

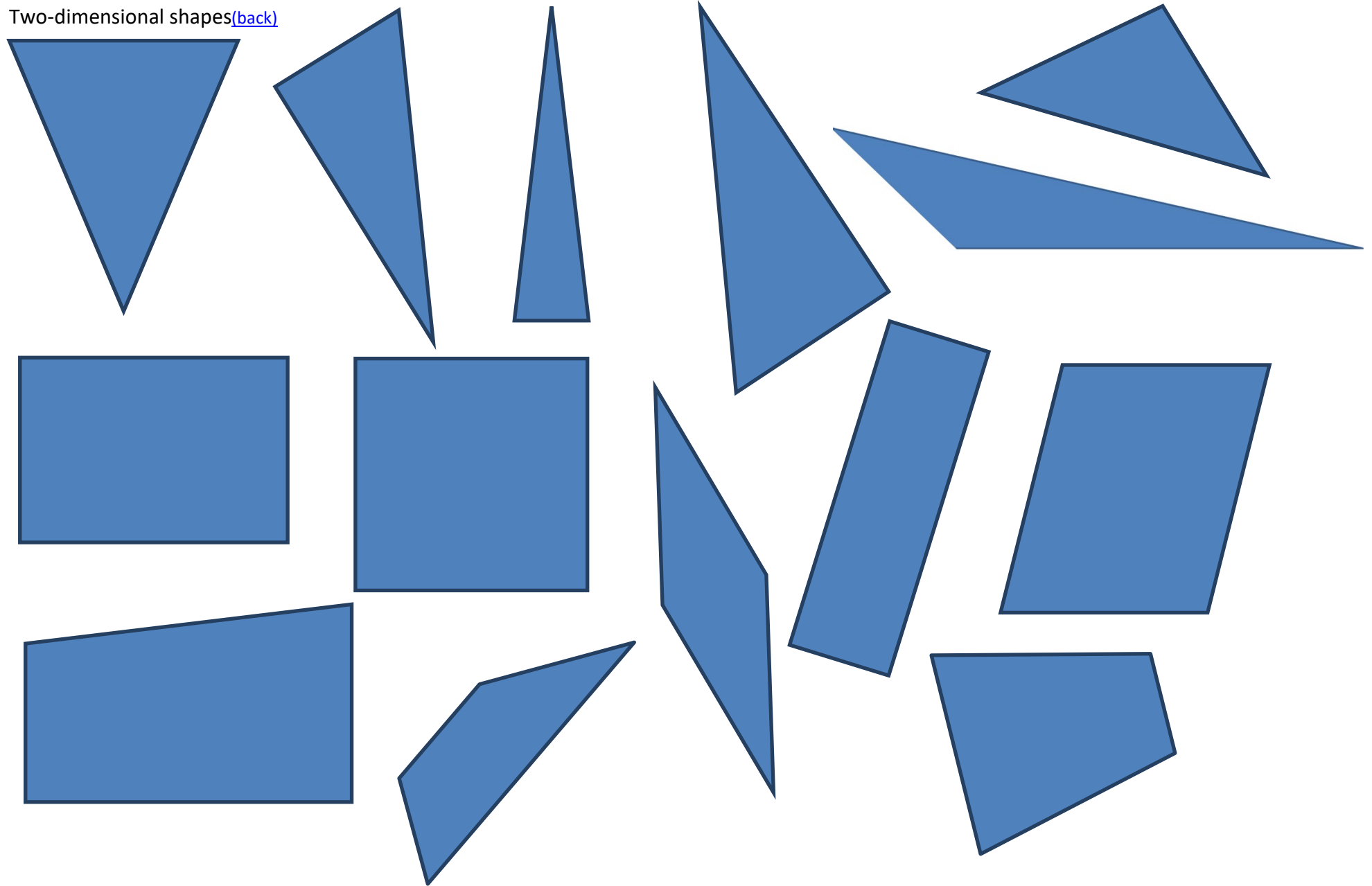
STRAIGHT LINES AS SIDES ON SHAPES.

INVESTIGATIONS OVERVIEW PAGE

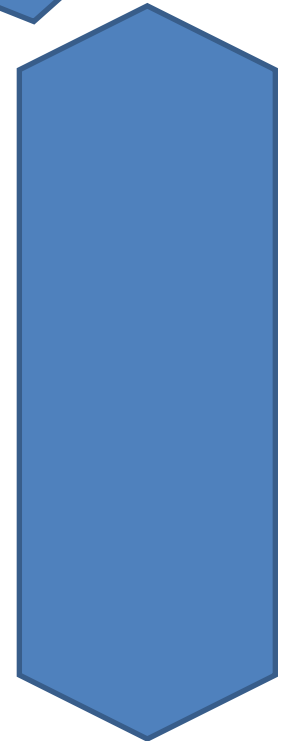
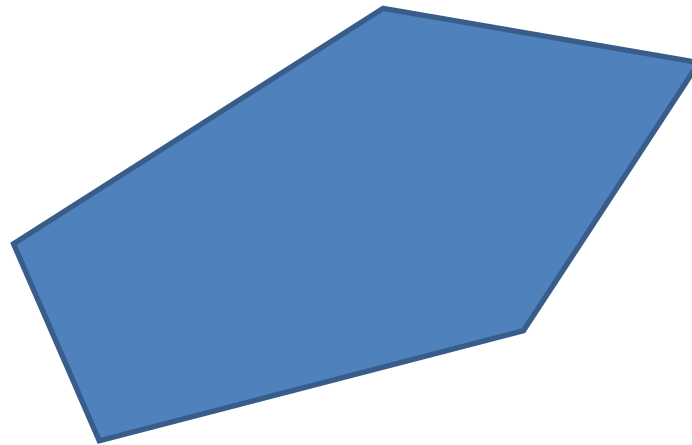
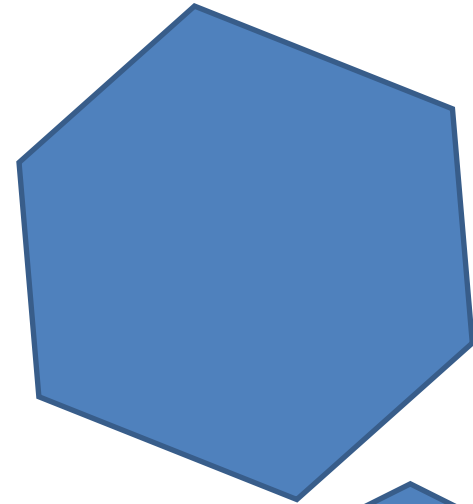
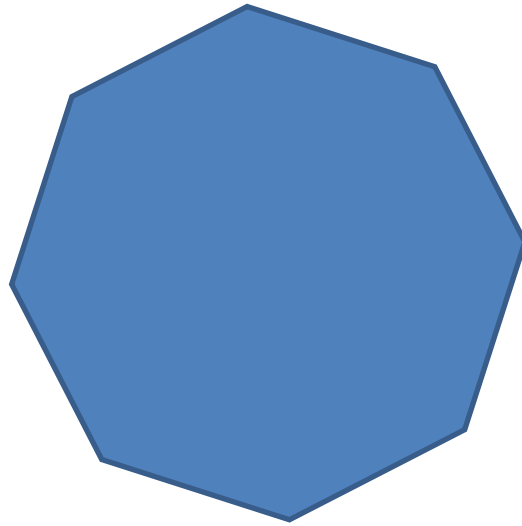
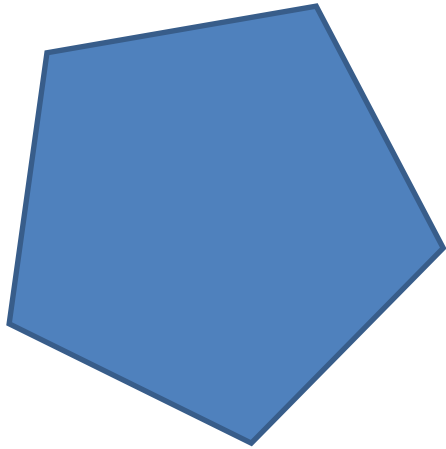
THIS PAGE IS A SUMMARY OF THE INVESTIGATIONS THAT STUDENTS MAY ENGAGE IN TO DEEPEN THEIR RELATIONAL UNDERSTANDING. INVESTIGATIONS WITH INSTRUCTIONS TO STUDENTS FOLLOW ON SUBSEQUENT PAGES.

- In pairs, children have some [shapes](#) with straight lines and curved lines. They describe the lines as straight or curved. They name straight lines, sides. They name curved lines, curved lines. *Reflection: What are straight lines on shapes called? What are curved lines on shapes called?*
- In pairs, children have a selection of shapes. They identify the triangles. They describe the triangles as shapes with 3 sides. They describe the sides as straight lines. *Reflection: What is a triangle?*
- In pairs, children have a selection of shapes. They identify the quadrilaterals. They describe the quadrilaterals as shapes with 4 sides. They describe the sides as straight lines. *Reflection: What is a quadrilateral?*
- In pairs, children have a selection of shapes. They identify the pentagons, hexagons and octagons. They describe the pentagons, hexagons and octagons as shapes with 5, 6 or 8 sides. They describe the sides as straight lines. *Reflection: What is a pentagon? What is a hexagon? What is an octagon?*
- In pairs, children have straws of 3 different lengths. Children make a shape with 3, 4, 5, 6 or 8 sides. Children describe and name each shape, including naming special quadrilaterals as both 'quadrilateral' and (for example) 'square'. Children record and label their shapes. Children identify that some combinations of straws cannot be joined to make shapes, for example, one long straw and the others very short straws (because the shortest distance between 2 points is a straight line, so the sum of the lengths of the other straws needs to be longer than the length of the long straw. *Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?*
- In pairs, children have either actual geoboards and elastic bands or virtual geoboards (freely available on the Internet). Children construct a shape on their geoboards. Children have dot paper to record the shape that they construct. Children label each shape, including naming special quadrilaterals as both 'quadrilateral' and (for example) 'square'. Children identify that they cannot construct a circle on a geoboard because a circle has a curved line. *Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?*
- In pairs, children rule a piece of paper using straight lines. They shade the triangles, quadrilaterals, pentagons, hexagons and octagons different colours. *Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?*

Two-dimensional shapes [\(back\)](#)



Two-dimensional shapes



Straight Lines as Sides on Shapes.

Have some shapes with straight lines and curved lines.

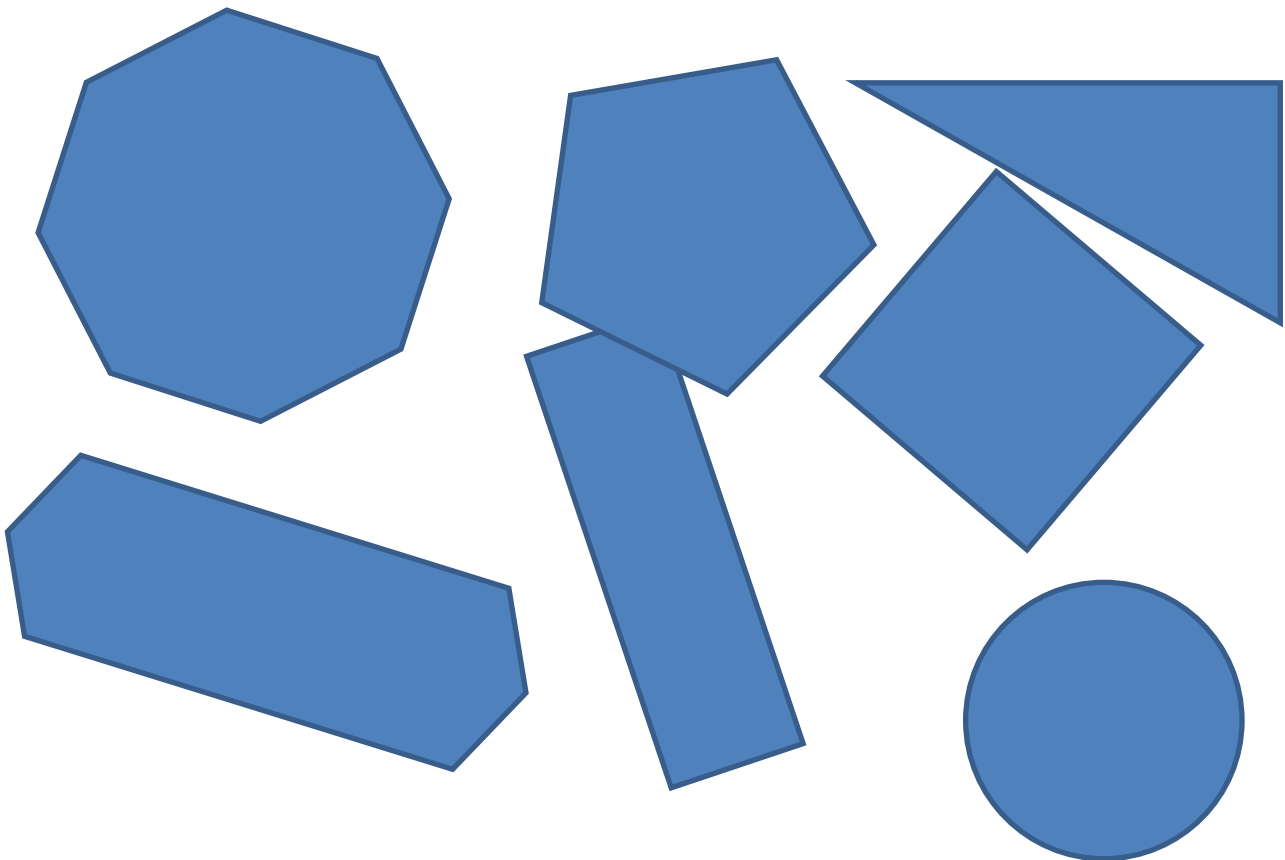
Select a shape.

Are the lines straight or curved?

If the lines are straight, are they sides?

If the lines are curved, are they curved lines?

Reflection: What are straight lines on shapes called? What are curved lines on shapes called?



Straight Lines as Sides on Shapes.

Have a selection of shapes.

Identify the triangles.

How many lines on a triangle?

Are the lines straight or curved?

If the lines are straight, are they sides?

How many sides on a triangle?

Reflection: What is a triangle?

Straight Lines as Sides on Shapes.

Have a selection of shapes.

Identify the quadrilaterals.

How many lines on a quadrilateral?

Are the lines straight or curved?

If the lines are straight, are they sides?

How many sides on a quadrilateral?

Reflection: What is a quadrilateral?

Straight Lines as Sides on Shapes.

Have a selection of shapes.

Identify the pentagons.

How many sides on a pentagon?

Identify the hexagons.

How many sides on a hexagon?

Identify the octagons.

How many sides on an octagon?

Reflection: What is a pentagon? What is a hexagon? What is an octagon?

Straight Lines as Sides on Shapes.

Have straws of 3 different lengths.

Make a shape with 3, 4, 5, 6 or 8 sides.

How many sides on the shape?

Is your shape:

- A triangle?
- A quadrilateral?
- A pentagon?
- A hexagon?
- An octagon?

Record and label your shape.

Does your shape have another name?

Can you make all shapes with all combinations of straws, for example, 1 long straw and the rest small straws?

Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?

Straight Lines as Sides on Shapes.

Have either a real geoboard and elastic bands, or a computer geoboard.

Make a shape with 3, 4, 5, 6 or 8 sides.

How many sides on the shape?

Is your shape:

- A triangle
- A quadrilateral
- A pentagon
- A hexagon
- An octagon

Record and label your shape.

Does your shape have another name?

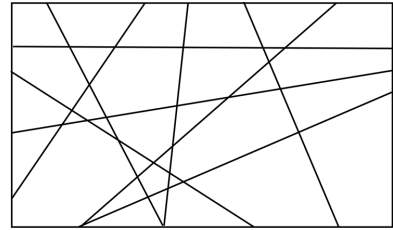
Can you make a circle? Why not? What kind of line does a circle have?

Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?

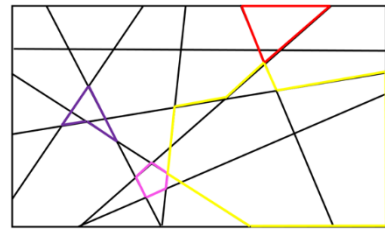
Straight Lines as Sides on Shapes.

Have a piece of paper and a ruler.

Rule straight lines over the paper, for example,



Find triangles, quadrilaterals, pentagons, hexagons and octagons, for example,



Reflection: What is a triangle? What is a quadrilateral? What is a pentagon? What is a hexagon? What is an octagon?