## Spring half term 1 - Co-ordinate Geometry

Content - Including 'Big Questions'

| Core knowledge; The co-ordinate grid | Complete |
| :--- | :--- |
| The Co-ordinate Grid - How many quadrants are there on the cartesian plane? |  |
| Line Segments - How far is it from one point to another? |  |
| Geometric Problem - What do I know about these points? | Complete |
| Core knowledge; Area and perimeter of rectilinear shapes |  |
| The concept of perimeter - Will changing a side change the perimeter? |  |
| The perimeter of rectangles and rectilinear shapes - What is the most efficient way to <br> find the perimeter? |  |
| The concept of area and the area of rectangles - what is the link between arrays and <br> the area of a rectangle? |  |
| The relationship between area and perimeter - How does changing one side alter the <br> perimeter and the area? |  |
| Composite shapes - Can I make the problem more straightforward by breaking up the <br> shape? |  |
| Core knowledge; Squares, squaring and square rooting | Complete |
| Square numbers and squaring - What is the area of a square? |  |
| Interpreting algebraic expressions using area - Can we find the area of a rectangle if <br> we don't know the length of all the sides? |  |
| Square rooting - can we find the square root of any number? |  |
| Core knowledge; Deriving and using the area of other 2D shapes | Complete |
| Area of parallelogram - How is this linked to area of rectangle? |  |
| Area of triangles - How is this linked to area of rectangle? |  |
| Deriving the area of a trapezium - How is this linked to area of rectangle? |  |
| Finding the area of a trapezium (using a formula) - How is this linked to area of <br> rectangle? |  |

## Learning Checkpoints

| Learning Check Title | Score | Dirt |
| :--- | :---: | :---: |
| The co-ordinate grid |  |  |
| Area and perimeter of rectilinear shapes |  |  |
| Squares, squaring and square rooting |  |  |
| Deriving and using the area of other 2D shapes |  |  |

## Key Vocabulary

Area - A measure of the size of any plane surface. Area is usually measured in square units e.g. square centimetres (cm2), square metres (m2).

## Dimension -

Axis and axes - A fixed, reference line along which or from which distances or angles are taken. Axes is plural of axis
Quadrant - One of the four regions into which a plane is divided by the $x$ and $y$ axes in the Cartesian coordinate system
Origin - The origin is a fixed point where measurements are taken from, it is the point $(0,0)$ Ordinate - to describe position
Coordinate - In geometry, a coordinate system is a system which uses one or more numbers, or coordinates, to uniquely determine the position of a point in space
Absolute value - The distance away from zero on a number line
Plot - The process of marking points. Points are usually defined by coordinates and plotted with reference to a given coordinate system.
Cartesian - A system used to define the position of a point in two- or three-dimensional space Plane - A flat surface. A line segment joining any two points in the surface will also lie in the surface.
Vertex - The point at which two or more lines intersect. Plural: vertices.
Square-1. A quadrilateral with four equal sides and four right angles. 2. The square of a number is the product of the number and itself.
Line segment - The part of a line between two points.
Point -An element, in geometry, that has position but no magnitude.
Quadrant -One of the four regions into which a plane is divided by the $x$ and $y$ axes in the Cartesian coordinate system.
Generalise -To formulate a general statement or rule
Perimeter - The length of the boundary of a closed figure.
Adjacent - Next to, in order
Factors - When a number, or polynomial in algebra, can be expressed as the product of two numbers or polynomials, these are factors of the first. Examples: 1, 2, 3, 4, 6 and 12 are all factors of 12 because $12=1 \times 12=2 \times 6=3 \times 4$ :
Product - The result of multiplying one number by another
Composite shape - A shape formed by combining two or more shapes.
Squaring - The process of multiplying a value by itself
Square root - The inverse of squaring
Algebra - The part of mathematics that deals with generalised arithmetic. Letters are used to denote variables and unknown numbers and to state general properties.
Expression - A mathematical form expressed symbolically. Examples: $7+3$; $22+\mathrm{b} 2$.
Transformation - A change that is, or is equivalent to, a change in the position or direction of the coordinate axes

