Year 7 Maths Learning Journey:

Place Value

Prior Learning: *What do you know already?*
Read, write and order numbers up to 10 000 000, determine the value of each digit, round any whole number to a given degree of accuracy, identify place value of digits to 3 decimal places and multiply and divide by 10, 100 and 1000.

Learning Sequence					
Main Learning Steps	Understanding powers of 10	Place Value of Integers	Place Value of Decimals	Place Value in Units of Measure	Ordering and Comparing numbers
Keywords: *Decimal, digit, integer, significant figure, base, power of ten, exponential, metric, centi, milli, kilo*					
Formative assessment	Pink Sheet Question x1 Place Value Topic Test				
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point				

Where will we use these ideas again?
Standard form, Significant Figures

Sparx codes
Integer Place Value – M704
Decimal Place Value - M522
Units of Measure – M828
Multiplying using Place Value – M911
Multiplying and dividing by 10, 100 and 1000 - M113

Year 7 Maths Learning Journey:

Properties of Number: Factors, Multiples, Primes, Squares and Cubes

Prior Learning: *What do you know already?*
Factors, Multiples, Primes, Square numbers, Cube numbers

Learning Sequence							
Main Learning Steps	Divisibility Tests	Understanding and listing factors	Understanding and listing multiples	Understanding integer exponents and roots	Primes and prime factorisation	Highest Common Factor	Lowest Common Multiple
Keywords: *Factors, Multiples, Prime, Decomposition, Exponents, Integer, Power, Index, Roots, Highest common factor (HCF) and Lowest Common Multiple (LCM), Venn diagrams*							
Formative assessment	Pink Sheet Question x2 Properties of Number Topic Test						
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point						

Where will we use these ideas again?
Factorising
Solving Equations
Adding/Subtracting fractions , Simplifying Fractions

Sparx codes
Finding factors and using divisibility tests – M823
Calculating with roots and powers - M135
Finding the LCM – M22
Finding the HCF – M698
Finding prime numbers – M322
Prime factor decomposition – M108
Finding the HCF and LCM using prime factor decomposition – M365

Year 7 Maths Learning Journey:

Arithmetic Procedures with Integers and Decimals

Prior Learning: *What do you know already?*
This unit builds on your knowledge of whole number and decimal arithmetic

Learning Sequence								
Main Learning Steps	Place value with integers and decimals	Mental strategies for addition and subtraction (including negatives)	Written methods for addition and subtraction (including negatives)	Mental strategies and estimation for multiplication and division	Written methods for multiplication and division (short and long)	Multiplication and division with negative integers	Use of BIDMAS In expressions	Applying arithmetic in context

Keywords: Additive and Multiplicative identities, Associative, Commutative, Distributive, Dividend, Divisor, Quotient, Inverse operations, reciprocal, rational number, zero pairs, BIDMAS

Formative assessment	Pink Sheet Question x2 Arithmetic Procedures Topic Test
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point

Where will we use these ideas again?
Algebraic manipulation, solving equations, and applying number operations in context (e.g. area, ratio, probability). You will gain confidence in applying the four operations across a range of settings.

Sparx codes:
Adding integers - M928
Adding decimals - M429
Subtracting integers - M347
Subtracting decimals - M152
Multiplying using place value - M911
Using a written method to multiply integers - M187
Using a written method to multiply decimals - M803
Using a written method to divide integers - M354
Dividing with a remainder - M873
Using a written method to divide by integers to get a decimal answer - M262
Adding and subtracting with negative numbers - M106
Multiplying and dividing with negative numbers - M288
Using the correct order of operations - M521

Year 7 Maths Learning Journey:

Equations and Expressions

Prior Learning: *What do you know already?*
Numbers being represented by letters or symbols and unknowns in mathematical situations.
4 operations
Concept of inverse

Learning Sequence								
Main Learning Steps	Understanding of expressions and equations	Representing a generalised number and an unknown or variable	Algebraic notation and terminology	Substitution	Like terms and simplifying	Multiplication and Expanding brackets	Factorising	Problem Solving with Expressions and Equations
Keywords - Equation, expression, formula, factorise, expand, binomial, substitute, variable, commutative, term, like, factor								
Formative assessment	Pink Sheet Question x2 Expressions and Equations Topic Test							
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point							

Where will we use these ideas again?
Solving equations, solving quadratics, algebraic fractions, algebraic problems with area and perimeter, algebraic problems with probability, changing the subject

Sparx codes
M813 – algebraic notation
M830 – algebraic terminology
M428 – Function Machines with letters
M417, M327, M208 – Substitution
M795. M531, M949 - Simplifying

M237 – Expanding single brackets
M792 – Expanding and simplifying single bracket
M100 – Factorising into one bracket

Year 7 Maths Learning Journey:
Plotting Coordinates

Prior Learning: *What do you know already?*
Number lines
Spatial reasoning

Learning Sequence				
Main Learning Steps	Plotting Coordinates	Plotting non-integer coordinates	Plotting coordinates generated from a rule	Solving coordinate-based problems
Keywords: X-axis, Y-axis, Origin, Quadrant, Coordinates, Plot, Scale, Cartesian Plane, Quadrant				
Formative assessment	Pink Sheet Question x1 Plotting Coordinates Topic Test			
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point			

Where will we use these ideas again?
Transformations, graphing linear equations, and geometry work involving shapes and angles.

Sparx Codes
Reading and Plotting Coordinates - M618
Solving Shape Problems involving Coordinates - M230
Calculating midpoints - M622
Mixed Problems: Coordinates and Midpoints - M311

Year 7 Maths Learning Journey:

Perimeter and Area

Prior Learning: *What do you know already?*
Names of 2D shapes , what perimeter and area mean, measure and calculate the perimeter of simple 2D shapes
Calculate the area of rectangles with the correct units, concept of length

Learning Sequence								
Main Learning Steps	Area and perimeter of shapes by counting squares	Area and perimeter of square and rectangles – including missing lengths	Perimeter of Polygons	Area of compound rectangles	Area of triangles	Area of parallelograms	Area of a Trapezium	Problem Solving with Perimeter and Area
Keywords: *Length, width, height, base, dimensions, units, squared, perimeter, total, product, compound, perpendicular, polygon, sides, adjacent sides, regular, irregular*								
Formative assessment	Pink Sheet Question x1 Perimeter and Area Topic Test							
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point							

Where will we use these ideas again?
Working with different units of measurements, scaling, surface area of 3D shapes, develop an understanding of formulae and how to apply them, volume, coordinate geometry and geometry generally, trigonometry, algebraic problems, problem solving.

Sparx codes:

Finding areas using grids ***(M900)***
Finding perimeters using grids ***(M920)***
Finding the area of rectangles ***(M390)***
Finding the perimeter of rectangles and simple shapes ***(M635)***
Finding the area of compound shapes ***(M269****)*
Finding the perimeter of compound shapes ***(M690)***
Finding the area of triangles ***(M610)***
Finding the area of compound shapes containing triangles ***(M996****)*
Finding the area of parallelograms ***(M291)***
Finding the area of trapeziums ***(M705),***
Finding the area of rectangles, triangles, parallelograms and trapeziums ***(M303)***

Year 7 Maths Learning Journey:

Arithmetic Procedures including Fractions

Prior Learning: *What do you know already?*
Place value and number facts; fluency in times tables and division facts; Understanding of fractions as part of a whole and as numbers; recognize fractions on a number line; Highest common factor; lowest common multiples; arithmetic procedures with all four operations; writing answers in simplest form; compare and order numbers

Learning Sequence								
Main Learning Steps	Work with terminating decimals and their correspondin g fractions	Equivalent fractions and simplifying	Compare and order positive integers, decimals and fractions	Convert between mixed numbers and improper fractions	Addition and subtraction of fractions	Multiplication of fractions	Division of fractions	Application of all operations in mixed contexts
Keywords Numerator; denominator; equivalent; simplify; improper fraction; mixed number; reciprocal								
Formative assessment	Pink Sheet Question x1 Arithmetic Procedures including Fractions Topic Test							
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point							

Where will we use these ideas again?
Ratio and proportion, algebra (algebraic manipulation and solving equations), percentages and FDP conversions, probability, geometry and measures (scaling, similarity, area)

Sparx codes
Converting between fractions and decimals **(M958)**,
Finding equivalent fractions **(M410)**,
Ordering fractions **(M335)**,
Converting between mixed numbers and improper fractions **(M601)**,
Multiplying fractions **(M157)**,
Dividing fractions **(M110)**,
Mixed problems: Calculating with fractions **(M645)**,
Ordering fractions, decimals and percentages **(M553)**
Simplifying fractions **(M671)**,
Adding and subtracting fractions **(M835)**,
Adding and subtracting mixed numbers **(M931)**,
Multiplying with mixed numbers **(M197)**,
Dividing with mixed numbers **(M265)**,
Mixed problems: Calculating with mixed numbers **(M619)**,

Year 7 Maths Learning Journey:

Multiplicative Reasoning – Fractions and Ratios

Prior Learning: *What do you know already?*
Multiply and divide whole numbers and fractions., *Use fractions to describe parts of a whole and solve problems involving scaling, Understand and use ratio language in context (e.g. recipes, sharing), Solve problems involving proportional reasoning and unit conversions.*

Learning Sequence					
Main Learning Steps	**Understand and represent multiplicative relationships**	**Apply understanding in real world contexts**	**Connect Fractions to multiplicative relationships**	**Connect Ratios to Multiplicative relationships**	**Problem solving with fractions and ratios**
Keywords: *Ratio, Fraction, Scale Factor, Multiplier, Multiplicative relationships, Proportion*					
Formative assessment	Pink Sheet Question x2 Multiplicative Relationships Topic Test				
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point				

Where will we use these ideas again?
Percentages and Proportionality. Working with scale diagrams and similarity, Solving equations involving fractions and ratios.
In real-life contexts such as recipes, currency exchange, and best value problems.
In science and geography when interpreting graphs and scaling data.

Sparx codes

Writing and simplifying ratios – M885
Using equivalent ratios to find unknown amounts – M801
Converting between ratios, fractions and percentages – M26
Solving proportion problems – M478
Value for money – M681

Year 7 Maths Learning Journey:
Transformations

Prior Learning: *What do you know already?*
Identifying reflections and translations
Solving problems involving a scale factor

Learning Sequence					
Main Learning Steps	Understand and use translations	Understand and use rotations	Understand and use reflections	Understand and use enlargements	Mixed Transformations
Keywords *- Translate, vector, reflect, rotate, enlarge, direction, centre of enlargement, mirror line, scale factor, multiple, coordinates, origin, congruent, similar, turn, clockwise, anticlockwise, move, right, left, symmetry, centre of rotation, direction, displacement*					
Formative assessment	Pink Sheet Question x1 Transformation Topic Test				
Summative assessment	Cumulative Assessments 1 and 2 will test all topics taught up to that point				

Where will we use these ideas again?
Similarity, Congruence, graphs, negative enlargements

Sparx Codes

Translation – M139
Reflection – M290
Rotation – M910
Enlargement – M178
Mixed Transformations – M881