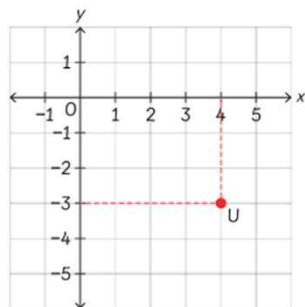
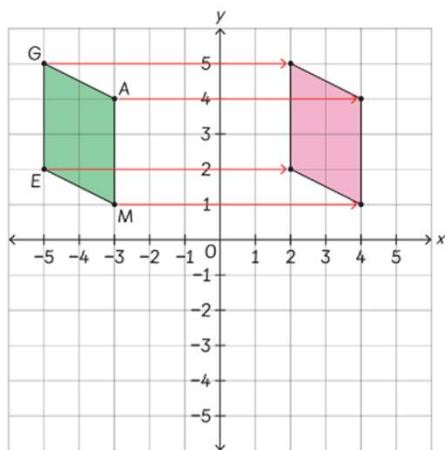


Position and Direction

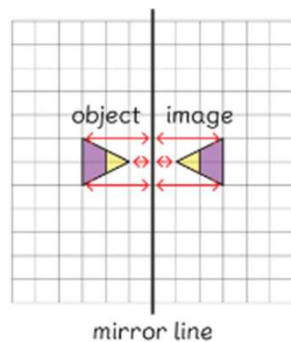
When reading co-ordinates, read along the x-axis first, then the y-axis. E.g. the co-ordinate of U is (4, -3)



Translations describe how something moves along the axis. E.g. the parallelogram GAME has moved 7 units to the right.



A reflection describes a mirror image of a shape. Each vertex on the image is the same distance from the mirror line as the object. The size of the image is the same as the object that is reflected.



The mean

The mean is a type of average. To find the mean, add up all the numbers and divide by how many there are.

E.g. the mean of 4, 5, 3, 4 is 4.
(Because $4 + 5 + 3 + 4 = 16$, and $16 \div 4 = 4$)

Angles

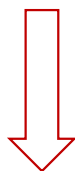
full turn	360°
half turn	180°
right angle	90°
acute angle	< 90°
obtuse angle	> 90°
reflex angle	> 180°
angles on a straight line	180°
angles inside a triangle	180°
angles inside a quadrilateral	360°

Rotations describe a turn.

Starting position



Finishing position



Rotation

Quarter turn, clockwise, 90°

Year 6 Maths Knowledge Organiser

Shape Vocabulary

perimeter = distance around the edge of a shape

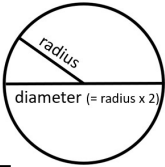
(**circumference**) = perimeter of a circle

horizontal line _____

vertical line |

parallel lines
(will never meet) _____

perpendicular lines
(meet at right angles)



Measurement Conversions

Month	Days	Month	Days
January	31	July	31
February	28 (29 in a leap year)	August	31
March	31	September	30
April	30	October	31
May	31	November	30
June	30	December	31

1 year = 365 days (≈ 52 weeks)
Leap year = 366 days

1 cm = 10 mm cm → mm × 10 mm → cm ÷ 10

1m = 100cm m → cm × 100 cm → m ÷ 100

1km = 1000m km → m × 1000 m → km ÷ 1000

1kg = 1000g kg → g × 1000 g → kg ÷ 1000

1l = 1000ml l → ml × 1000 ml → l ÷ 1000

1 minute = 60 seconds min → sec × 60 sec → min ÷ 60

1 hour = 60 minutes hour → min × 60 min → hour ÷ 60

1 day = 24 hours day → hours × 24 hours → days ÷ 24

2D shapes

Name	No. of sides
quadrilateral	4
pentagon	5
hexagon	6
heptagon	7
octagon	8
nonagon	9
decagon	10

- polygon = shape with straight sides
- regular = all sides/angles the same
- irregular = sides/angles not same

Types of triangle

scalene (all sides and angles different)



equilateral (all sides and angles equal [60°])



isosceles (two sides and angles equal)

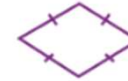


Types of quadrilateral

parallelogram (two pairs of parallel sides and opposite sides equal)



rhombus (parallelogram but with 4 equal sides)



trapezium (one pair of parallel sides)



Area is the amount of space inside a 2D shape. It is usually measured in cm² or m².

Area of a rectangle = length x width

Area of a triangle = ½ x base x height

Area of a parallelogram = base x height

Order of Operations

When calculations have mixed operations, work through them in this order, then left to right.

B – brackets

I – indices e.g. ____² and ____³

D – division

M – multiplication

A – addition

S – subtraction

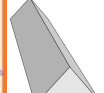
3D shapes



square-based pyramid



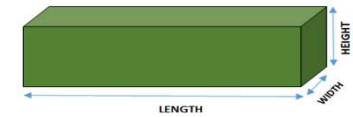
triangular-based pyramid



triangular prism

faces			
(a flat or curved surface)	5	4	5
edges			
(where faces edges meet)	8	6	9
vertices			
(the points where the edges meet)	5	4	6

Volume is the amount of space a 3D shape takes up, usually measured in cm³ or m³.



Volume of a cuboid = length x width x height

Multiplication and Division Vocabulary

Term	Definition	Example
Factor	A whole number that divides exactly into another.	Factors of 12 = 1, 2, 3, 4, 6 and 12.
Common factor	Factors of two numbers that are the same.	Common factors of 8 and 12 are 1, 2 and 4.
Prime number	A number with only 2 factors: 1 and itself.	2, 3, 5, 7, 11, 13, 17, 19 ...
Composite number	A number with more than 2 factors.	12 (It has 6 factors.)
Multiple	The result when a number is multiplied by a whole number.	Multiples of 9: 9, 18, 27, 36, 45, ...
Common multiple	Multiples of 2 numbers that are the same.	Common multiples of 4 and 6: 12, 24, 36 ...
Square numbers	The result when a number has been multiplied by itself.	25 (5 ² = 5 x 5)
Cube numbers	The result when a number has been multiplied by itself twice.	8 (2 ³ = 2 x 2 x 2)

Fractions, decimals and percentages

Fraction	Decimal	%	Operation
$\frac{1}{100}$	0.01	1%	÷ 100
$\frac{1}{20}$	0.05	5%	÷ 20
$\frac{1}{10}$	0.1	10%	÷ 10
$\frac{1}{8}$	0.125	12.5%	÷ 8
$\frac{1}{5}$	0.2	20%	÷ 5
$\frac{1}{4}$	0.25	25%	÷ 4
$\frac{1}{2}$	0.5	50%	÷ 2
$\frac{3}{4}$	0.75	75%	÷ 4, x3
1	1	100%	÷ 1

Roman Numerals

1	I	100	C
5	V	500	D
10	X	1000	M
50	L		

- If a smaller numeral comes after a larger numeral, add the smaller number to the larger number;
- If a smaller numeral comes before a larger numeral, subtract the smaller number from the larger number;
- Do not use the same symbol more than three times in a row.
- E.g., I = 1, II = 2, III = 3, IV = 4, V = 5, VI = 6, VII = 7, VIII = 8, IX = 9, X = 10
- E.g., X = 10, XX = 20, XXX = 30, XL = 40, L = 50, LX = 60, LXX = 70, LXXX = 80, XC = 90, C = 100
- E.g. XXVI = 26 and XCIV = 94