

NUMBER 1

Know what even numbers, odd numbers, factors, multiples, primes, squares and square roots are and how to find them.

Find the Highest Common Factor by listing factors and/or using Venn diagrams.

Find the Lowest Common Multiple by listing multiples.

Use prime factorisation to produce a unique set of prime factors of a number and list them in product form.

Use index notation in prime factorisation.

Find the HCF and LCM by using prime factorisation and Venn diagrams.

ALGEBRA 1

Finding unknown numbers

Introduction of formulae using rules in words

Simplifying expressions by collecting terms

Substitution into an expression or formula

Learning vocabulary; Term, Variable, Expression

Rules of algebra; Using algebraic shorthand

Multiplication and division of expressions

Expanding a term by a bracket

Using algebra in shapes

Factorisation

Expanding products of two or more binomials

Use of index notation

STATISTICS 1

What is data? Vocabulary; Survey, sample, census, etc

Data collection; Surveys

Tally tables

Frequency tables

Grouping data

Interpreting and drawing Two Way tables

Interpreting and drawing statistical charts such as vertical line graphs, bar charts, pictograms.

Reading information from tables

Drawing and interpreting pie charts

Drawing and interpreting scatter diagrams

Understanding the concept of bivariate data, correlation and the line of best fit.

ALGEBRA 2

Continue number sequences

Describe rules for sequences

Continue sequences from pictures

Finding terms from patterns

Using nth term formula to find terms

Use patterns to generate the nth term

Recognise arithmetic sequences

Recognise geometric sequences

Quadratic Sequences

NUMBER 2

Understand place value and the significance of zero.

Order whole numbers.

Order decimals.

Identify fractions and percentages from pictures and order them.

Use a number line to order negative numbers.

Be able to use the symbols $=$ \neq $<$ $>$ \leq \geq

Identify equivalent fractions and use them to convert between fractions, decimals and percentages and order them.

Use standard form notation to write and order large numbers.

SUMMER TERM

GEOMETRY 2

- Measuring and drawing angles
- Names of angles and lines.
- Calculating angles using basic angle rules
- Scale Drawings
- Calculating interior & exterior angles polygons.
- Alternate and corresponding angles
- Geometrical properties of polygons
- Geometrical proof
- Bearings

STATISTICS 2

- Finding the mode of a set of data
- Finding the median of a set of data
- Finding the range of a set of data
- Finding the mean of a set of data
- Understanding which average to use
- Finding the Assumed mean
- Finding the averages from frequency table including grouped frequency
- To be able to calculate quartiles, interquartile range and outliers.
- To be able to analyse a set of data.
- To be able to compare two sets of data.
- To be able to execute a statistical investigation involving data analysis.

Number 3

Know basic number facts such as times tables, number bonds and \times/\div by 10,100 and 1000.

Column method of addition and subtraction of whole numbers.

Long multiplication and division of whole numbers.

Addition and subtraction of fractions with the same denominator.

Column method of addition and subtraction of decimals.

Multiplication and division of decimals. Understanding decimal point.

Addition, subtraction, multiplication and division of fractions.

Addition, subtraction, multiplication and division of negative numbers.

Understand order of operations as a convention.

Multiplying and dividing by powers of ten.

Identify fractions, decimals and percentages as operators i.e. find fractions, decimals and percentages of amounts.

Percentage increase and decrease.

Simple and compound interest.

ALGEBRA 3

Coordinates in 4 Quadrants.

Naming horizontal and vertical graphs.

Function machines.

Using letters for functions.

Mappings to graphs.

Using mapping to find equation of line/function.

Using equation of a line to produce the mapping and graph.

Finding the gradient and y intercept of a straight line.

Using the gradient and y intercept to produce the equation of a line.

Solving problems involving straight line graphs.

Finding the midpoint of a line segment.

Real life graphs.

Quadratic Graphs

Cubic Graphs

Solve simultaneous equations approximately based on graphical representation

Geometry 3

Lines of symmetry and Rotational symmetry

Combinations of transformations; Translations, reflections and rotations

Congruency

Tessellations

Enlargements

Planes of symmetry

Fractional and negative scale factors

	SRPING TERM	<p>Statistics 3</p> <p>Probability words; Impossible, certain etc The probability scale Probability terminology; Bias, random, events. Calculating theoretical probabilities Experimental probability/ Relative frequency for estimating probabilities Probabilities add up to 1. Two way tables Sample space diagrams Venn Diagrams, Unions and intersections of Sets Mutually exclusive and exhaustive events Combination events and Tree Diagrams</p>	
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Algebra 4

Using formulae

Solving equations with terms on one side only

Using inverse functions to solve equations

Solving equations with fractions and brackets

Solving equations with terms on both sides

Learning vocabulary; Equation, Identity, Formulae

Forming equations to solve problems

Rearranging formula to change the subject

Solving of simultaneous equations by elimination or substitution method

Solving inequalities.

Solving equations involving x^2 by making x the subject.

Number 4

Rounding to the nearest whole number.

Rounding to a number of decimal places.

Rounding to a number of significant figures.

Use rounding and estimation to get approximate answers to calculations.

Long multiplication and division of decimals with reference by approximating and then calculating the answer.

Calculate possible errors and express them using upper and lower bound notation $a < x \leq b$.

Geometry 4

Constructing triangles

3D Shapes; drawing them on square grids, isometric grids and nets

3D Shapes; Drawing plans and elevations

Constructions; Perpendicular bisector and angle bisector

Shape and ratio

Loci

Pythagoras' Theorem

Trigonometry

Similar triangles

Ratio and Proportion

Find ratios and proportions from pictures.

Use ratio to convert between units.

Write ratios and simplify.

Splitting a quantity in a ratio.

Use multiplicative reasoning to solve ratio problems.

Relate scale factors and enlargement to ratio and proportion problems.

Relate ratio and proportion problems to fraction notation.

Relate ratio and proportion problems to percentages.

Relate direct and inverse proportion problems to linear functions and graphs (conversion graphs).

Ratio for compound units.

NUMBER:

Use priority of operations with positive and negative numbers. Simplify calculations by cancelling.

Use inverse operations. Round to a given number of decimal places.

Multiply and divide decimal numbers. Write decimal numbers of millions.

Round to a given number of significant figures. Estimate answers to calculations. Use one calculation to find the answer to another. Recognise 2-digit prime numbers. Find factors and multiples of numbers. Find common factors and common multiples of two numbers.

Find the HCF and LCM of two numbers by listing. Find square roots and cube roots. Recognise powers of 2, 3, 4 and 5. Understand surd notation on a calculator. Use index notation for powers of 10. Use index notation in calculations. Use the laws of indices.

ALGEBRA:

Use correct algebraic notation.

Write and simplify expressions.

Use the index laws.

Multiply and divide expressions.

Substitute numbers into expressions.

Recognise the difference between a formula and an expression.

Substitute numbers into a simple formula.

Expand brackets.

Simplify expressions with brackets.

Substitute numbers into expressions with brackets and powers.

Recognise factors of algebraic terms.

Factorise algebraic expressions.

Use the identity symbol \equiv and the not equals symbol \neq Write expressions and simple formulae to solve problems. Use maths and science formulae.

GRAPHS, TABLES AND CHARTS:

Designing tables and data collection sheets.

Reading data from tables.

Use data from tables.

Design and use two-way tables.

Plot and interpret time series graphs.

Use trends to predict what might happen in the future.

Construct and interpret stem and leaf and back-to-back stem and leaf diagrams.

Draw and interpret pie charts.

Plot and interpret scatter graphs.

Determine whether or not there is a relationship between sets of data.

Draw a line of best fit on a scatter graph.

Use the line of best fit to predict values.

FRACTIONS AND PERCENTAGES:

Compare fractions.

Add and subtract fractions.

Use fractions to solve problems.

Find a fraction of a quantity or measurement.

Use fractions to solve problems.

Multiply whole numbers, fractions and mixed numbers.

Simplify calculations by cancelling.

Divide a whole number by a fraction.

Divide a fraction by a whole number or a fraction.

Convert fractions to decimals and vice versa.

Use decimals to find quantities.

Write one number as a fraction of another.

Convert percentages to fractions and vice versa.

Write one number as a percentage of another.

Convert percentages to decimals and vice versa.

Find a percentage of a quantity.

Use percentages to solve problems.

Calculate simple interest.

Calculate percentage increases and decreases.

Use percentages in real-life situations.

Calculate VAT (value added tax)

SUMMER TERM

EQUATIONS, INEQUALITIES & SEQUENCES: Understand and use inverse equations.
Rearrange simple linear equations. Solve two-step equations.
Solve simple linear equations. Solve linear equations with brackets.
Solve linear equations with brackets.
Solve equations with unknowns on both sides. Solve linear equations with brackets.
Solve equations with unknowns on both sides. Solve two-sided inequalities
Substitute values into formulae and solve equations. Change the subject of a formula.
Know the difference between an expression, an equation, a formula and an identity.
Recognise and extend sequences. Use the nth term to generate terms of a sequence.
Find the nth term of an arithmetic sequence.

ANGLES:
Solve geometric problems using side and angle properties of quadrilaterals.
Identify congruent shapes.
Understand and use the angle properties of parallel lines.
Find missing angles using corresponding and alternate angles.
Solve angle problems in triangles.
Understand angle proofs about triangles.
Calculate the interior and exterior angles of regular polygons.
Calculate the interior and exterior angles of polygons.
Explain why some polygons fit together and some others do not
Solve angle problems using equations.
Solve geometrical problems showing reasoning.