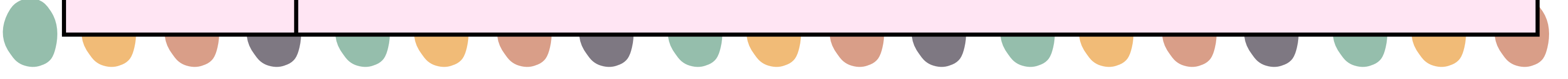


Y6- Overview

	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2			
Unit	1	2	3	4	5	6	7	8	KS2 tests	9	10	11	12	13

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

Autumn 1	Draw, compose and decompose shapes (2 WEEKS)
Ready to progress	6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems
NCETM documents	TEACHING POINT 1,2 AND 3 https://www.ncetm.org.uk/media/mbmej2b2/ncetm_spine2_segment30_y6.pdf#page=4
Small steps	- To use knowledge of shape properties to sketch and identify shapes. - To use knowledge of shape properties to draw shapes accurately using rulers and protractors. - To compose 3D shapes from 2D nets and identify the correct net. - To identify different 2D nets that can create the same 3D shape. - To decompose a 2D shape and explain why the area remains the same when rearranged. - To explain how a parallelogram can be decomposed and rearranged to form a rectangle. - To explain how two congruent triangles can be arranged to compose a parallelogram. - To know that shapes with the same area can have different perimeters and vice versa. - To reason about shapes using the relationship between side lengths and area and perimeter. - To reason about compound shapes using the relationship between side lengths and area and perimeter.
Links	NCETM SLIDES -https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.ncetm.org.uk%2Fmedia%2F5sndx4ag%2Fcp-year-6-unit-4-draw-compose-decompose-shapes.pptx&wdOrigin=BROWSELINK OAK https://www.thenationalacademy/teachers/programmes/maths-primary-ks2/units/draw-compose-and-decompose-shapes/lessons?sid-aedb23=8AGuy9Mla7&sm=0&src=3 WHITE ROSE https://assets.whiteroseeducation.com/new-schemes/Y6%20Spring%20Block%205%20SOL%20Area%20perimeter%20and%20volume.pdf Mastery with greater depth https://www.ncetm.org.uk/media/uitjlx5g/mastery_assessment_y6.pdf
Reasoning	What's the same, what's different? What is the same and what is different about the nets of a triangular prism and a square-based pyramid? Visualising Jess has 24 cubes which she builds to make a cuboid. Write the dimensions of cuboids that she could make. List all the possibilities. Other possibilities If one angle of an isosceles triangle is 36 degrees, what could the triangle look like? Draw it. Are there other possibilities? Draw a net Draw a net for a cuboid that has a volume of 24 cm³. Label the side lengths. Always, sometimes, never Is it always, sometimes, or never true that, in a polyhedron, the number of vertices plus the number of faces equals the number of edges? Convince me One angle at the point where the diagonals of a rectangle meet is 36 degrees. What could the other angles be? Convince me.



Draw, compose and decompose shapes
(2 WEEKS)

Problem solving



Glossary

- Regular - A regular polygon has all sides equal and all angles equal.
- Irregular - An irregular polygon does not have all sides equal and does not have all angles equal.
- Protractor - A protractor is an instrument used in measuring or drawing angles
- Net - A net is a 2D representation of the faces of a 3D shape, that can be folded up into the 3D object.
- Compound shape - A compound shape is a shape created using two or more basic shapes.
- Area - Area is the measurement of a flat surface. It measures a 2D space.
- Congruent - If one shape can fit exactly on top of another using rotation, reflection or translation, then the shapes are congruent.
- Parallelogram - A parallelogram is a quadrilateral with two pairs of parallel and equal sides.
- Area - Area is a measurement of a flat surface. It measures a 2D space.
- Perimeter - The distance around a 2D shape is its perimeter.
- Compound - A compound shape is a shape created using two or more basic shapes.
- Dimension - A dimension is a measurement of length in one direction.

Stem sentences

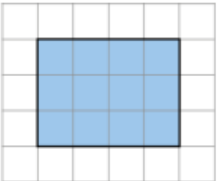
To find the area of a rectangle multiply the length by the width.
A _____ is a parallelogram because _____
A parallelogram is a quadrilateral with opposite sides that are parallel and equal in length.
A parallelogram can be made into a rectangle that has the same area.

The base is _____
The perpendicular height is _____ -
The area is _____
To find the area of a parallelogram multiply the base by the perpendicular height..

A triangle is a 2D shape with three sides and three angles. It can be classified by the length of its sides and the size of its angles.

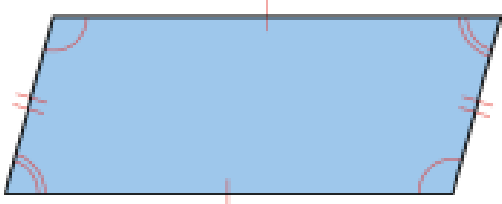
Representations

Finding the area of rectangles on square grids:
Shape A



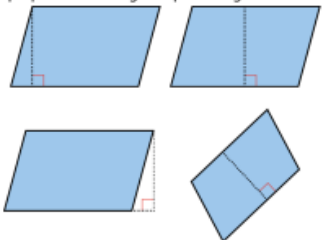
- 'The area is twelve square units.'
- 'You could count the squares.'
- 'You could multiply the length by the width.'
- $3 \times 4 = 12$
- 'You could multiply the width by the length.'
- $4 \times 3 = 12$

The properties of a parallelogram:

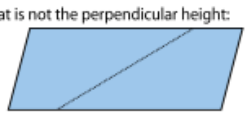


- Opposite sides are parallel.
- Opposite sides are equal in length.
- Opposite angles are equal

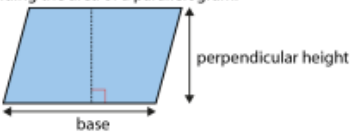
The perpendicular height of parallelograms:



A line that is not the perpendicular height:

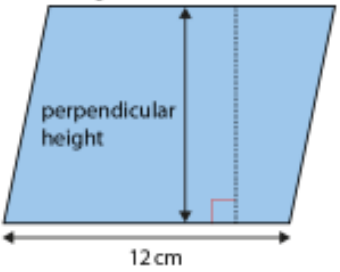


Finding the area of a parallelogram:



- 'To find the area of a parallelogram multiply the base by the perpendicular height.'
- Find the area of this parallelogram.'
- $6 \times 4 = 24$
- 'The base is 6 cm.'
- 'The perpendicular height is 4 cm.'
- 'The area is $6 \times 4 = 24 \text{ cm}^2$.'

• 'The area of this parallelogram is 108 cm^2 . What is the perpendicular height?'



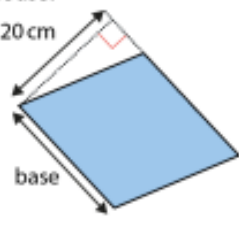
perpendicular height

12 cm

area $\div$ base = perpendicular height
 $108 \div 12 = 9$

- 'The perpendicular height is 9 cm.'

• 'The area of this parallelogram is 440 cm^2 , what is the length of the base?'



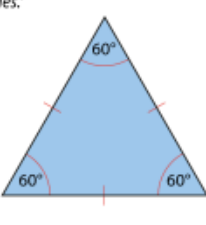
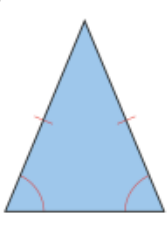
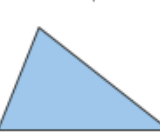
20 cm

base

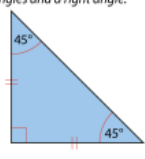
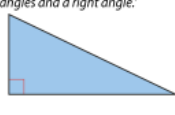
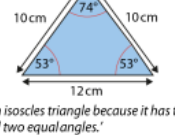
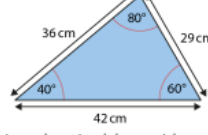
area $\div$ perpendicular height = base
 $440 \div 20 = 22$

- 'The base is 22 cm.'

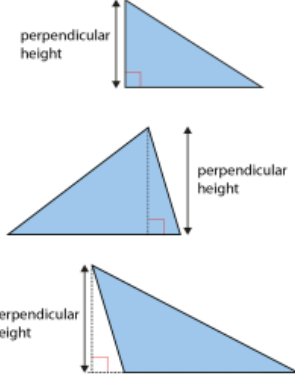
The properties of triangles:

- 'Equilateral triangles have three equal sides and three equal angles.'
- 
- 'Isosceles triangles have two equal sides and two equal angles.'
- 
- 'Scalene triangles have no equal sides and no equal angles.'
- 

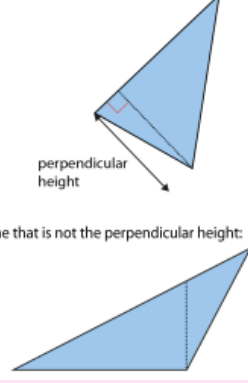
Identifying types of triangles:

- 'Right-angled isosceles triangles have two equal sides, two equal angles and a right angle.'
- 
- 'Right-angled scalene triangles have no equal sides, no equal angles and a right angle.'
- 
- 'This is an isosceles triangle because it has two equal sides and two equal angles.'
- 
- 'This is a scalene triangle because it has no equal sides and no equal angles.'
- 

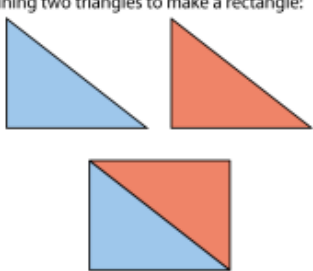
The perpendicular height of triangles:

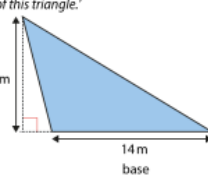


A line that is not the perpendicular height:

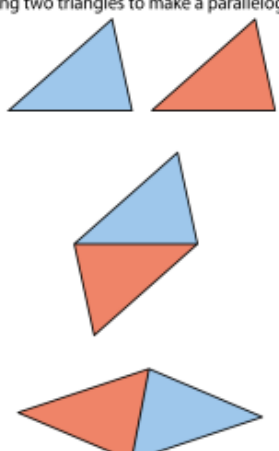


Combining two triangles to make a rectangle:

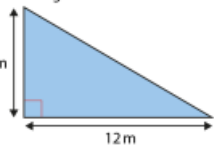
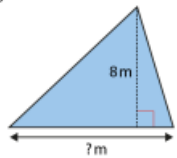


- 'Find the area of this triangle.'
- 
- perpendicular height 10 m
- 14 m base
- 'The base is 14 m.'
- 'The perpendicular height is 10 m.'
- 'The area is $14 \times 10 \div 2 = 140 \div 2 = 70 \text{ m}^2$.'

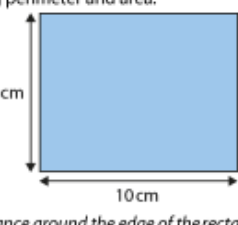
Combining two triangles to make a parallelogram:



Finding unknown measurements:

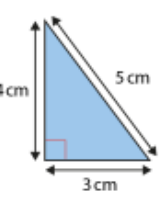
- 'The area of this triangle is 42 m^2 . What is the perpendicular height?'
- 
- 7 m
- 12 m
- $42 \text{ m}^2 \times 2 = 84 \text{ m}^2$
- $84 \div 12 = 7$
- 'The perpendicular height of the triangle is 7 m.'
- 'The area of this triangle is 44 m^2 . How long is the base of the triangle?'
- 
- 8 m
- 7 m
- $44 \text{ m}^2 \times 2 = 88 \text{ m}^2$
- $88 \div 8 = 11$
- 'The base of the triangle is 11 m.'

Comparing perimeter and area:



8 cm

10 cm

- 'The distance around the edge of the rectangle is its perimeter.'
- perimeter = $(10 \times 2) + (8 \times 2) = 20 + 16 = 36 \text{ cm}$
- area = $10 \times 8 = 80 \text{ cm}^2$
- 
- 4 cm
- 5 cm
- 3 cm
- 'The distance around the edge of the triangle is its perimeter.'
- perimeter = $3 + 4 + 5 = 12 \text{ cm}$
- area = $4 \times 3 \div 2 = 6 \text{ cm}^2$

Same perimeter, different area:



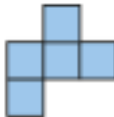
perimeter = 12 units
area = 5 units²



perimeter = 12 units
area = 8 units²



perimeter = 12 units
area = 9 units²



perimeter = 12 units
area = 5 units²

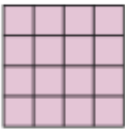
Same area, different perimeter:



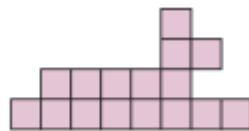
perimeter: 34 units
area = 16 units²



perimeter: 20 units
area = 16 units²



perimeter: 16 units
area = 16 units²



perimeter: 26 units
area = 16 units²