

## Year 7 Maths Learning Journey

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?	
Core knowledge; Area and perimeter of rectilinear shapes	Complete
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 find the perimeter?	
The concept of area and the area of rectangles – what is the link between arrays and the area of a rectangle?	
The relationship between area and perimeter - How does changing one side alter the perimeter and the area?	
<u>Composite shapes</u> – Can I make the problem more straightforward by breaking up the shape?	
Core knowledge; Squares, squaring and square rooting	Complete
Square numbers and squaring - What is the area of a square?	
<b>Interpreting algebraic expressions using area</b> – Can we find the area of a rectangle if we don't know the length of all the sides?	
<b>Square rooting</b> – 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 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		

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## 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 × 12 = 2 × 6 = 3 × 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; a2 + b2. Transformation - A change that is, or is equivalent to, a change in the position or direction of the

coordinate axes