Area

LO: To be able to find the area of rectilinear shapes.

LO: To be able to find missing angles in polygons.

1) Zone

2) What is a polygon?

3) How many degrees in a Polygon?

4) What is the formula for finding the angle sum of a polygon?

5) Practice questions

6) Follow up work.

Blue Zone	Green Zone	Yellow Zone	Red Zone
Going slow	Good to go	Caution Starting to lose control	Stop! Out of control
E.g. sad, sick, tired, bored	E.g. happy, calm, focused, ok	E.g. worried, excited, annoyed	E.g. angry, terrified, elated

LO: To be able to find missing angles in Polygons.
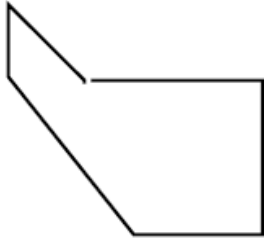
What is a Polygon?
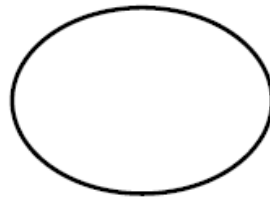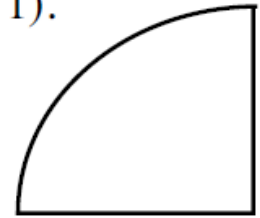
A shape made up of straight sides.
Which of the following are polygons?

a).

b).

c).

d).

e).

f).

g).

h).

i).

j).

k).

l).

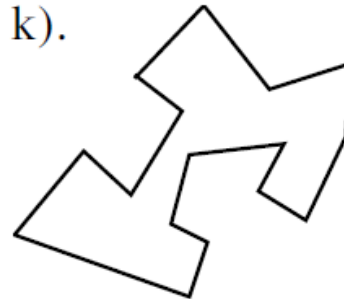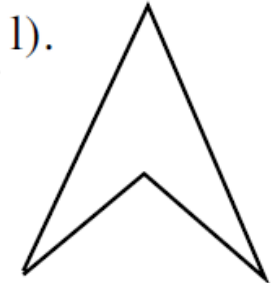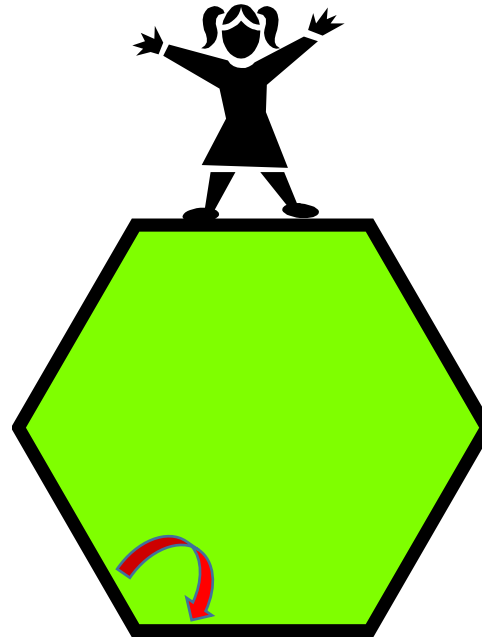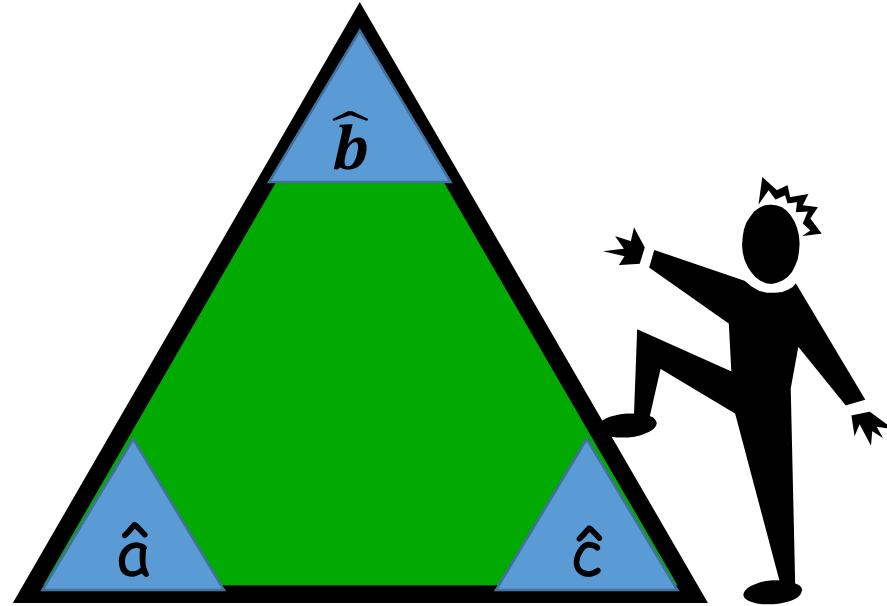LO: To be able to find missing angles in Polygons.

Interior angles of polygons

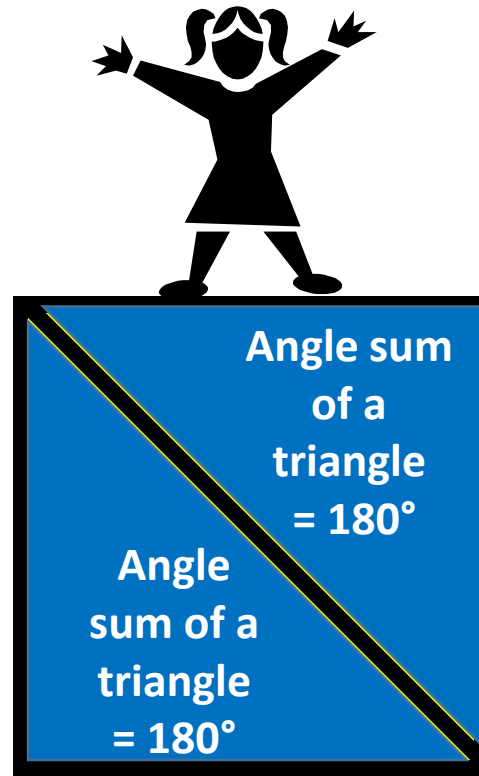This is just one of the six interior angles of this polygon

A polygon with 3 sides is a triangle

The angle sum of a triangle is 180°

$$\hat{a} + \hat{b} + \hat{c} = 180°$$

What is the angle sum of a quadrilateral?

Angle sum of a triangle = 180°

Angle sum of a triangle = 180°

The angle sum of a quadrilateral is 360°

Here is a different quadrilateral but the method is the same

Angle sum of a triangle = 180°

Angle sum of a triangle = 180°

The angle sum of a quadrilateral is 360°

What is the angle sum of a pentagon?
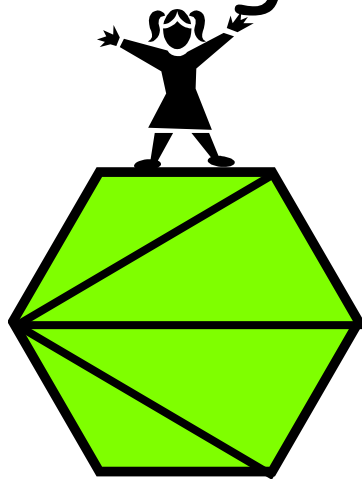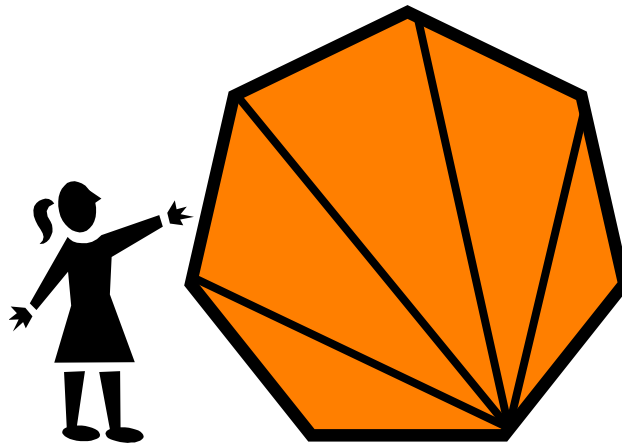
This time you can divide the polygon into 3 triangles

$180° \times 3 = 540°$

The angle sum of a pentagon is 540°

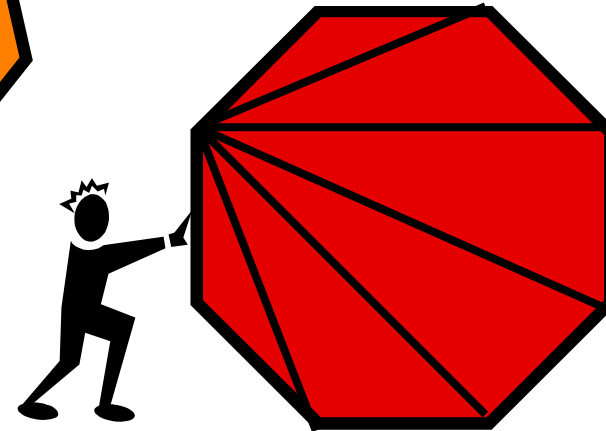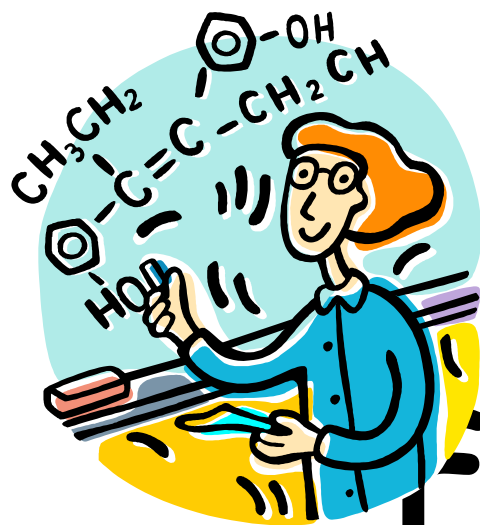You can find the angle sum of any polygon by dividing it up into triangles

180° x 4 = 720°

180° x 5 = 900°

180° x 6 = 1080°

Finding a formula

What is the formula for finding the angle sum of a dodecagon (a 12-sided polygon)?

Angles in Polygons

- The sum of the interior angles of a regular polygon can be calculated by considering how many triangles the polygon is made up of…

180°
180°
180°

180°
180°
180°
180°

180°
180°
180°
180°
180°

Heptagon is the Greek name, and Septagon comes from Latin

?

→ Because a lot of geometry originated in Greece, Heptagon is more commonly used…

Pentagon	Hexagon	Heptagon/Septagon	An 'n'-gon (unspecified number of sides)
5 sides	6 sides	7 sides	n sides
3 triangles	4 triangles	5 triangles	$(n - 2)$ triangles
3 x 180	4 x 180	5 x 180	$(n - 2)$ x 180
= 540°	= 720°	= 900°	= $180(n - 2)$ degrees

Finding a formula

What is the formula for finding the angle sum of a dodecagon (a 12-sided polygon)?

1) What was our formula?

2) Angle sum of a n sided polygon = 180(n-1)

3) How many sides does a dodecagon have?

4) What calculation am I going to do to work out the angle sum?

5) Angle sum of a 12 sided shape = 180 (12-1)

$$= 180 \times 11$$

$$= 1980^0$$

LO: To be able to find missing angles in Polygons.

Use the formula you have just found to find the angle sum of a polygon with

a). 11 sides   b). 14 sides   c). 19 sides   d). 23 sides   e). 33 sides

1) What was our formula?

2) Angle sum of a n sided polygon = 180(n-1)

3) How many sides does this shape have?

4) What calculation am I going to do to work out the angle sum?

5) Angle sum of a 7 sided shape = 180 (11-1)

$$= 180 \times 10$$

$$= 1800^0$$

LO: To be able to find missing angles in Polygons.

What is the missing angle?

1) What was our formula?

2) Angle sum of a n sided polygon = 180(n-1)

3) How many sides does this shape have?

4) What calculation am I going to do to work out the angle sum?

5) Angle sum of a 7 sided shape = 180 (7-1)

= 180 x 6

= 1080⁰

What do the 6 angles in the shape add up to?

What will the 7th angle be?

162° 152°

136°

r°

143°

119° 107°

LO: To be able to find missing angles in Polygons.

What are the missing angles?

1) What was our formula?
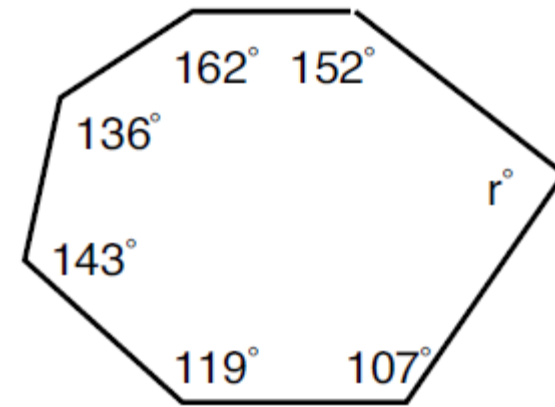
2) Angle sum of a n sided polygon = 180(n-1)

3) How many sides does this shape have?

4) What calculation am I going to do to work out the angle sum?

5) Angle sum of a n sided shape = 180 (n-1)

$$= 180 \times n$$

$$= \qquad {}^{\circ}$$
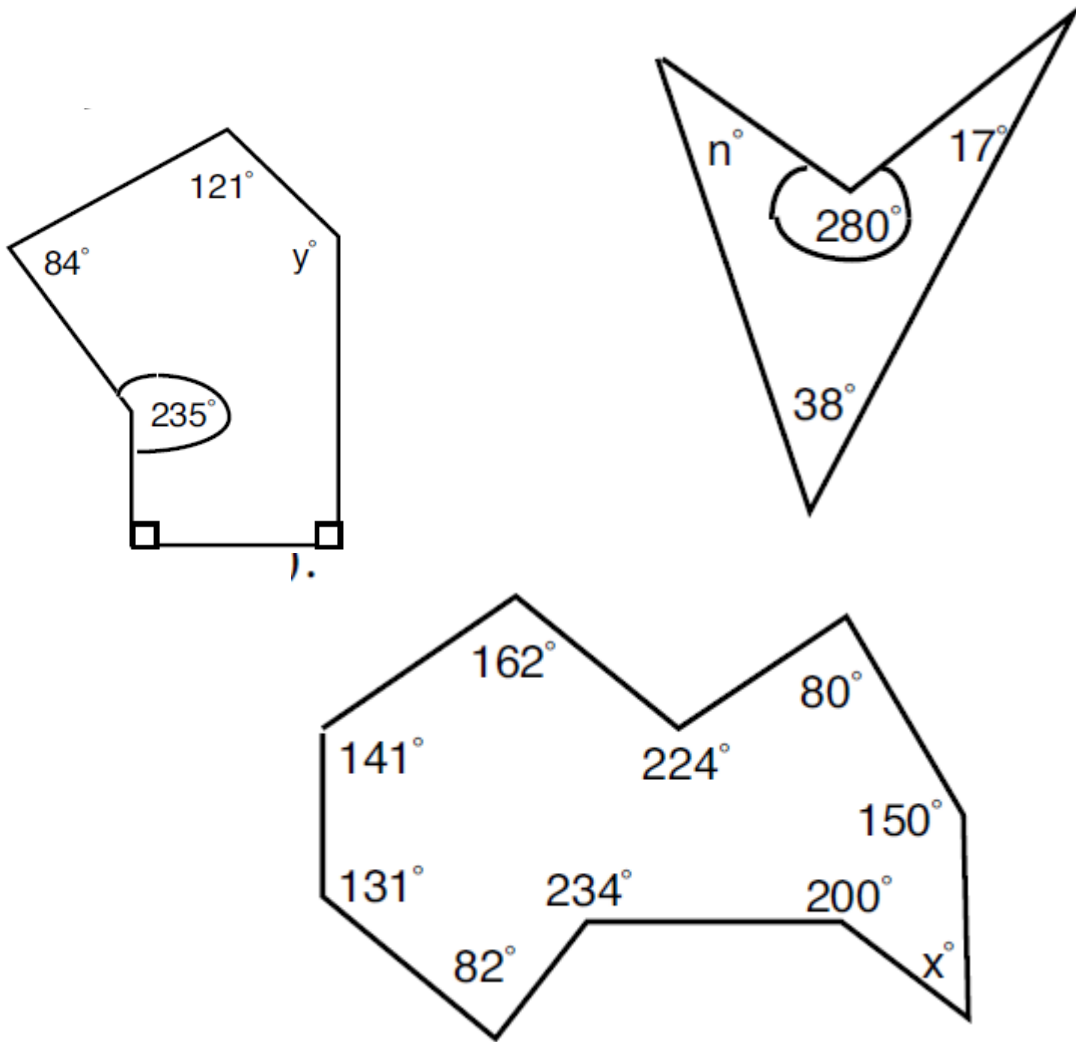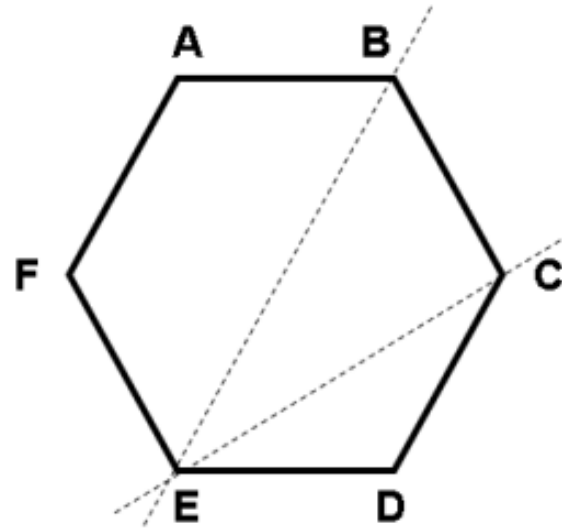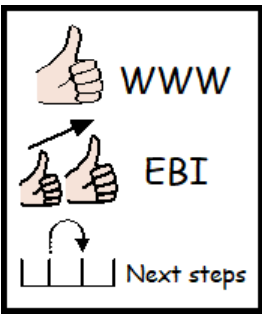
6) What is the value of the missing angle?

Plenary

This shape is a Regular Hexagon. Line BE is a line of symmetry.

a) Calculate the size of Angle ABE
b) Work out the size of Angle DCE
c) Calculate the size of Angle BEC

LO: To be able to find the area of rectangles.

WWW

EBI

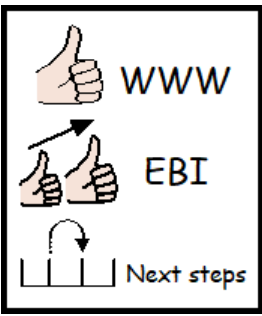| Blue Zone	Green Zone	Yellow Zone	Red Zone
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Follow up work

For ALL worksheets you can either print out and write your answers on, or write your answers on paper.

Please take pictures of your work and email to jo.gould@grangepark.kent.sch.uk