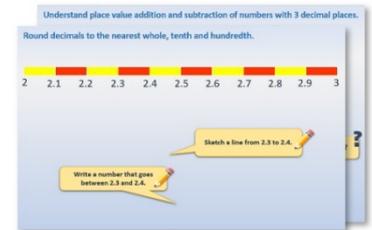


Week 6, Day 5

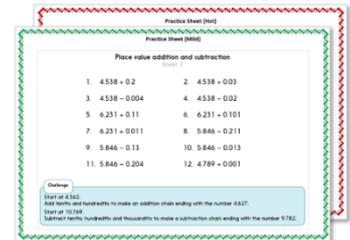
Tessellations

Each day covers one maths topic. It should take you about 1 hour or just a little more.

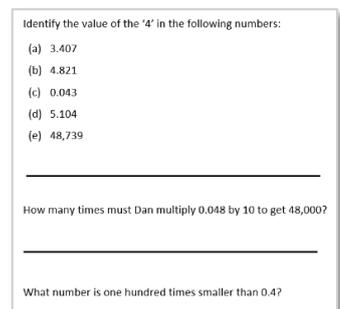
1. Start by reading through the **Learning Reminders**.



2. Think you've got it? Have a go at the **Investigation** or **Practical Activity**.



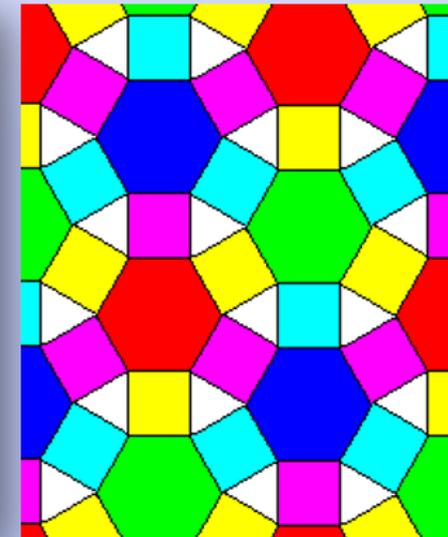
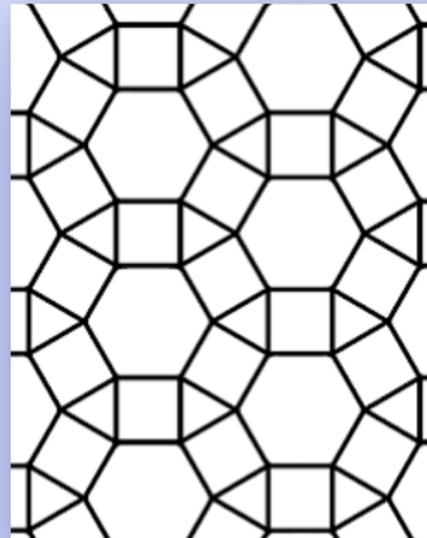
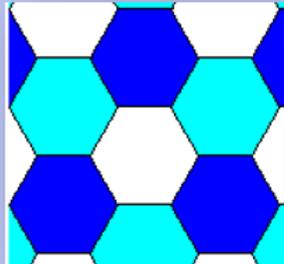
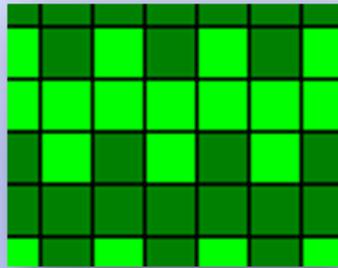
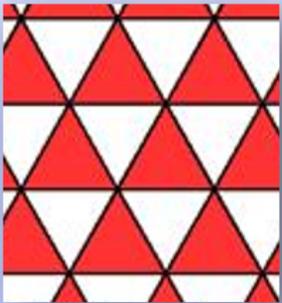
3. Have I mastered the topic? A few questions to **Check your understanding**.
Fold the page to hide the answers!



Learning Reminders

Tessellate 2-D shapes.

Tessellation is the practice of fitting shapes together without overlapping or leaving gaps.



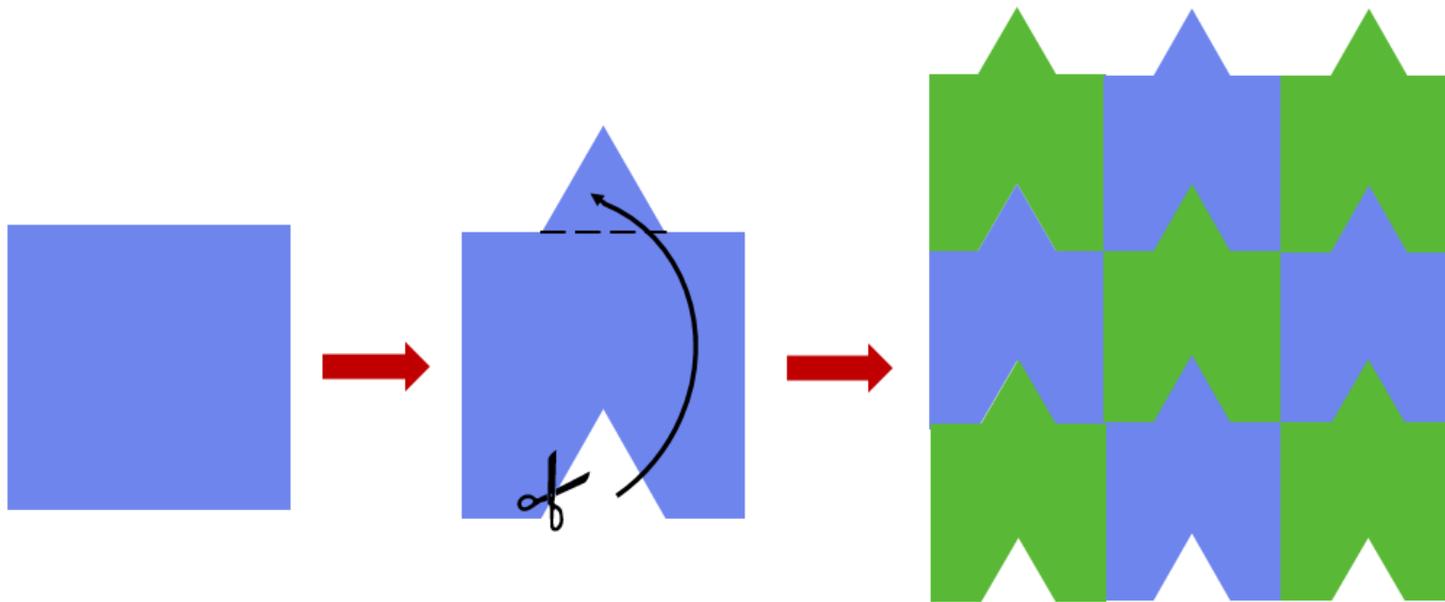
Greek mathematician Pythagoras discovered that he could fit equilateral triangles, squares and hexagons together to tessellate!

Mosaics like this were very popular in ancient Greece.

Learning Reminders

Tessellate 2-D shapes.

Let's make a tessellating mosaic...



If I stick a cut-out shape **in the same orientation on the opposite side**,
the new shape will still tessellate.

Investigation

Make a tessellating mosaic

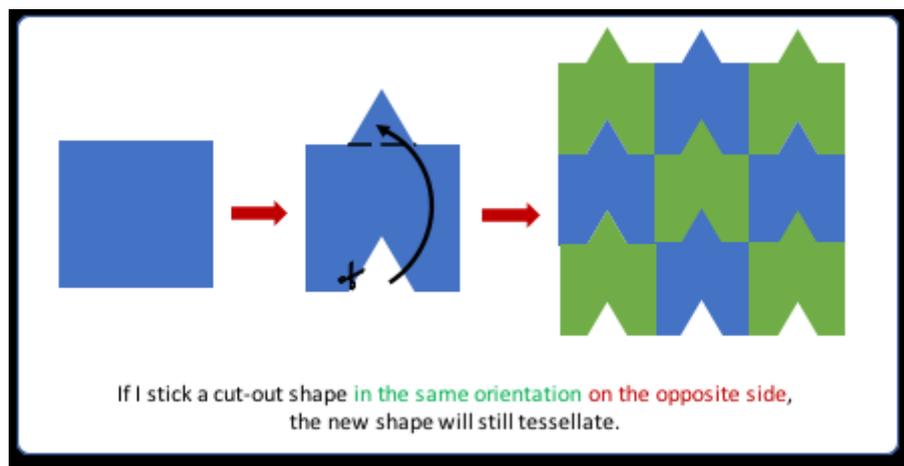
You will need:

- 'Tessellating using regular shapes' (*see resource*) printed onto card so that children can draw around the shape, or lots of paper copies
- scissors, glue
- coloured pencils

What to do:

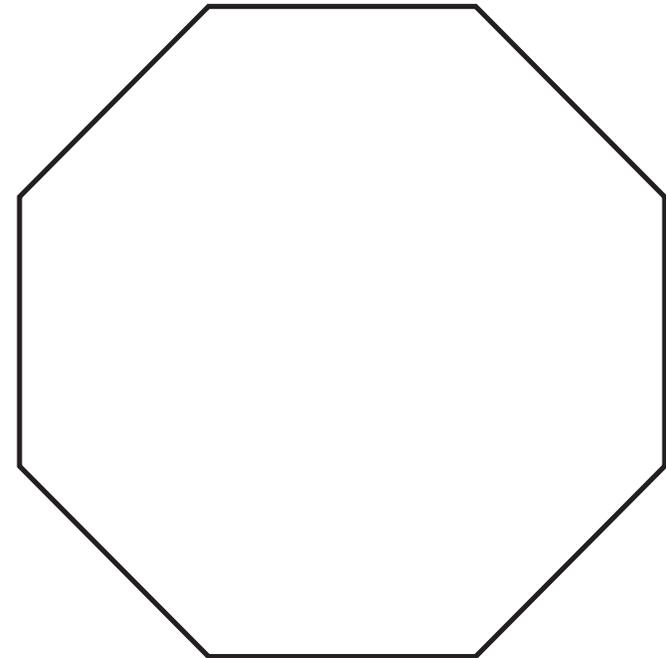
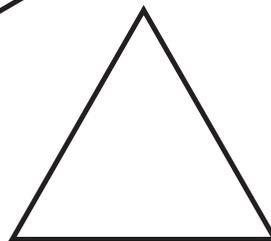
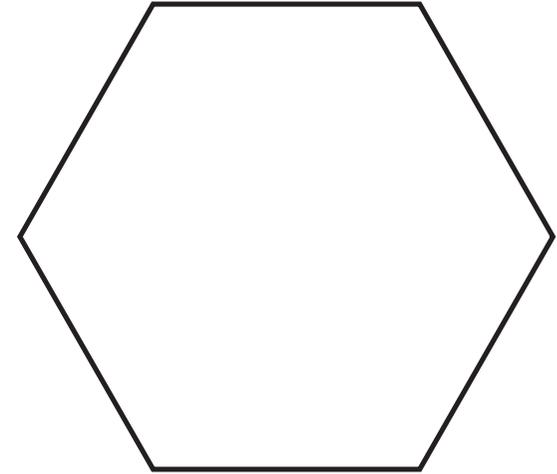
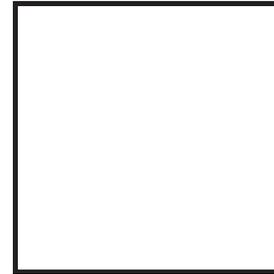
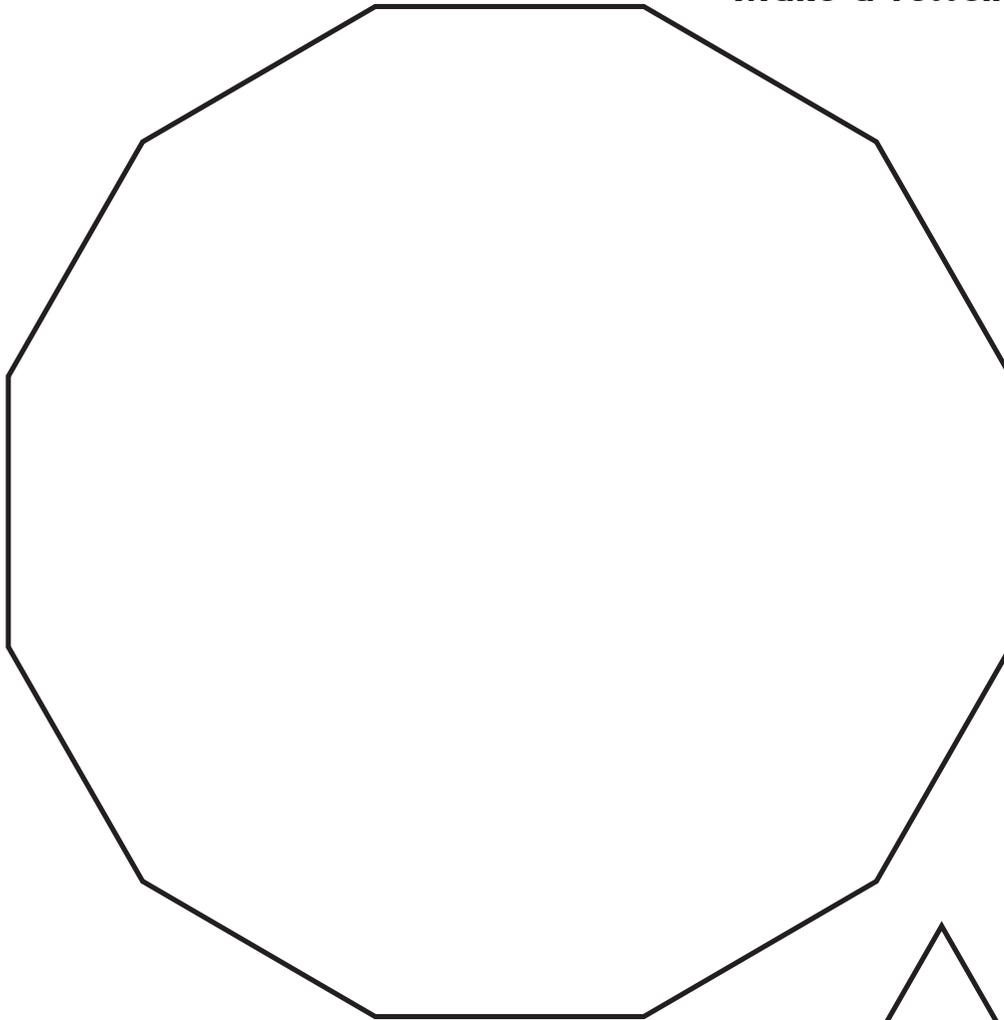
Children can choose to use these shapes in one of several ways:

- Find a way to tessellate equilateral triangles, squares and hexagons in one design together (like Pythagoras). You could use the 'interactivity' at <https://nrich.maths.org/semiregular> to explore the same activity on-screen.
- Tessellate combinations of regular shapes (*see resource*) to make tiling patterns, colouring each shape in a specific colour.
- Adapt a square as was started on the Learning reminder (*see below*) to make their own design.
- Adapt a hexagon, taking shapes off three sides, and adding them to their opposite sides to make their own tessellating design.



Investigation

Make a tessellating mosaic



© Hamilton Trust

Explore more Hamilton Trust Learning Materials at <https://wrht.org.uk/hamilton>

Check your understanding

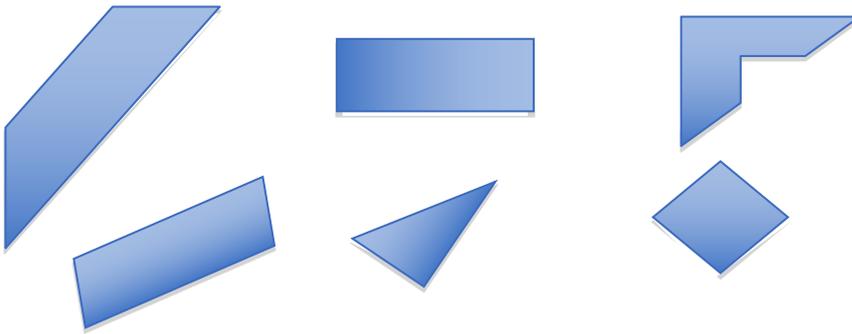
Questions

Is this a polygon?



Draw any polygon and list five of its properties.

Which of the following shapes are quadrilaterals?



Semi-regular tessellations are made from two or more types of regular polygon. Each vertex in the tessellation has the same pattern of polygons around it.

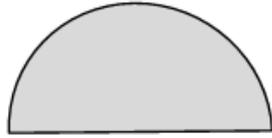
Can a semi-regular tessellation be made from:

- equilateral triangles and squares?
- equilateral triangles and hexagons?
- squares and octagons?
- pentagons and equilateral triangles?

Check your understanding

Answers

Is this a polygon?

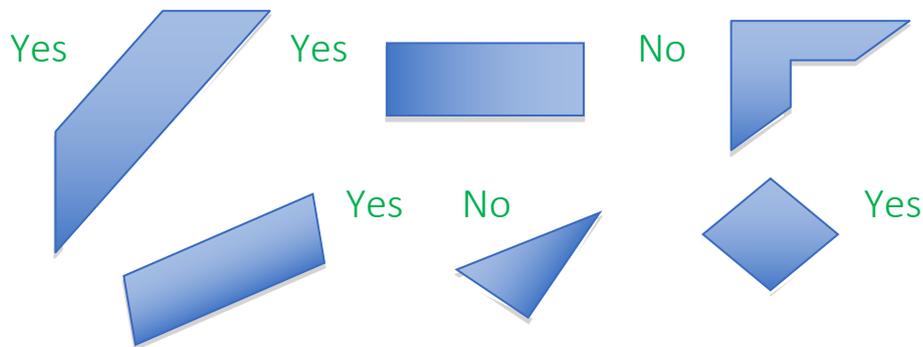


No. A polygon has all straight sides, so a semi-circle is not a polygon.

Draw any polygon and list five of its properties.

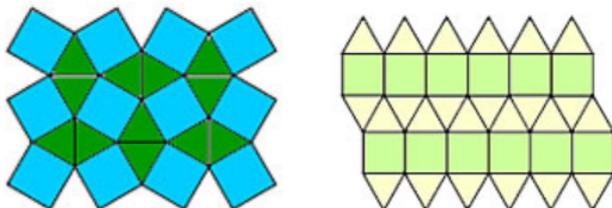
Check - children should be referring to properties such the number of sides and angles, regularity, symmetry and using other mathematical vocabulary correctly, e.g. parallel, perpendicular, angle types.

Which of the following shapes are quadrilaterals?

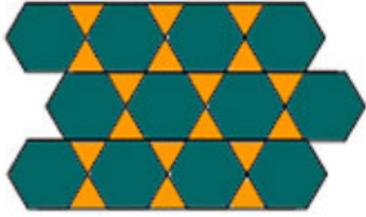


Semi-regular tessellations are made from two or more types of regular polygon. Each vertex in the tessellation has the same pattern of polygons around it. Can a semi-regular tessellation be made from:

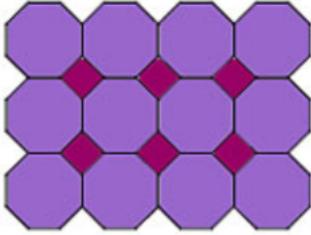
- equilateral triangles and squares? Yes



- equilateral triangles and hexagons? Yes



- squares and octagons? Yes



- pentagons and equilateral triangles? No