

## Common 2-D and 3-D Shapes

### Starter

- (Review of last lesson)** An isosceles triangle has sides of length 8 cm and 5 cm. Find the possible heights of the triangle.  
**Hint:** Draw the two possible diagrams.
- Work with a partner to decide whether the following are true or false:  
**Hint:** Go to page 94 or click [here](#) if you need a reminder on some of the shapes.

  - A parallelogram has opposite sides and opposite angles equal.
  - A square and a rhombus have diagonals that bisect at right angles.  
**N.B.** Bisect means cut in half.
  - A kite and an isosceles trapezium have diagonals that are equal.
  - The diagonals of a parallelogram cross at right angles.
  - The diagonals of a square, arrowhead and rhombus cross at right angles.
  - A kite and a rhombus have diagonals that bisect the angles.
  - A rhombus can never be split into two equilateral triangles.

### Notes

2-D shapes have sides — 3-D solids have faces and edges

2-D shapes have corners — 3-D solids have vertices (plural of vertex)

Please do not copy the tables.

2-D Shapes	Sides	Pairs of parallel sides	Pairs of equal sides	Lines of symmetry	Other
Equilateral triangle	3	0	0	3	All sides are equal length; all angles are 60°
Isosceles triangle	3	0	0	1	Two sides are equal in length
Scalene triangle	3	0	0	0	All sides are different in length
Square	4	2	2	4	
Rectangle	4	2	2	2	Opposite sides are equal in length; all angles are 90°
Rhombus	4	2	2	2	All 4 sides are equal in length
Parallelogram	4	2	2	0	
Trapezium	4	1	0 or 1	0 or 1	An isosceles trapezium has one line of symmetry and one pair of equal sides
Kite	4	0	2	1	
Arrowhead	4	0	2	1	
Regular* pentagon	5	0	0	5	
Regular* hexagon	6	0	0	6	
Regular* octagon	8	0	0	8	

**E.g. 1** What am I?

- (a) A quadrilateral with just one pair of parallel sides is a...
- (b) A quadrilateral with just one line of symmetry is...
- (c) A quadrilateral with equal diagonals that are also perpendicular is a...
- (d) A quadrilateral with parallel sides and equal diagonal is a...

**E.g. 2** True or false. Explain why or why not?

- (a) All equilateral triangles are isosceles triangles.
- (b) All rectangles are squares.
- (c) All squares are rhombuses.
- (d) All kites are quadrilaterals.
- (e) All quadrilaterals are parallelograms.
- (f) Some rectangles are squares.
- (g) Some parallelograms are kites.
- (h) All rhombuses are parallelograms but a parallelogram is not necessarily a rhombus.

**E.g. 3** Work with a partner.

Guess the shape...you can ask three questions. The answer must either be 'Yes' or 'No'.  
After these three questions, you must guess the shape.  
Which, did you find, are the three most important questions?

Video: [2-D shapes](#)  
Video: [Quadrilaterals](#)  
Video: [3-D solids](#)

[Solutions to Starter and E.g.s](#)

### Exercise

p97 Ex 6.1 Qu 1-7

### Summary

2-D shapes have sides — 3-D solids have faces and edges

2-D shapes have corners — 3-D solids have vertices (plural of vertex)

[Textbook answers \(only available during a lockdown\)](#)