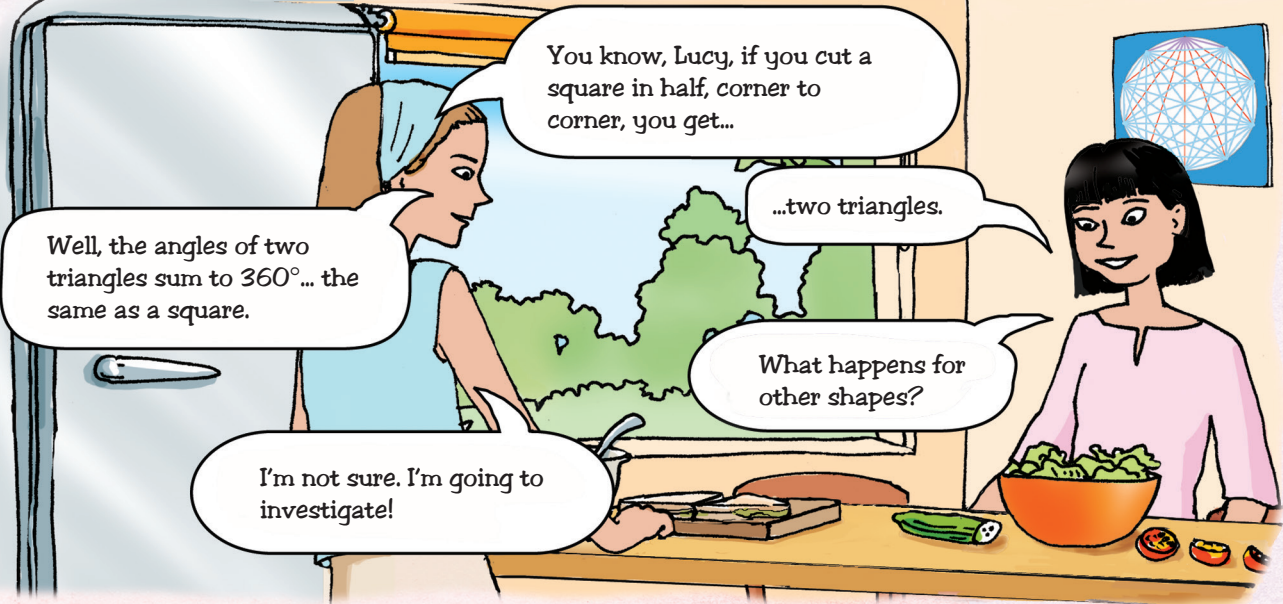


How many degrees?

Use Mathomat to explore the sums of degrees in different polygons.

Molly was making sandwiches for the picnic...



Well, the angles of two triangles sum to 360° ... the same as a square.

You know, Lucy, if you cut a square in half, corner to corner, you get...

...two triangles.

What happens for other shapes?

I'm not sure. I'm going to investigate!

Molly's 'dividing polygons' investigation

Using your Mathomat, draw the named polygons in the boxes. Always starting and finishing at a vertex (corner) divide each polygon into triangles with straight lines that **do not** cross. One is done for you. Fill in the table. What do you notice about the number of sides and the number of triangles in a polygon?

Parallelogram

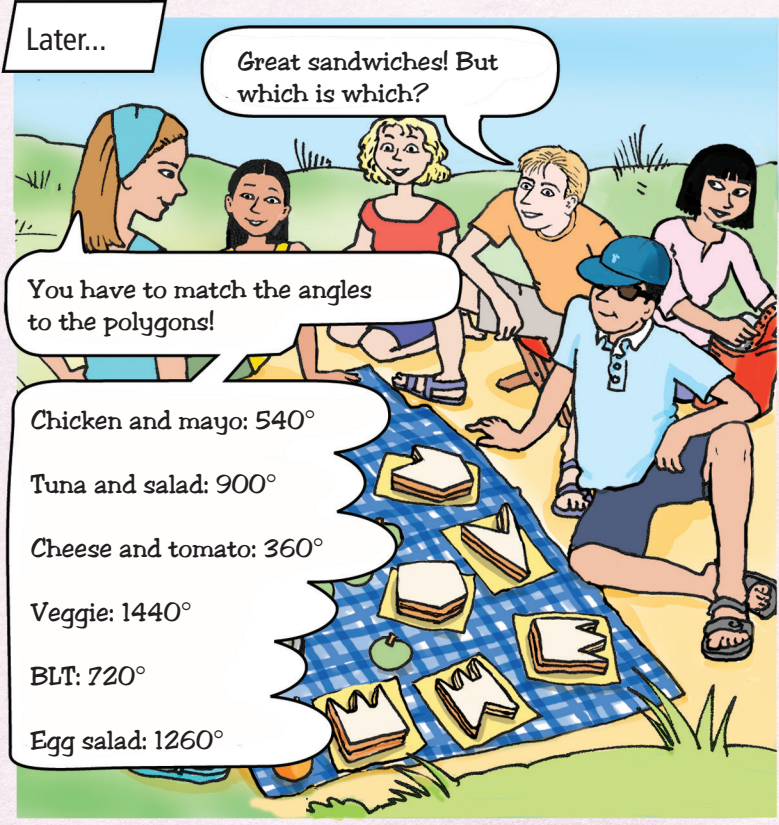
$a + b + c = 180^\circ$
 $d + e + f = 180^\circ$
 Total 360°

Pentagon

Hexagon

Octagon

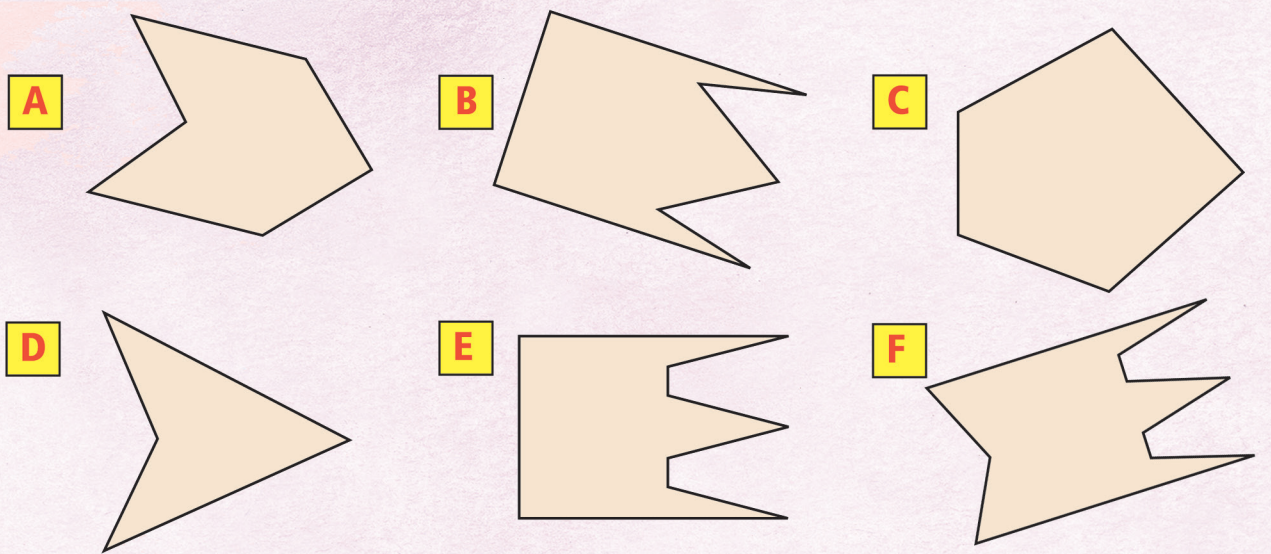
Shape	Number of sides	Sum of interior angles (degrees)
Triangle	3	180°
Quadrilateral	4	$2 \times 180^\circ = 360^\circ$
Pentagon		
Hexagon		
Octagon		



Sandwich surprise

Which sandwich filling belongs to which shape? Molly is giving the sum of the interior angles in each polygon. Can you use what you have discovered about the number of sides and the number of triangles to match the fillings A to F? Check by dividing the shapes into triangles.

Sandwich filling	Letter



Dodecagon

Find the dodecagon (shape 2) on your Mathomat. Draw a complete dodecagon in the box. How many sides does it have? Can you say what the sum of the degrees is inside the shape? Draw triangles to check.

