Long Term Overview
KS3 Maths

Autumn Term:

Unit Title	Sequences	Algebraic Notation	Equality and Equivalence	Place Value	Fractional, Decimal and Percentage Equivalence
Term	Autumn (1)	Autumn (1)	Autumn (1)	Autumn (2)	Autumn (2)
No. Weeks	2 weeks	2 weeks	2 weeks	3 weeks	3 weeks
Overview Year 7	• Describe and continue a sequence given diagrammatically • Predict and check the next terms of a sequence • Represent sequences in tabular and graphical forms • Recognise the difference between linear and non-linear sequences • Continue numerical non-linear sequences • Explain the term-to-term rule of numerical sequences in words	• Given a numerical input, find the output of a single function machine • Use inverse operations to fdind the input given the output • Use diagrams and letters to generalise number operations • Find the function machine given a simple expression • Substitute values into single operation expressions • Find numberical inputs and outputs for a series of two function machines • Use diagrams and letters with a series of two function machines • Find the function machines given a two-step expression • Substitute values into two-step expressions • Generate sequences given an algebraic rule • Represent one and two step functions graphically	• Understand the meaning of equality • Understand and use fact families, numericallyand algebraically • Solve one-step linr equations involving +/- using inverse operations • Solve one-step linear equations involving X/÷ using inverse operations • Understand the meaning of like and unlike terms • Understand the meaning of equivalence • Simplify algebraic expressions by collecting like terms, using the ≡ symbol	• Recognise the place value of any number in an integer up to one billion • Understand and write integers up to one billion in words and figures • Work out intervals on a number line • Position integers on a number line • Round integers to the nearest power of ten • Compare two numbers using =, ≠, ≤, ≥, <, > • Order a list of integers • Find the range of a set of numbers • Find the median of a set of numbers • Understand place value for decimals • Position decimals on a number line • Compare and order any number up to one billion • Round a number to 1 significant figure • Write 10, 100, 1000 etc as powers of ten • Write positive integers in the form A x 10^n • Investigate negative powers of ten • Write decimals in the form A x 10^n	• Represent tenths and hundredths as diagrams • Represent tenths and hundredths on number lines • Interchange between fractional and decimal number lines • Convert between fractions and decimals-tenths and hundredths • Convert between fractions and decimals-fifths and quarters • **Convert between fractions and decimals-eights and thousandths** • Understand the meaning of percentage using a hundred square • Convert fluently between simple fractions, decimals and percentages • Use and interpret pie charts • Represent any fraction as a diagram • Represent fractions on number lines • Identify and use simple equivalent fractions • Understand fractions as division • **Explore fractions above one, decimals and percentages**

Long Term Overview
KS3 Maths

Spring Term:

Unit Title	Addition and Subtraction	Multiplication and Division	Fractions and Percentages of amounts	Operations and equations with directed numbers	Addition and Subtraction of fractions
Term	Spring (1)	Spring (1)	Spring (2)	Spring (2)	
No. Weeks	2 weeks	3 weeks	1 week	3 week	3 week
Overview Year 7	• Properties of addition and subtraction • Mental straregies for addition and subtraction • Use formal methods for addition of integers • Use formal methods for addition of decimals • Use formal methods for subtraction of decimals • Choose the most appropriate method: mental stragergies, formal written or calculator • Solve problems in the context of perimeter • Solve financial maths problems • Solve problems involving tables and timetables • Solve problems with frequency trees • Solve problems with bar charts and line charts • Add and subtract numbers given in standard form	• Properties of multiplication and division • Understand and use factors • Understand and use multiples • Multiply and divide integers and decimals by powers of 10 • **Multiply by 0.1 and 0.01** • Convert metric units • Use formal methods to multiply integers • Use formal methods to multiply decimals • Use formal methods to divide integers • Use formal methods to divide decimals • Undewrstand and use order of operations • Solve problems using the area of rectangles and parallelograms • Solve problems using the area of triangles • **Solve problems using the area of trapezia** • Solve problems using the mean • **Explore multiplication and division in algebraic expressions**	• Find a fractions of a given amount • Use a given fraction to dins the whole and/or other fractions • Find a percentage of a given amount using mental methods • Find a percentage of a given amount using a calculator • **Solve problems with fractions greater than 1 and percentages greater than 100%**	• Understand and use representations of directed numbers • Order directed numbers using lines and appropriate symbols • Perform calculations that cross zero • Add directed numbers • Multiplication of directed numbers • Multiplication and division of directed numbers • Use a calculator for directed number calculations • Evaluate algebraic expressions with directed number • Introduction to two-step equations • Use order of operations with directed numbers • **Roots of positive numbers** • **Explore higher powers and roots**	• Understand representations of fractions • Convert between mixed numbers and fractions • Add and subtract unit fractions with same denominator • Add and subtract fractions with same denominator • Add and subtract fractions from integers expressing the answer as a single fraction • Understand and use equivalent fractions • Add and subtract fractions where the denominators share a single common multiple • Add and subtract fractions with any denominator • Add and subtract improper fractions and mixed numbers • Use fractions in algebraic contexts • Use equivalence to add and subtract decimals and fractions • Add and subtract simple algebraic fractions

Long Term Overview
KS3 Maths

Summer Term:

Unit Title	Constructing and Measuring	Geometric Reasoning	Number sense	Sets and probability	Prime Numbers
Term	Summer (1)	Summer (1)	Summer (2)	Summer (2)	Summer
No. Weeks	3	3	2	2	2
Overview Year 7	• Understand and use letter and labelling conventions including those for geometric figures • Draw and measure line segments including geometric figures • Understand angles as a measure of turn • Classify angles • Measure angles up to 180 • Draw angles up to 180 • Draw and measure angles between 180 and 360 • Identify perpendicular and parallel lines • Recognise types of triangle • Recognise typres of quadrilateral • Identify polygons up to a decagon • Construct triangles using SSS • Construct triangles using SSS, SAS and ASA	• Understand and use sum of angles at a point • Understand and use the sum of angles on a straight line • Understand and use the equality of vertically opposite angles • Know and apply the sum of angles in a triangle • Know and apply the sum of angles in a quadrilateral • Solve angle problems using properties of triangles and quadrilaterals • Solve complex angle problems • Find and use the angle sum of a polygon • Investigate angles in parallel lines • Understand and use parallel line angle rules • Use known facts to obtain simple proofs	• Know and use mental addition and subtraction strategies for integers • Know and use mental multiplication and division strategies for integers • Know and use mental arithmetic strategies for decimals • Know and use mental arithmetic strategies for fractions • Use factors to simplify calculations • Use estimation as a method for checking mental calculations • Use known number facts to derive other facts • Use know algebraic facts to derive other facts • Know when to use a mental strategy, formal written method or a calculator	• Identify and represent sets • Interpret and create a venn diagram • Understand and use the intersection of sets • Understand and use the union of sets • Understand and use the complement of a set • Know and use the vocabulary of probability • Generate sample spaces for single events • Calculate the probability of a single event • Understand and use the probability scale • Know that the sum of probabilities of all possible outcomes is 1	• Find and use multiples • Identify factors of numbers and expressions • Recognise and identify prime numbers • Recognise square and triangular numbers • Find common factors of a set numbers inc the HCF • Find common multples of a set of numbers inc the LCM • Write a number as a product of its prime numbers • Use a venn diagram to calculate the HCF and LCM • Make and test conjecture • Use counter examples to disprove a conjecture •

Long Term Overview
KS3 Maths

Autumn Term

Unit Title	Ratio-and-Scale	Multiplicative-Change	Multiplying-and-Dividing-Fractions	Cartesian-Plane	Representing-Data	Tables and probability
Term	Autumn (a)	Autumn (a)	Autumn (a)	Autumn (b)	Autumn (b)	Autumn (b)
No. Weeks	2	2	2	3	2	1
Overview Year 8	- Understand the meaning and representation of ratio - Understand and use ratio notation - Solve problems involving ratios of the form 1:n - Solve proportional problems involving the ration m:n - Divide a value into a given ratio - Express ratios in their simplest integer form - Compare ratios and related fractions - Understand pi as the ratio between diameter and circumference - Understand gradient of a line as a ratio	- Solve problems involving direct proportion - Explore conversion graphs - Convert between currencies - Explore direct proportion graphs - Explore relationships between similar shapes - Understand scale factors as multiplicative representations - Draw and interpret scale diagrams - Interpret maps using scale factors and ratios	- Represent multiplication of fractions - Multiply a fraction by an integer - Find the product of a pair of unit fractions - Find the product of a pair of any fractions - Divide an integer by a fraction - Divide a fraction by a unit fraction - Understand and use the reciprocal - Divide any pair of fractions - Multiply and divide improper and mixed farctions - Multiply and divide algebraic fractions	- Work with coordinates in all four quadrants - Identify and draw lines that are parallel to the axis - Recognise and use the line y=x - Recognise and use the lines of the form y=kx - Link y=kx to direct proportion problems - Explore the gradient of the line y=kx - Recognise and use lines of the form y=x+a - Explore graphs with negative gradient (y=-kx, y=a-x, x+y=a) - Link graphs to linear sequences - Plot graphs of the form y=mx+c - Explore non linear graphs - Find the midpoint of a line segment	Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Identify non linear relationships Identify different types of data Read and interpret ungrouped frequency tables Read and interpret grouped frequency tables Represent grouped discrete data Represent continuous data grouped into equal classes Represent data in two way table	- Construct sample spaces for 1 or more events - Find probabilities from a sample space - Find probabilities from two way tables - Find probabilities from Venn diagrams - Use the product rule for finding the total number of possible outcomes

Long Term Overview
KS3 Maths

Spring Term:

Unit Title	Brackets, equations and inequalities	sequences	indices	Fractions and percentages	Standard index form	Number sence
Term	Spring (a)	Spring (a)	Spring (a)	Spring (a)	Spring (a)	Spring (a)
No. Weeks	4	1	1	3	2	1
Overview Year 8	• Form algebraic expressions • Use directed number with algebra • Multiply out a single bracket • Factorise into a single bracket • Expand multiple single brackets and simplify • Expand a pair of binomials • Solve equations, including with brackets • Form and solve equations with brackets • Understand and solve simple inequalities • Form and solve inequalities • Solve equations and inequalities with unknown on both sides • Form and solve equations and inequalities with unknown on both sides • Identify and use formulae, expressions, identities and equations	• Generate sequences given a rule in words • Generate sequences given a simple algebraic form • Generate sequences given a complex algebraic rule • Find the rule for the nth term of a linear sequence	• Adding and subtracting expressions with indices • Simplifying algebraic expression by multiplying indices • Simplifying algebraic expression by dividng indices • Using the addition law for indices • Using the addition and subtraction law for indices • Exploring powers of powers	• Convert fluently between key fractions, decimals and percentages • Calculate key fractions, decimlas and percentages of an amount without a calculator • Calculate fractions, decimals and percentages of an amount using calculator methods • Convert between decimals and percentages greater than 100% • Percentage decrease with a multiplier • Calculate percentage increase and decrease using multiplier • Express one number asa fraction or a percentage of another without a calculator • Express one number asa fraction or a percentage of another with a calculator • Work with percentage change • Choose appropriate methods to solve percentage problems • Find the original amount given the percentage less than 100% • Find the original amount given the percentage greater than 100% • Choose appropriate methods to solve complex percentage problems	Investigate positive powers of 10 Work with numbers greater than 1 in standard form Investigate negative powers of 10 Work with numbers between 0 and 1 in standard form Compare and order numbers in standard form Mentally calculate with numbers in standard form Add and subtract numbers in standard form Multiply and divide numbers in standard form Use a calculator to work with numbers in standard form Understand and use negative indices Understand and use fractional indices	• Round numbers to power of 10, and 1 significant figure • Round numbers to a given number of decimal places • Estimate the naswer to a calculation • Understand and use error interval notation • Calculate using the order of operations • Calculate with money • Convert metric units of weight and capacity • Convert metric units of area • Convert metric units of volume • Solve problems using time and calender

Long Term Overview
KS3 Maths

Summer Term:

Unit Title	Angles in parallel lines and polygons	Area of trapezia and circles	Line symmetry and reflection	Data handling cycle	Measures of location
Term	Summer (a)	Summer (a)	Summer (b)	Summer (b)	Summer (b)
No. Weeks	3	2	1	4	2
Overview Year 8	• Understand and use basic angle rules and notations • Investigate angles between parallel lines and the transversal • Identify and calculate with alternate and corresponding angles • Identify and calculate with co interior, alternate and corresponding angles • Solve complex problems with parallel line angles • Constructions triangles and special quadrilaterals • Investigate the properties of special quadrilaterals • Identify and calculate with sides and angles in special quadrilaterals • Understand and use the properties of diagnoals of quadrilaterals • Understand and use the sum of exterior angles of any polygon • Calculate and use the sum of the interior angles in any polygon • Calculate missing interior angles in regular polygons • Prove simple geometric facts • Construct an angle bisector • Construct a perpendicular bisector of a line segment	• Calculate the area of triangles, rectangles and parallelograms • Calculate the area of a trapezium • Calculate the perimeter and area of compound shapes • Investigate the area of a circle • Calculate the area of a circle and parts of a circle without a calculator • Calculate the area of a circle and parts of a circle with a calculator • Calculate the perimeter and area of compound shapes (2)	• Recognise line symmetry • Reflect a shape in a horizontal or vertical line (shapes touching line) • Reflect a shape in a horizontal or vertical line (shapes not touching line) • Reflect a shape in a diagonal line (shape touching line) • Reflect a shape in a diagonal line (shape not touching line)	• Set up a statistical enquiry • Design and critise questionnaires • Draw and interpret pictograms, bar charts and vertical line graphs • Draw and interpret multiple bar charts • Draw and interpret pie charts • Draw and interpret line graphs • Choose the most appropriate diagram for the given set of data • Represent and interpret grouped quantitative data • Find and interpret the range • Compare distributions using charts • Identify misleading graphs	• Understand and use the mean, median and mode • Choose the most appropriate average • Find the mean from an ungrouped frequency table • Find the mean from a grouped frequency table • Identify outliers • Compare distributions using the averages and range