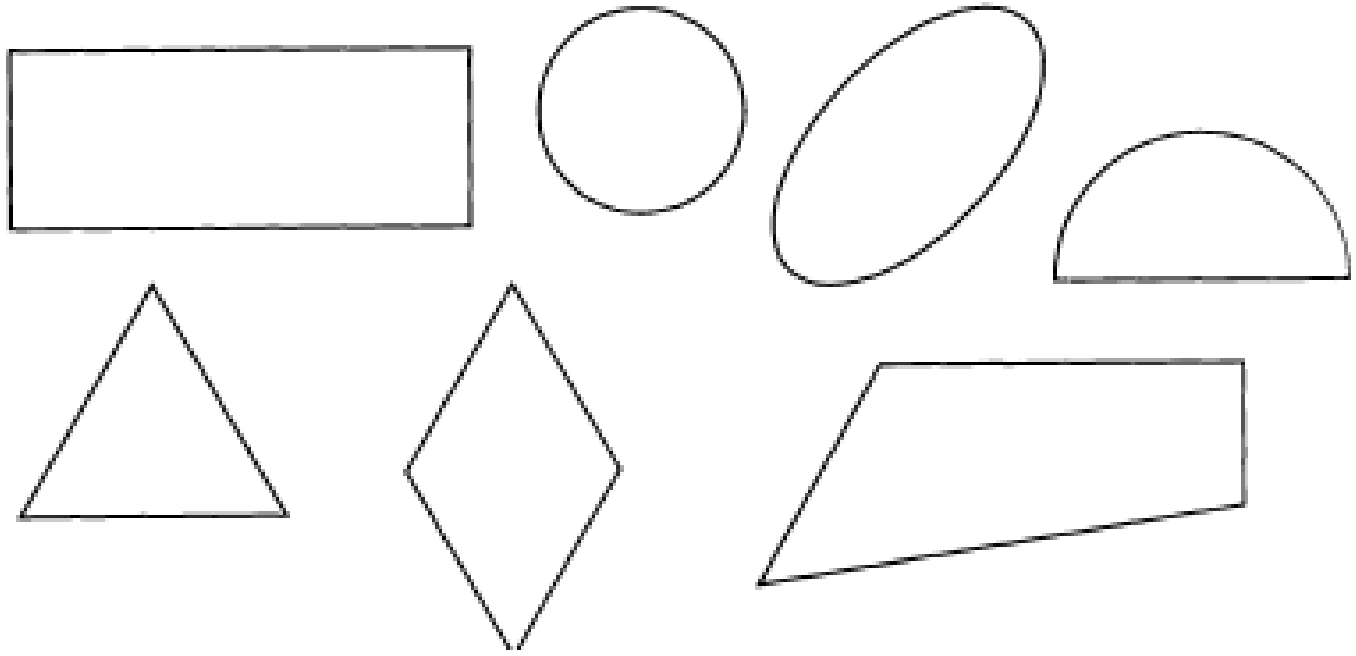












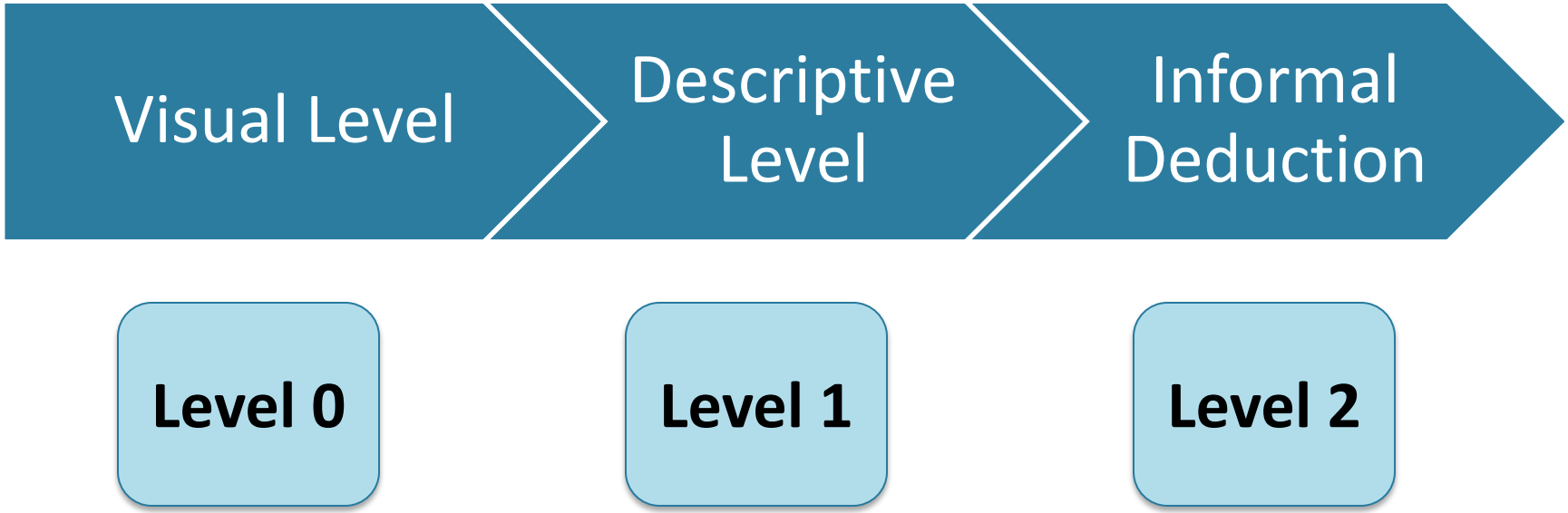
Play Doh Stamping

Work with a partner.. One person chooses a block and stamps one of the faces in the play doh. The other person then tries to find which block was used.

Us e the questions on your table to discuss the shapes and their attributes.

- Describe this shape.
- How is that shape like this one? How is it different?
- What shape is this? What makes it a _____? Why isn't it a _____?
- Where have you seen this shape before?
- What shapes could you make out of these shapes?
- Have you found all the ways to put those shapes together? How do you know?

Levels of Geometric Thinking

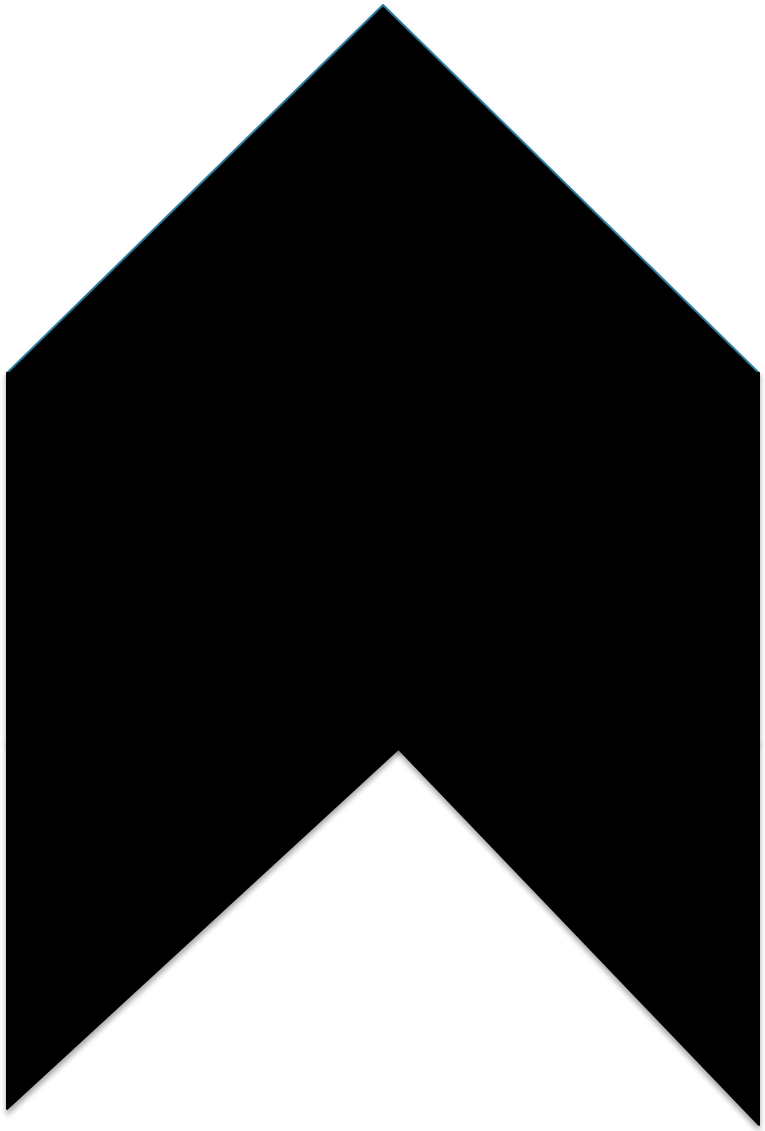


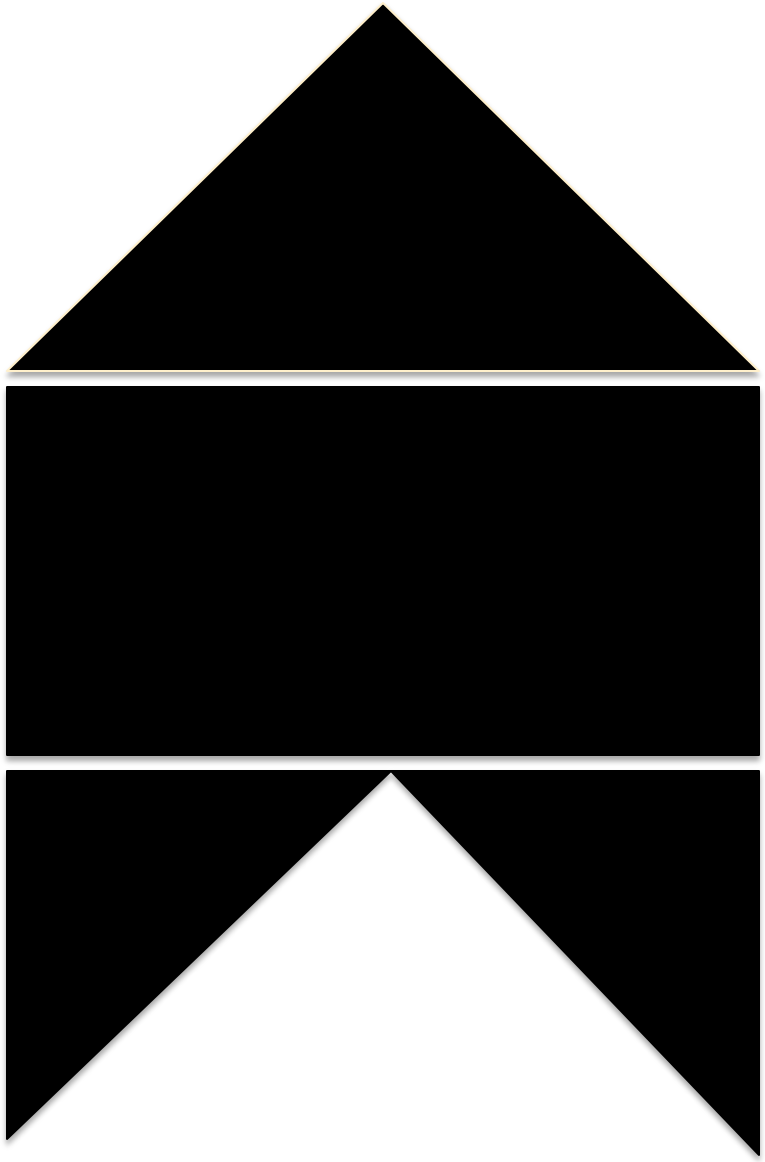
Identify and describe shapes. Analyze, compare, create, and compose shapes.

K

Reason with shapes and their attributes.

1st/2nd





- The sides that touch have to be the same length.
- You cannot put a shape on top of another shape.
- You can use two, three, or four shapes to make a new shape.

My shape has _____ .

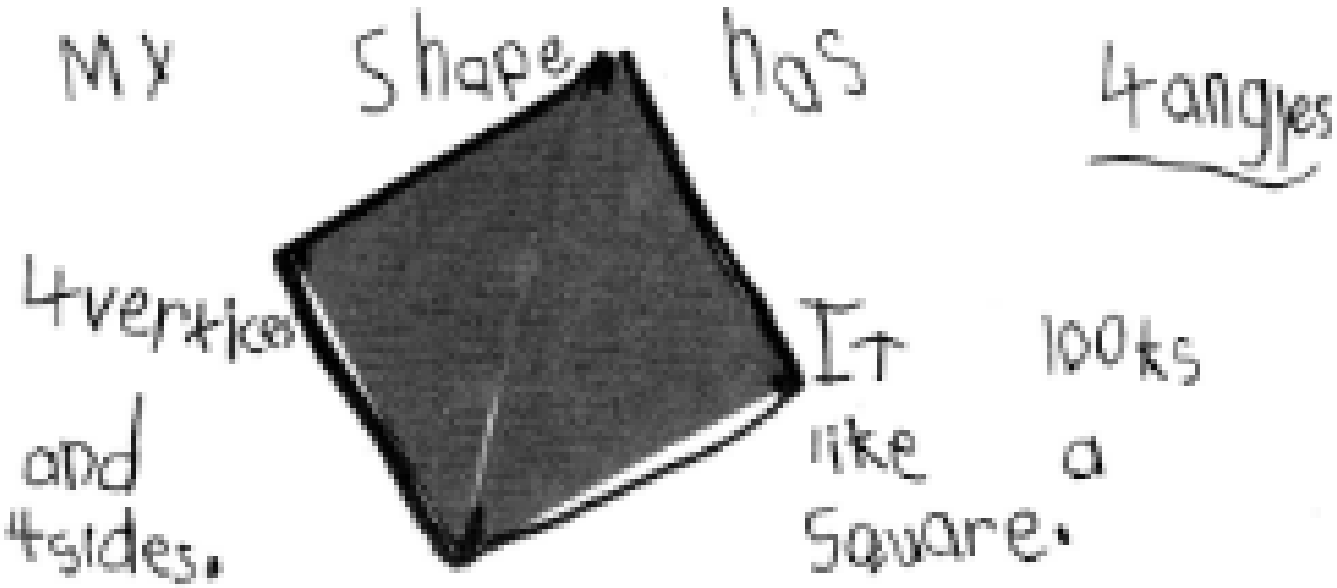
I built my shape with _____ and _____.

It looks like a _____ .

It has 4 sides.

It has 3 sides.

It looks like a shoe.
It has 5 sides.



Geoboard Exploration

- Create an object and let your partner guess what it is.

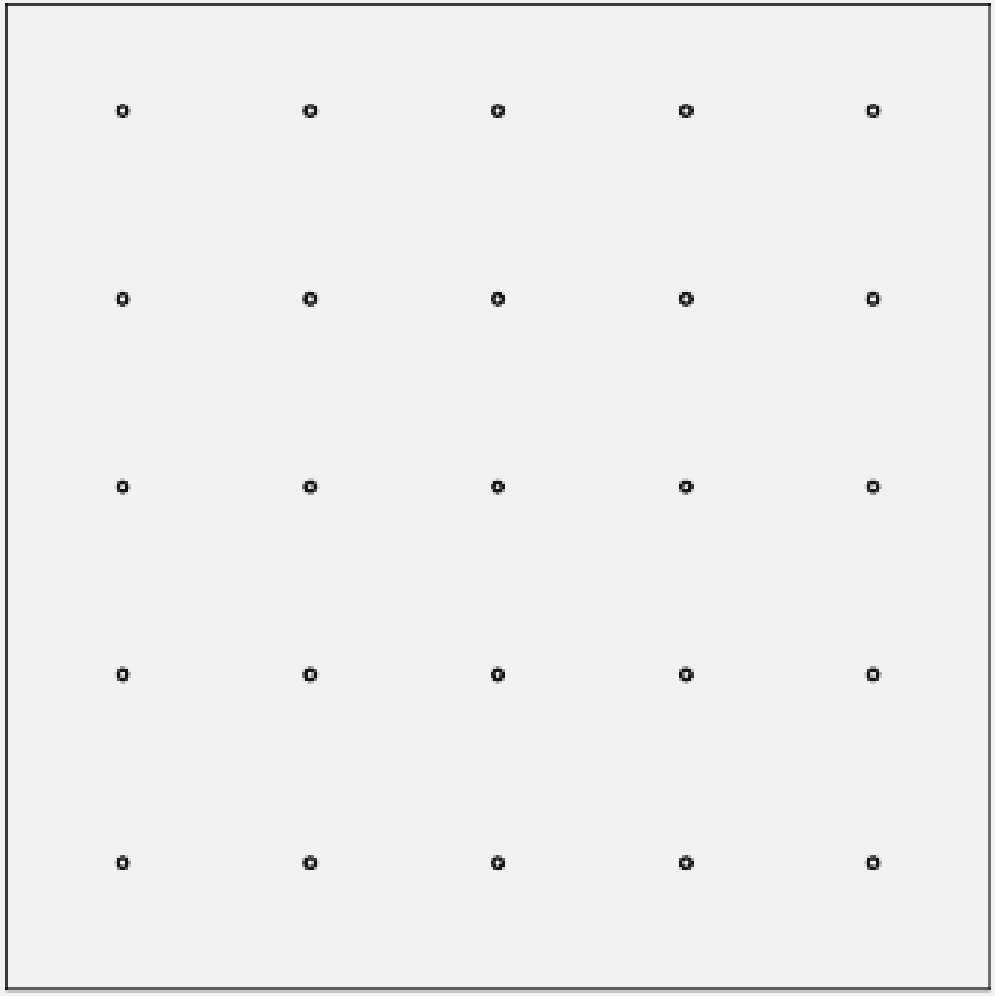
- Make a polygon with three distinct characteristics. Ask your partner to "tell you all they can" about your polygon. Did they include your three characteristics?

Geoboard Exploration

- Make a 3-sided polygon with one square corner and no two sides the same length.
- Make a 4-sided polygon with no square corners but with two pairs of parallel sides.
- Make a 4-sided polygon that has exactly one pair of parallel sides and only one pair.

Geoboard Exploration

- Make a 5-sided polygon with exactly one pair of parallel sides.
- Make a 6-sided polygon with one pair of perpendicular sides.
- Make a polygon that is not square but looks the same no matter on which side you rest the geoboard.



Geoboard Exploration

Make a shape on your geoboard that follows these rules:

- It must be made with one rubberband.
- The rubber band must not cross over itself.
- The shape must stay in one piece when you cut it out.

Sara was asked to draw a parallelogram. She drew the figure below.

Is Sara's figure a parallelogram? Why or why not?