YEAR 7 MATHS

YEAR 7 MATHS INTENT	**Students will consolidate and develop numerical fluency extending their understanding of the number system and place value to include decimals, fractions and powers and roots. This year will focus on introducing them to key concepts in the different strands of Mathematics, laying strong foundations on which they will further build their knowledge. Exploration of maths in the real world will foster curiosity and enjoyment of the subject.**

Exam Information (Y10-11)	**Board:**	**Edexcel**
	Qualification:	**Level 1/Level 2 GCSE (9–1) in Mathematics (1MA1)**
	Website link to specification/resources:	Maths GCSE | Edexcel GCSE Mathematics (2015) | Pearson qualifications

Autumn 1		**Autumn 2**		**Spring 1**	**Spring 2**
Analysing and displaying data	**Number**	**Expressions functions and formulae**	**Decimals and measure**	**Fractions and Percentages**	**Probability**
Data Collection Two Way Tables Bar Charts Averages, Range, Grouped Data Pie Charts, Scatter Graphs	Factors, primes and multiples Using negative numbers Multiplying and dividing fluently Squares and Square roots Calculations with BIDMAS	Substitution into formulae and expressions Manipulation of algebra Forming expressions and equations Solving equations	Rounding numbers Converting metric measures Calculating with decimals Calculate perimeter and area of 2D shapes including compound shapes	Comparing fractions Simplifying fractions Working with fractions and decimals. Understanding percentages and percentages of amounts	The language of probability Use probability notation. Calculating probability Experimental probability
Mastery: To select and find an average which bests represents the data set, including frequency tables. To compare data in context using these averages. To select and display a most appropriate visual representation of the data **Securing:** Find all averages from a set of data and use them to compare in context, including frequency tables. To be able to display and analyse data in different forms (eg. Charts and Graphs) **Developing:** Find all averages from a set of data (mean, mode, median and range). To be able to display and analyse data in different forms (eg. Charts and Graphs).	**Mastery:** Fluency with all operations in context and use them to solve problems. To be able to find HCF and LCM. To use prime numbers and square numbers fluently. To solve contextual problems, including working inversely. **Securing:** Fluency with the 4 operations in context and knowledge of BIDMAS. To be able to list factors and multiples for different integers. To identify square and prime numbers. **Developing:** Able to add, subtract, divide and multiply integers. Demonstrate understanding the concept of negative numbers. To demonstrate understanding of factors and multiples.	**Mastery:** Substitute negative and positive integers into formulae, expressions and multi-step function machines that have brackets and indices. From multi-step expressions from contextual questions and use these to solve problems. Manipulate expressions including indices and brackets. Application of rules from number to algebraic expressions. **Securing:** Substitute negative and positive integers into formulae, expressions and two-step function machines. Form multi-step expressions from contextual questions. Manipulate expressions using all four operations. Application of rules from number to algebraic expressions. **Developing:** Substitute positive integers into formulae, expressions and function machines. Form expressions from worded statements and apply to 2D shapes. Manipulate expressions using all four operations.	**Mastery:** Understand which specified degree a number should be rounded to in context. Choose an appropriate scale of measure which provides the degree of accuracy required. Choose the best method to apply the four operations to numbers with multiple decimal places. Calculate perimeter and area of composite shapes and understand the difference between linear and square units. **Securing:** Round numbers to the specified degree of accuracy. Read and use scales and to be able to convert metric measures. Apply to the four operations to numbers with multiple decimal places. Calculate perimeter and area of composite shapes. **Developing:** Round numbers to the specified degree of accuracy. Read and use scales and to be able to convert metric measures. To be able apply the four operations to	**Mastery:** Use reasoning skills to effortlessly convert between fractions and percentages and apply this to real life concepts and applied statistical diagrams. **Securing:** Use visualising (fraction walls and diagrams) and written methods to add, subtract, multiply and divide with fractions. Calculate any percentage of an amount to deepen understanding of money. **Developing:** Identify and convert into equivalent fractions, including improper fractions and mixed numbers, using visual diagrams. Use visual diagrams to recognise simple percentages when it comes to calculating discounts in shops.	**Mastery:** Using fraction and decimal skills, to accurately calculate with probabilities, including the chance of a probability not happening. Have a deeper understanding that more trials will result in more accurate results. **Securing:** To be able to state both theoretical and experimental probabilities and understand the difference between them. Use probability in real life concepts. **Developing:** Use correct probability notation, including likelihood descriptions and using fractions to describe basic real life probability scenarios accurately.

			decimals. Calculate perimeter and area of rectangles and squares.		

Summer 1		Summer 2
Lines and angles	**Unit 9: Sequences and graphs**	**Transformations**
Drawing and measuring angles Solving problems with simple angle rules Properties of triangles Properties of quadrilaterals	Finding the next term of a sequence (Geometric and arithmetic) Finding the rule for the sequence (Nth term) Term to term rules Find midpoints of a line Plot straight line graphs	Congruency and enlargements Symmetry Reflection Rotation Translations Combined transformations
Mastery: To be able generate straight line graphs in all four quadrants. To generate coordinates with complex rules. To be able to recognise, describe and continue more complex sequences. To be able to understand and apply angle rules for compound shapes. **Securing:** To be able to identify properties of angles and triangles. To be able to solve problems with angles and 2D shapes. To be able to apply sequencies to real-life problems. Calculate mid-points using coordinates. **Developing:** To be able to use a protractor and draw angles and triangles. To be able to use angle notation to describe lines, angles and 2D shapes. To be able understand and apply angles rules to identify missing angles. To be able to identify names and properties of 2D shapes.	**Mastery:** Continue and describe special sequences. Work out the nth term. Know and understand that the midpoint is (mean of x coordinates, mean of y coordinates), just as midpoint of a two numbers is the mean of the two numbers. Plot straight-line graphs using a table of values. **Securing:** Generate terms of a sequence using a one-step term to term rule. Recognise an arithmetic and geometric sequence. Find the midpoint of a line segment. Recognise, name and plot the graphs of y = x and y = –x. **Developing:** Recognise, describe and continue sequences including pattern sequences. Find the missing term in a sequence. Read and plot coordinates. Recognise, name and plot graphs parallel to the axes	**Mastery:** To be able to decide which transformation had been used in order to fully describe the transformation using correct subject terminology. Use knowledge of straight-line graphs to accurately draw and describe reflections, use knowledge of constructions and coordinates to accurately draw rotations and enlargements on a cartesian plane. **Securing:** To be able to rotate, translate, enlarge, and reflect 2D objects on a given grid (without centres of enlargement and rotation). **Developing:** To be able to recognise one line of symmetry in 2D objects and shapes, and state compass directions without help. Describe simple scale factors of enlarged shapes..