

Maths - Year 6

Measurement 2: Areas of 2D shapes

Key Vocabulary

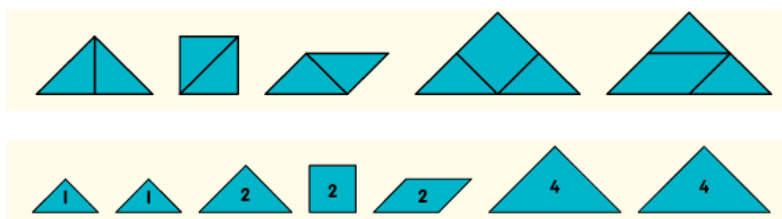
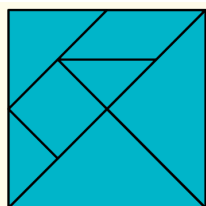
Reflection	Transformation of a shape or point about a line of symmetry (mirror line).
Rotation	Rotating/turning about an axis or centre point.
Translation	A transformation involving sliding a shape or object to a different position in a specific direction.
Enlargement	Making something bigger to a given scale.
Congruent	Identical in form.
Parallel	Lines that remain the same distance apart and never touch.
Perpendicular	At right angles, e.g. perpendicular lines are lines at right angles to each other.
Vertex/vertices	A point where two sides meet in a flat shape, or a point where three or more edges meet in a 3D shape.
Dimensions	A measurable extent of a particular kind, such as length, breadth, depth, or height.
Altitude	Height.
Area	An amount of surface.
Dissection	Partitioning a shape into smaller pieces.
Composite shape	Any shape that is made up of two or more geometric shapes.

Mathematical Skills

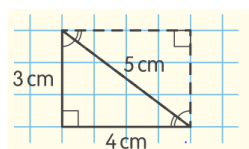
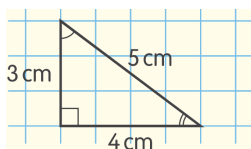
- Describe the transformations they use to construct shapes.
- Suggest splitting shapes into two or more smaller shapes to find and total their areas.
- Show how different shapes may have the same area.
- Explain that whichever base and height pair in a triangle they choose to use, the formula will result in the same area.
- Estimate to help them predict and check their results.

Mathematical Methods

- Using tangrams to explore conservation of area and dissection of shapes e.g. exploring how many tangram pieces you can make using two or more of the pieces.

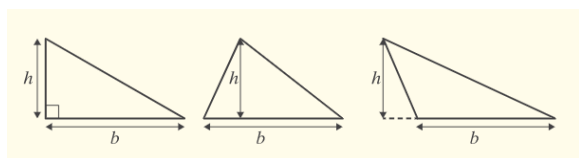


- Finding the area of a right-angled triangle.



$3 \times 4 = 12 \text{ cm}^2$, so the area of the triangle is $\frac{1}{2} \times 12 = 6 \text{ cm}^2$.

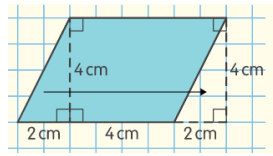
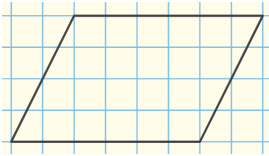
- Finding the area of any triangle.



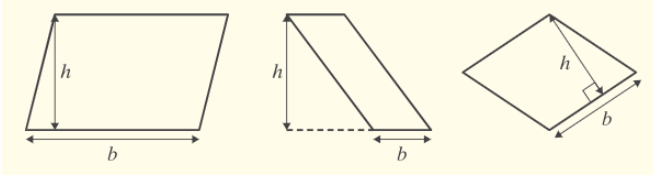
$$= \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times b \times h$$

- Finding the area of a parallelogram.

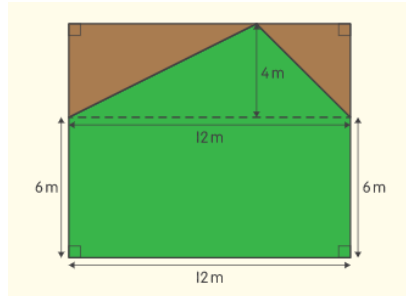
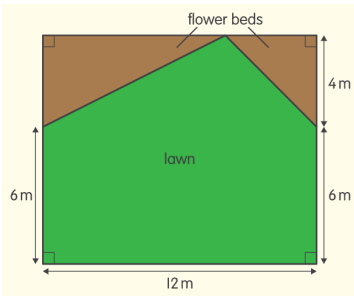


$$6 \times 4 = 24 \text{ cm}^2.$$



$$\text{area of a parallelogram} = b \times h.$$

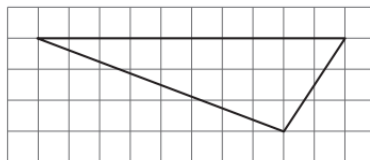
- Solving problems by finding the area of composite shapes e.g. An architect is designing communal gardens and parks for a new town. The sites have a variety of shapes and sizes, but the design brief specifies that, in each one, lawns should make up at least 65% of the total area. Does this example meet the brief?



- Constructing and interpreting pie charts.

Can you..?

- Calculate the area of this triangle.



- Explain how to work out the area of this shape.

