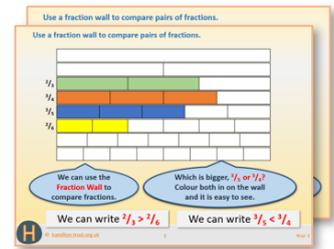


Week 6, Day 3

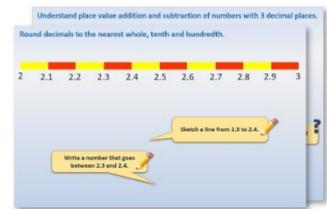
Describe properties of 2-D shapes, including polygons.

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

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by carefully reading through the **Learning Reminders**.



2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.

Practice Sheet (Hot)

Practice Sheet (Mild)

Place value addition and subtraction

1. $4538 + 0.2$	2. $4538 - 0.03$
3. $4538 - 0.004$	4. $4538 - 0.02$
5. $4231 + 0.11$	6. $4231 - 0.101$
7. $4231 + 0.011$	8. $5846 - 0.211$
9. $5846 - 0.13$	10. $5846 - 0.013$
11. $5846 - 0.204$	12. $4799 + 0.001$

Overseas

Year 6 (Hot)

Add tenths and hundredths to make an addition chain ending with the number 4.827.

Year 6 (Mild)

Subtract tenths, hundredths and thousandths to make a subtraction chain ending with the number 9.782.

3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

Decide the decimal

Decide the decimal

Work in pairs

Things you will need:

- 10 centimeter ruler
- 10 paper
- 10 paper

What to do:

- Work in pairs and partition with dots to number with three decimal places like the 1000ths.
- Use a ruler (placed in the middle) to mark the place value chain which will be made.
- Write your partner's name.
- Your partner asks for the shaded squares and writes the corresponding number.
- Check your partner's number, match your number!
- Swap your role!
- Use different combinations to make numbers on the place value grid. Numbers should be written on the 10, 100, 1000ths.

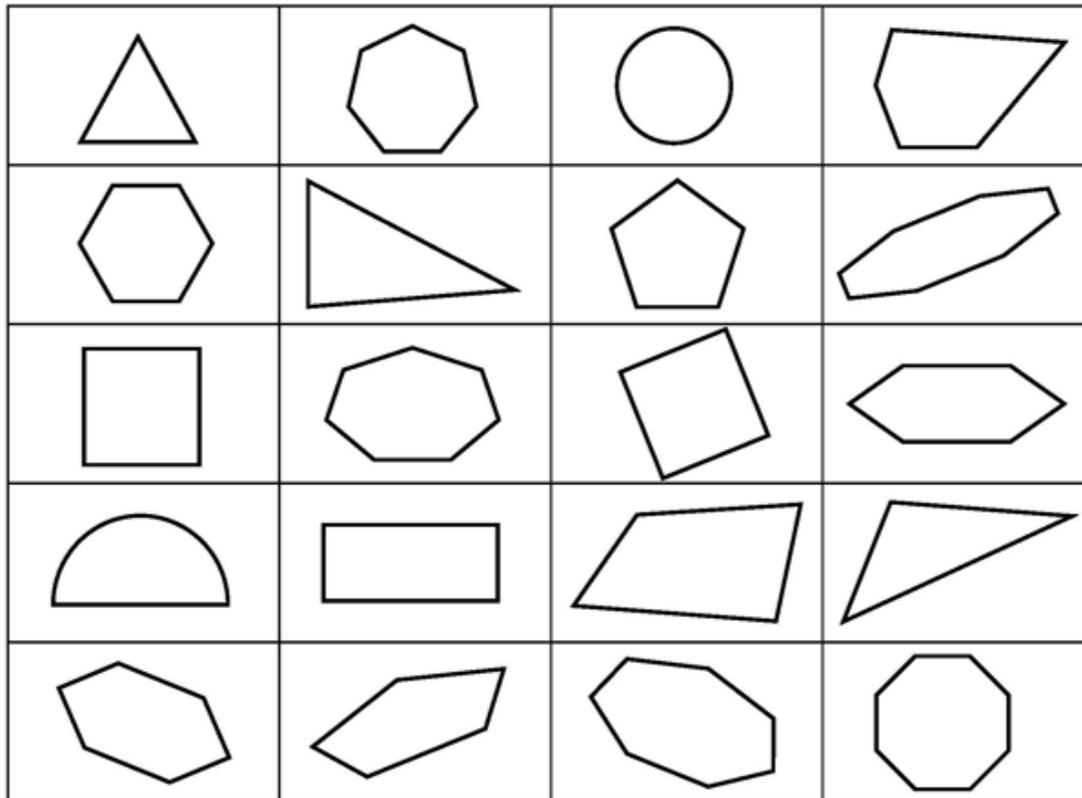
1000ths

4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**...

Learning Reminders

Describe properties of 2-D shapes including polygons.

Guess the shape



Note how most of the shapes are polygons. Shapes with all straight sides are called polygons. Circles, ovals and semicircles are not polygons even though they are 2-D shapes.

Learning Reminders

Describe properties of 2-D shapes including polygons.

Some useful vocabulary for describing shapes, this will help you with today's activities.

polygon

regular/irregular

number of vertices

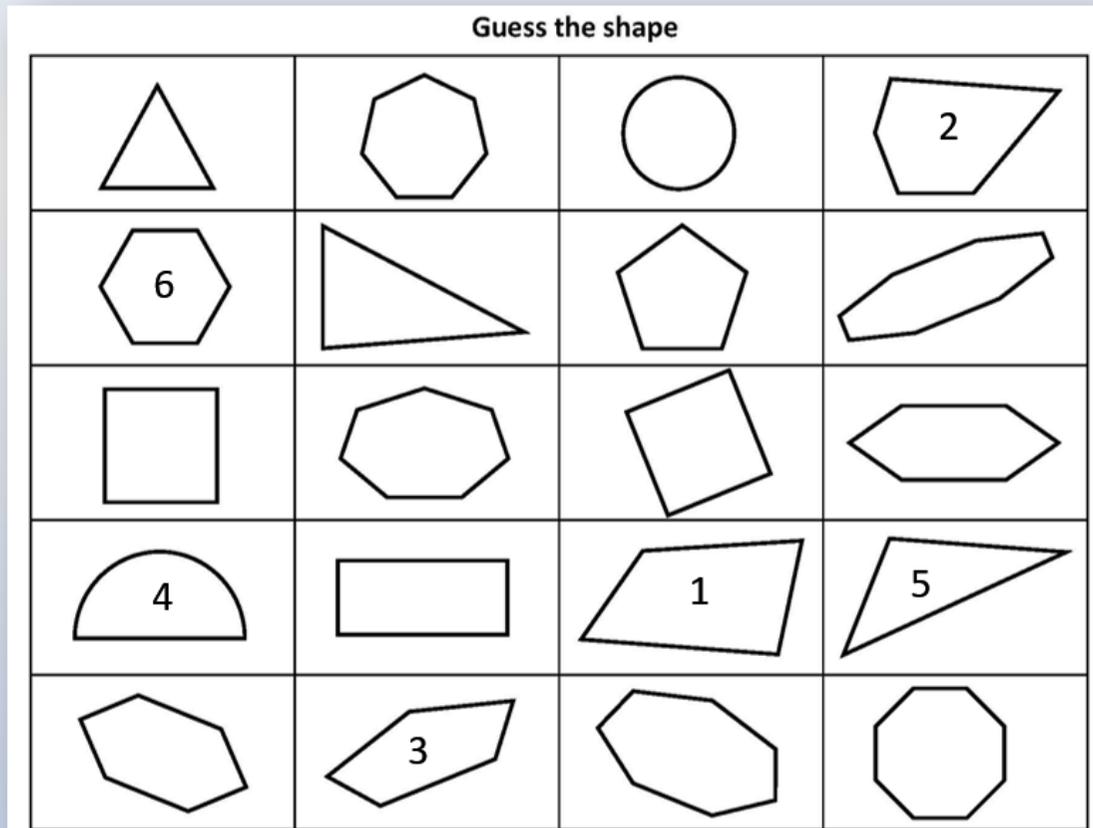
number of sides

right/obtuse/acute angles

lines of symmetry

Learning Reminders

Describe properties of 2-D shapes including polygons.



Shape properties – some examples. Can you name the shapes?

1. This has 4 sides and no lines of symmetry.

2 and 3. These shapes are irregular polygons with 5 sides.

4. This shape is not a polygon and has one line of symmetry.

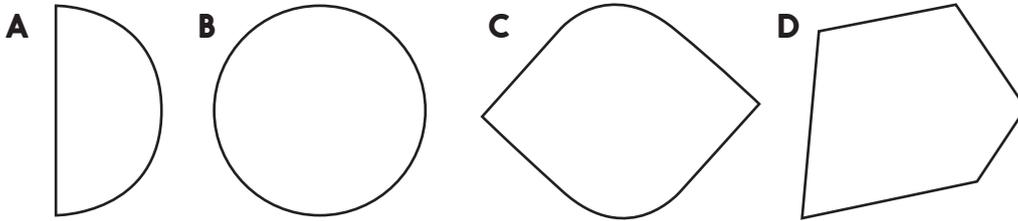
5. This shape has 3 vertices and 1 obtuse angle.

6. This shape has 6 vertices and all the sides are the same length.

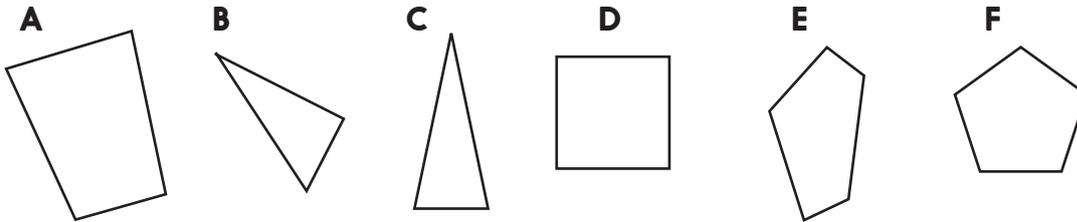
Practice Sheet Mild

Properties of 2-D shapes

1. i) Which of these is a polygon? _____
ii) Why? _____



2. Look at these shapes.



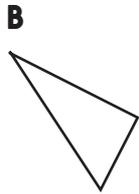
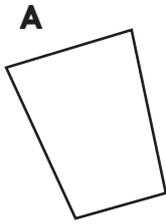
Match the shapes to each description below:

- A triangle: _____ and _____
A quadrilateral: _____ and _____
A pentagon: _____ and _____
A symmetrical polygon: _____, _____ and _____
A regular polygon: _____ and _____
An irregular polygon: _____, _____, _____ and _____

Practice Sheet Hot

Properties of 2-D shapes

1. Look at these shapes.



Match the shapes to each description below:

A triangle:

_____ and _____

A quadrilateral:

_____ and _____

A pentagon:

_____ and _____

A symmetrical polygon:

_____, _____ and _____

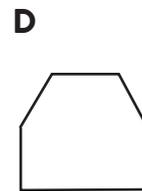
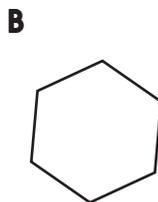
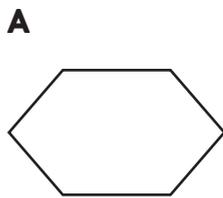
A regular polygon:

_____ and _____

An irregular polygon:

_____, _____, _____ and _____

2. Which shape is not a hexagon? _____



Challenge

Draw four polygons with different numbers of sides.

Label them A, B, C and D.

Make up a quiz to test whether a partner can describe and identify each,

e.g. 1. How many pairs of parallel sides does it have?

2. Name three different types of this shape.

3. How many of me do you need to build a square based pyramid?

Practice Sheets Answers

Properties of 2-D shapes (mild)

- D
 - It has all straight sides
- Match the shapes to each description:
A triangle: B and C
A quadrilateral: A and D
A pentagon: E and F
A symmetrical polygon: C, D and F
A regular polygon: D and F
An irregular polygon: A, B, C and E

Properties of 2-D shapes (hot)

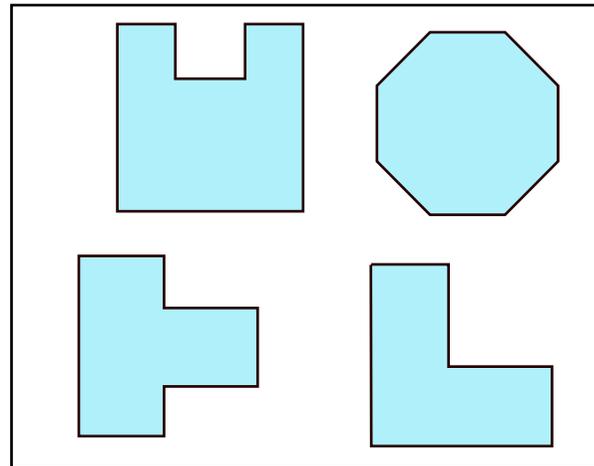
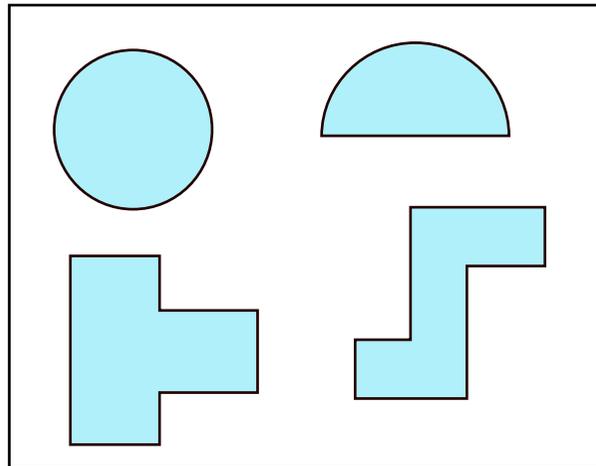
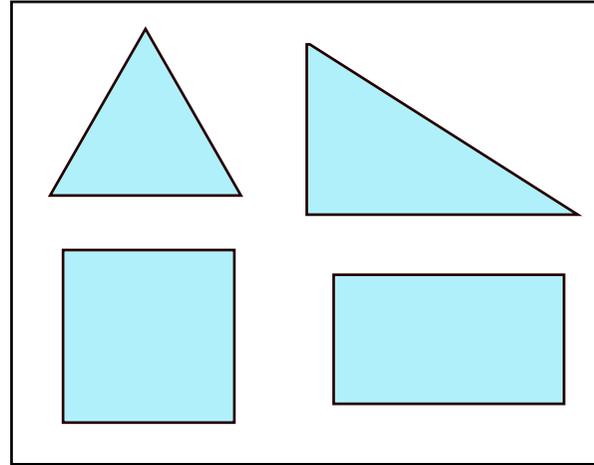
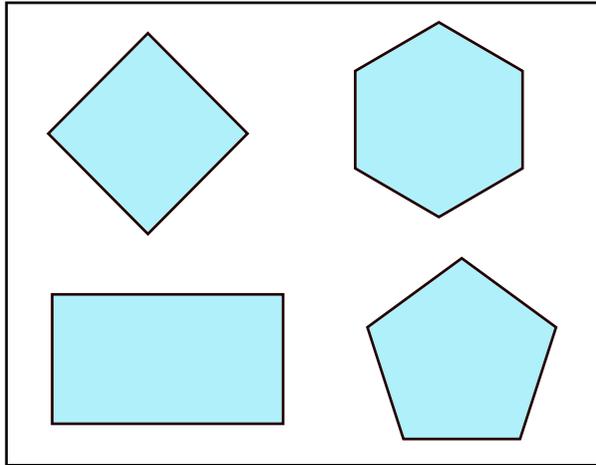
- Match the shapes to each description:
A triangle: B and C
A quadrilateral: A and D
A pentagon: E and F
A symmetrical polygon: C, D and F
A regular polygon: D and F
An irregular polygon: A, B, C and E
- C

Challenge

Children should draw four polygons with different numbers of sides and create a quiz to test whether their partner can identify and describe these shapes.

A Bit Stuck? Odd one out

Ring the odd one out in each set. Write why that shape is different.

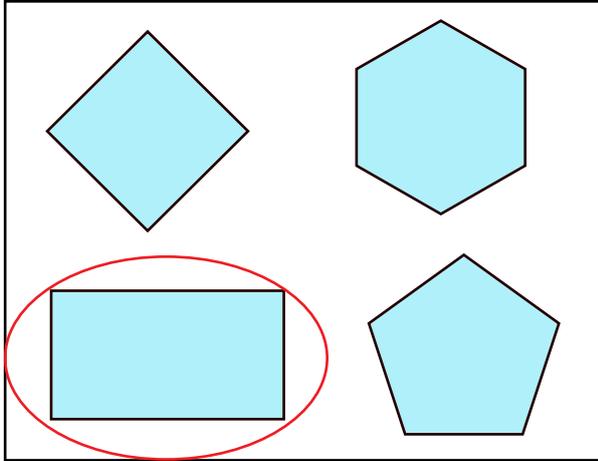


Challenge

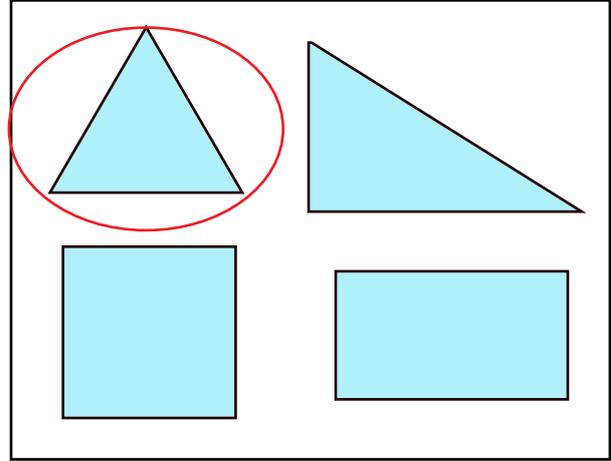
Draw your own set of four shapes, where one is the odd one out. Ring the odd one out. Write why that shape is different.

A Bit Stuck? Answers

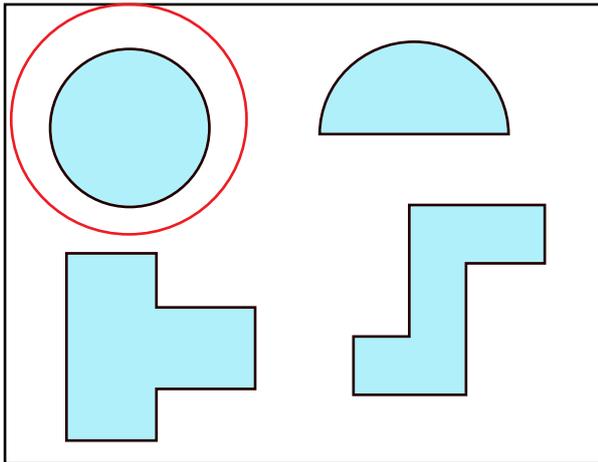
Odd one out



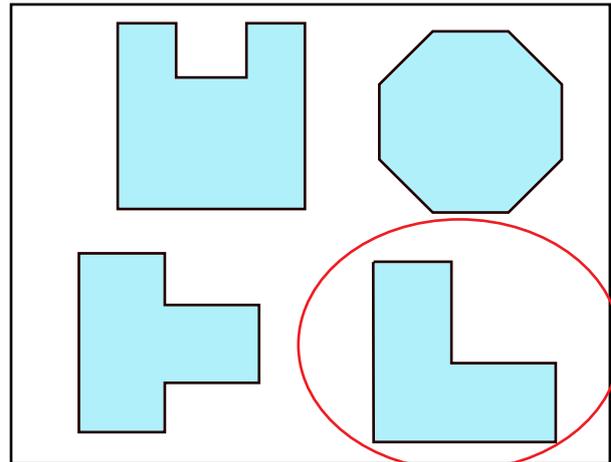
The other shapes are regular polygons.



The other shapes all have at least one right angle.



This is the only shape which doesn't have at least one straight side.
The semicircle could also be the odd one out as it has both straight and curved sides.

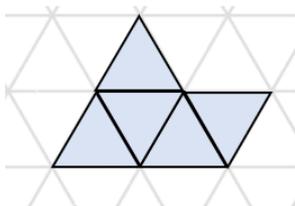


The other shapes are all octagons.
The top right could also be the odd one out as it is the only regular polygon.

Investigation

How many different polygons can you make?

- Using the 'isometric' paper, draw five equilateral triangles, where at least one side of every triangle is directly adjacent to another, e.g.

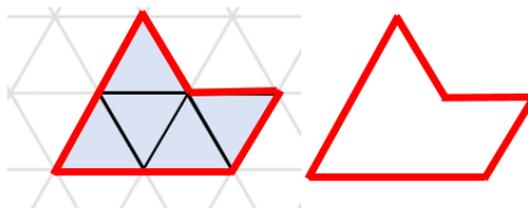


- How many different arrangements of five triangles can you make?
- Eliminate any repeats, reflections and rotations. If you are in doubt about whether one shape is a reflection or rotation of another use this tip!

TOP TIP!

Cut out the shape, then try to lay it on top of the other shape by rotating it or flipping it over!

- Draw around the outline of each shape in a different colour, then name each shape and decide whether it is regular or not.
- If it is not regular, is it symmetrical or not?
e.g.
This is an irregular pentagon with no lines of symmetry.



- Can you find and describe at least 6 different shapes?

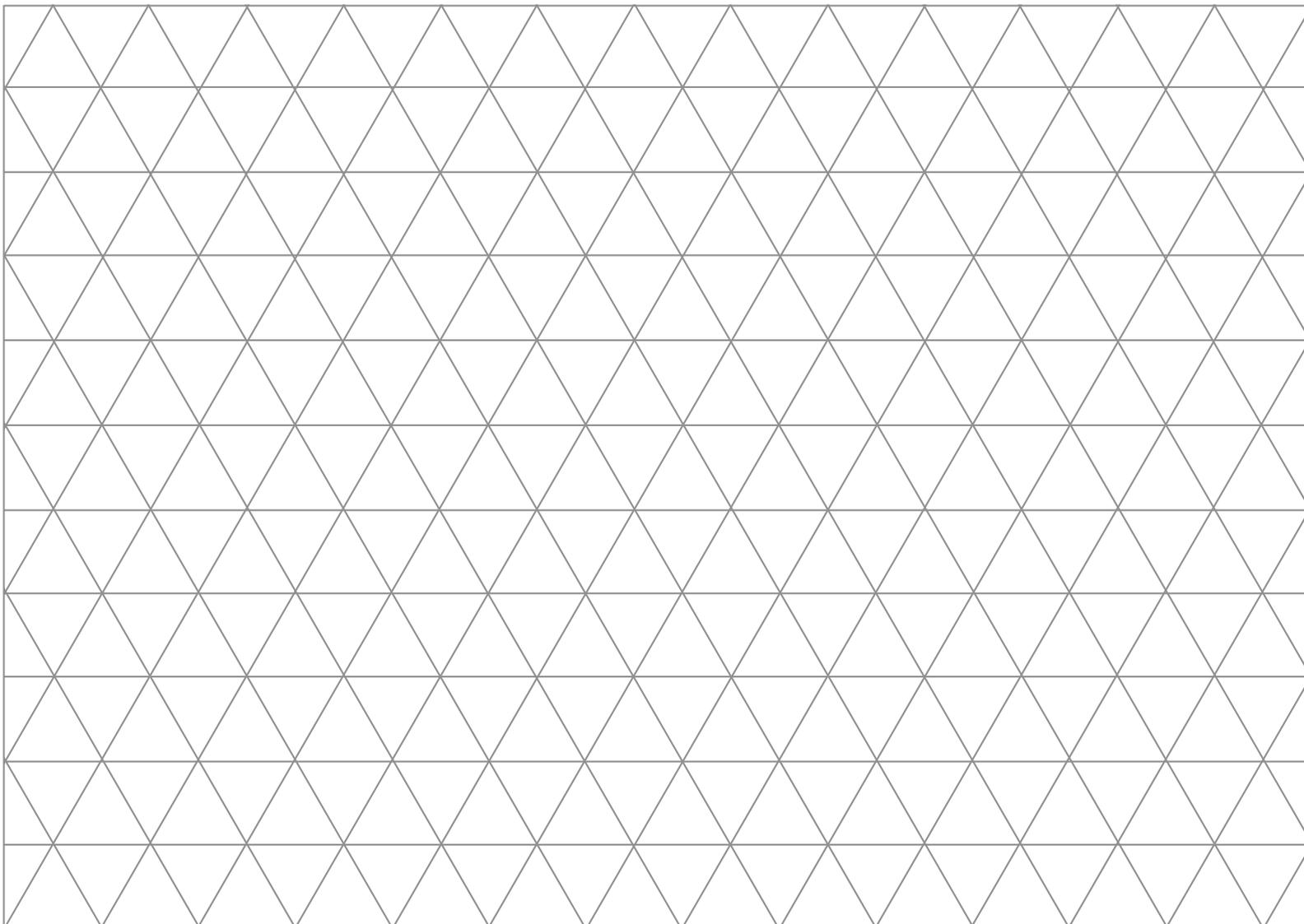
Challenge

Complete the same activity with three, then four equilateral triangles. Do you see any patterns or links between the number of triangles used, the number of possible shapes and the number of sides on the polygons created?

? = x cm³ 1/2 ÷ £ 1/3 > m² + % < 5% - cm ? + ÷ = x cm³ 1/2 ÷ £ 1/3 > m² + %

Investigation

How many different polygons can you make?



© Hamilton Trust

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

> % + m² < 1/3 £ ÷ 1/2 cm³ ÷ + ? cm - 5% > % + m² < 1/3 £ ÷ 1/2 cm³ x = ? +

> + ? = x cm³ 1/2 ÷ £ 1/3 > m² + % < 5% - cm ? + ÷ = x cm³ 1/2 ÷ £ 1/3 > m² + %

< + ? = x cm³ 1/2 ÷ £ 1/3 > m² + % < 5% - cm ? + ÷ = x cm³ 1/2 ÷ £ 1/3 > m² + %