Prior Learning

Shape

Pupils will have compared and ordered angles in preparation for using a protractor and compared lengths and angles to decide if a polygon is regular or irregular. Pupils will have drawn symmetrical patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognised line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.

Position and direction

Pupils have drawn a pair of axes in one quadrant, with equal scales and integer labels. They have read, written and used pairs of co-ordinates, for example (2, 5), including using co-ordinate-plotting ICT tools.

Decimals

Pupils have connected hundredths to tenths and place value and decimal measure. Pupils have looked at the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths.

Converting units

Pupils have used decimal notation to record metric measures, including money. They have used multiplication to convert from larger to smaller units.

Key vocabulary for this unit

Shape	**Position and Direction**	**Decimals**	**Negative Numbers**	**Converting Units**	**Volume**
Degrees	X and y values	Tenths	Temperature	Convert	Volume
Measured	Reflection	Hundredths	Celsius	Metric unit	Cube
Estimate	Translation	Thousandths	Positive	Imperial unit	Cuboid
Compare	Plot	Convert	Negative	Kilo	3D shape
Acute	Axes/axis	Decimal	Sequence	Kilogram	Solid
Obtuse	Co-ordinate	Equivalents	Difference	Gram	capacity
Reflex	Horizontal	Partition		Millimetre	calculate
Clockwise	Vertical	Complement		Centimeter	estimate
Anticlockwise		Exchange		Metre	unit

Protractor Polygon Area Perimeter Regular Irregular Cuboid Triangular-based pyramid Cone Sphere Hexagonal prism cylinder	Symmetrical Symmetry	Integer Partitioning Sequence		Kilometer Litre Milliliter Pound Ounce Inch Foot Yard Pint Gallon Stone approximately	cube least greatest volume unit cube

Learning Sequence	
Shape	• To understand and use degrees • To classify angles • To estimate angles • To measure angles up to 180 degrees • To draw lines and angles accurately • To calculate angles around a point • To calculate angles on a straight line • To investigate lengths and angles in shapes • To look at regular and irregular polygons • To investigate 3D shapes
Position and Direction	• To read and plot co-ordinates • To look at solving problems with co-ordinates • To translate shapes • To investigate translation with co-ordinates • To investigate lines of symmetry • To look at reflection in horizontal and vertical lines

Decimals	• To use known facts and subtract decimals within 1 • To look at complements to 1 • To add and subtract decimals across 1 • To add decimals with the same number of decimal places • To subtract decimals with the same number of decimal places • To add decimals with different numbers of decimal places • To subtract decimals with different numbers of decimal places • To find efficient strategies for adding and subtracting decimals • To look at decimal sequences • To multiply by 10, 100 and 1000
Negative Numbers	• To understand negative numbers • To count through zero in 1's • To count through zero in multiples • To compare and order negative numbers • To find the difference
Converting Units	• To investigate kilograms and kilometres • To investigare millimetres and millilitres • To convert units of length • To convert between metric and imperial units • To convert units of time • To calculate with timetables
Volume	• To look at cubic centimetres • To compare volume • To estimate volume • To estimate capacity

Assessment milestones

Mathematical skills:	**Mathematical knowledge:**
Shape • draw given angles, and measure them in degrees	**Shape**

Position and Direction • identify and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. **Decimals** • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • read and write decimal numbers as fractions • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places **Negative Numbers** • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero **Converting units** • convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres **Volume** • estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • identify: ♣ angles at a point and one whole turn (total 360 degrees) ♣ angles at a point on a straight line and 2 1 a turn (total 180 degrees) ♣ other multiples of 90 degrees • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles **Position and Direction** • describe the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. **Decimals** • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • solve problems involving number up to three decimal places **Negative Numbers** • solve number problems and practical problems that involve negative numbers **Converting units**

	• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • solve problems involving converting • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. **Volume** • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.