Mathematics at Maplewell Hall School

At Maplewell Hall School we believe in careful curriculum planning, which dynamically adheres to students' needs, is the basis of solid student progress. We streamline this through three pathways which are outlined below, however this differs from year to year as we mould our curriculum to our specific cohort of students.

The curriculum is designed to inspire and challenge our students to go on to achieve their potential. We equip them with the skills and knowledge needed to access nationally recognised qualifications and use their knowledge successfully in life in and outside of school.

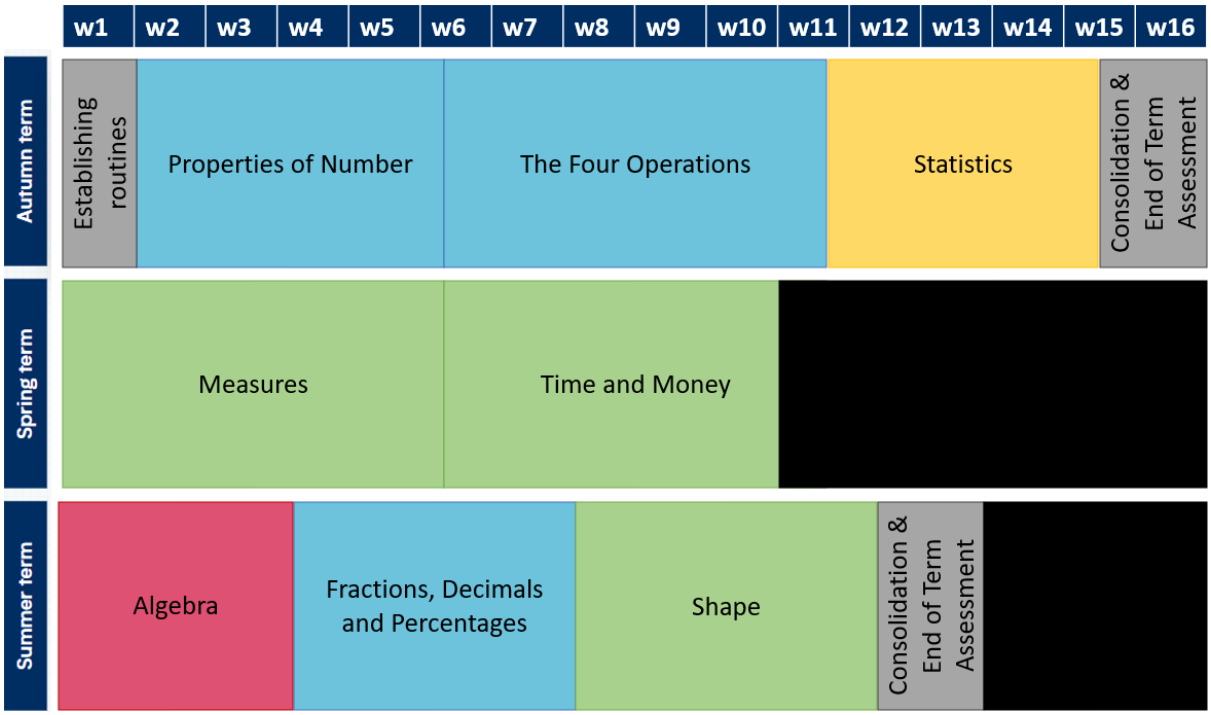
All of our qualifications (GCSE, Entry Level Certificate) will be taught and assessed in line with the AQA examination board.

Please find the route maps below which outline the topics that will be taught over the course of the year; with a brief breakdown of the skills and knowledge covered in each topic. Students will complete a topic assessment at the end of each topic and two end of term assessments throughout the year (Autumn and Summer).

Our curriculum adopts a spiral approach, building up the knowledge learnt previously, year on year.

Pathway A

Year 7:



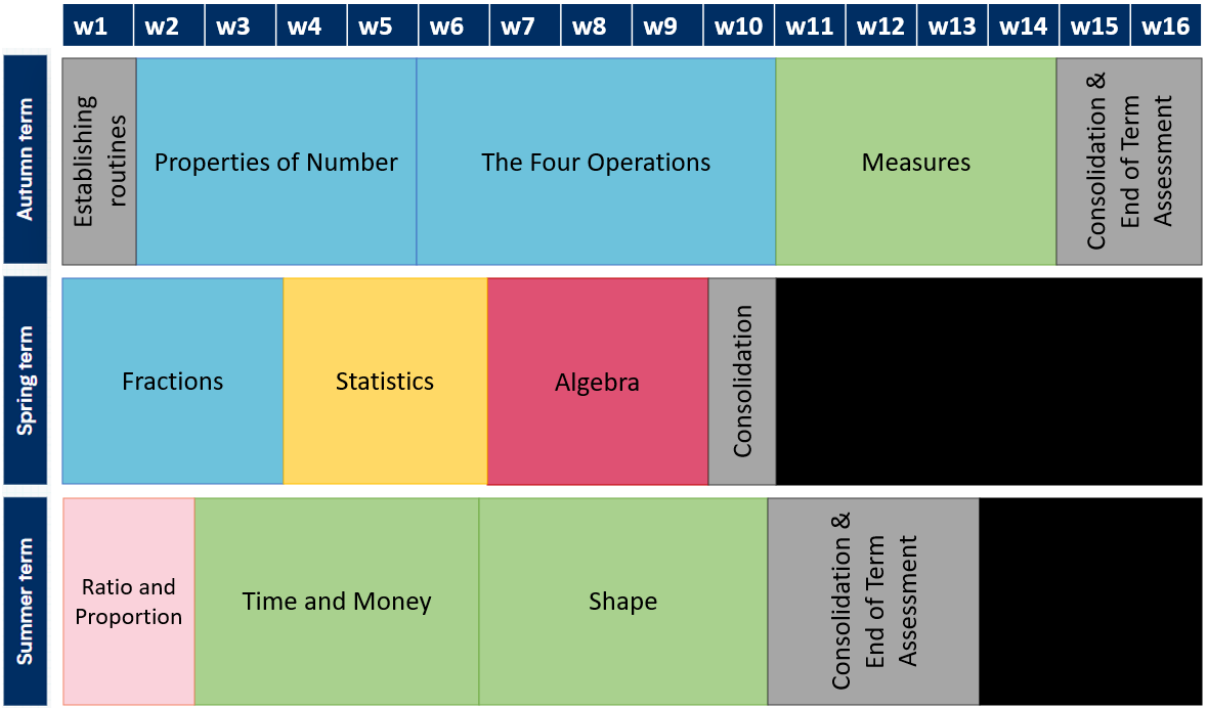
Students explore Place Value with numbers up to 1,000,000, as well as being introduced to negative numbers. Students will also learn formal written methods for the Four Operations.

In Statistics, students explore tallies, frequency are representing data in pictograms, bar charts and Venn diagrams.

In Measures and Shape, students explore measuring length, mass, volume and temperature, telling the time (analogue and digital) alongside using a calendar, and using money. Additionally, they will become familiar with the names and properties of 2D and 3D shapes, exploring position, plotting coordinates, understanding symmetry, and exploring angles.

Students will gain an understanding of the value and use of fractions, and will get an introduction to basic algebraic concepts such as using letters to represent values and collecting like terms.

Year 8:



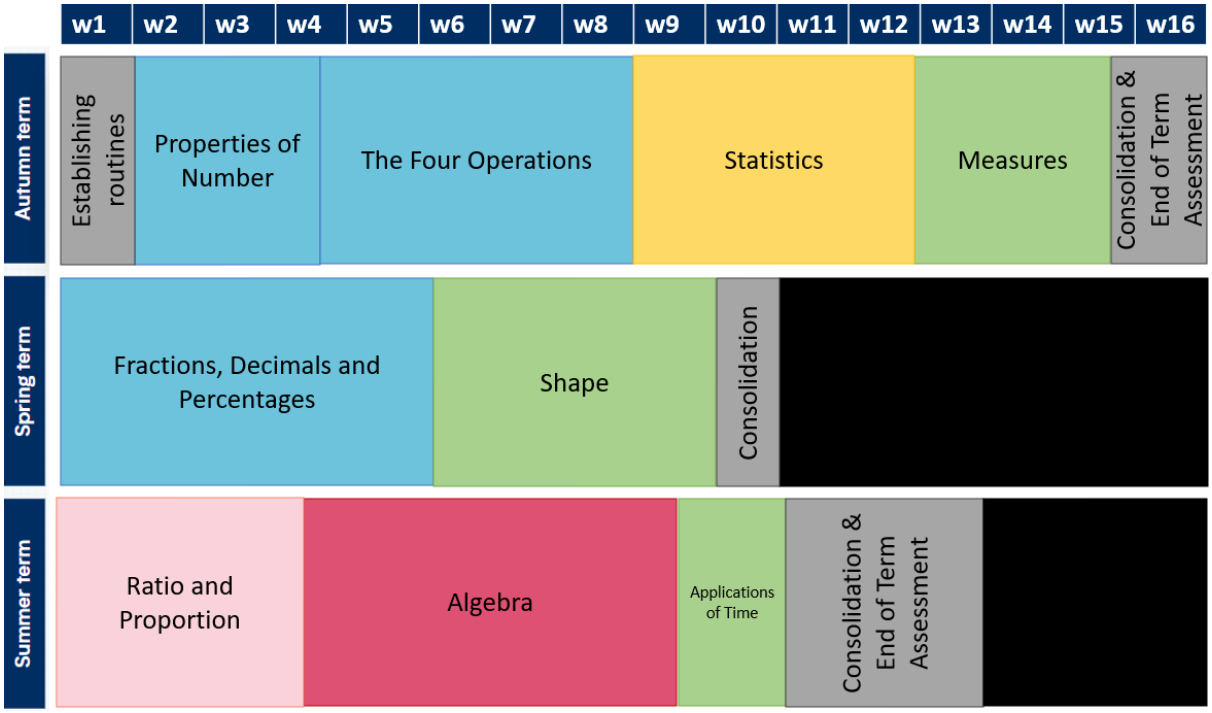
Students explore Place Value with numbers moving into decimals. They will also explore types of numbers as well as factors and multiples. Students will also be learning about rounding. Students will continue to learn formal written methods for the Four Operations, including with negative numbers.

In Measures and Shape, students will begin to explore perimeter and area, alongside revisiting skills to do with measuring, telling the time and using money. Students will extend their understanding of geometry by exploring regular and irregular shapes, specific characteristics of triangles and quadrilaterals, basic reflections and translations, 3D shapes and nets, and angles in triangles and quadrilaterals.

Students will go on to learn about applying the four operations to fractions, extend their knowledge of algebra by applying the four operations to terms, expanding brackets, substituting values into formulae and solving simple one-step equations. Students will also be introduced to Ratio.

In Statistics, students will build on topics covered in year 7 and extend to pie charts and vertical line charts.

Year 9:



Students explore powers, particularly focussing on powers of 10 in order to start working with numbers written in Standard Form. Students will continue working on rounding, including rounding to decimal places and significant figures as they move on to estimation. Students will continue to apply the Four Operations, branching into working with decimals. Students will also apply the order of operations.

In Statistics, students continue looking at different ways to represent data, including extending their knowledge into more complex pie charts, scatter graphs and correlation, as well as exploring averages and spread.

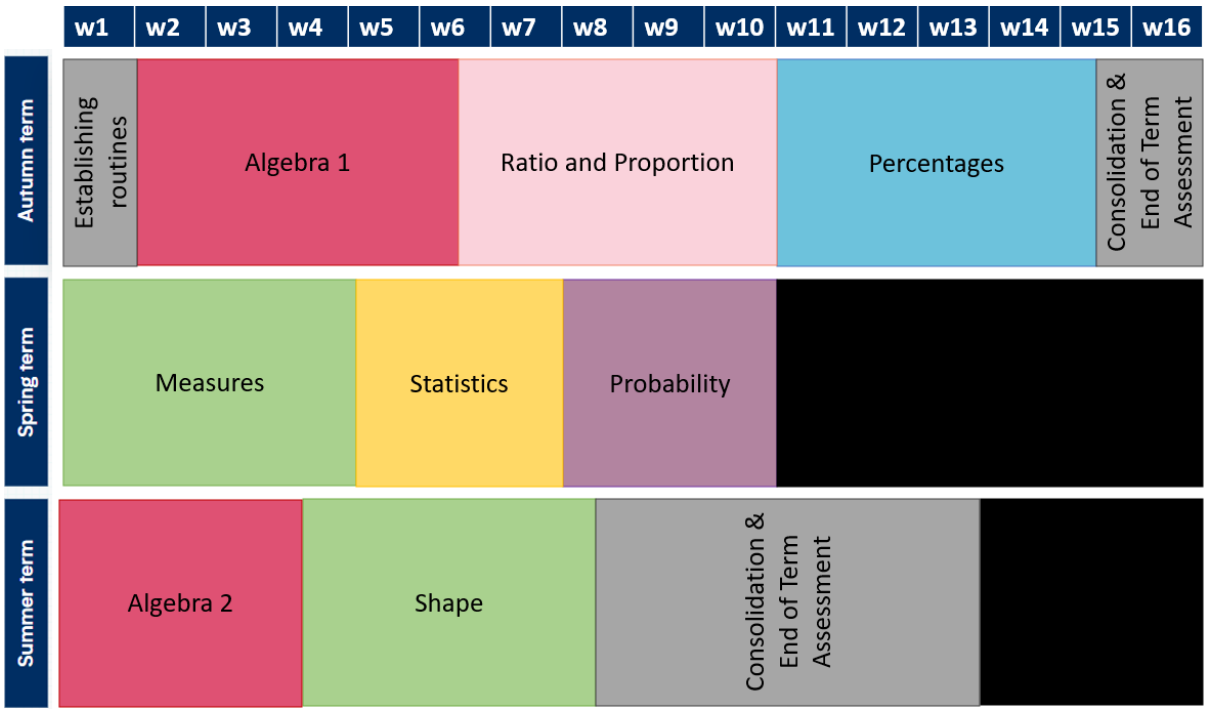
In Measures and Shape, students begin looking at applications of time such as speed, distance, time calculations. They start using formulae to calculate the area of rectangles, triangles, parallelograms and trapezia. Students will continue to explore reflection and translation, and extend into rotation. They will also explore angles on lines and about points, including angles in parallel lines.

Students' journey with fractions deepens as they explore mixed numbers and apply the four operations to them. Students also explore calculating percentages and converting between fractions, decimals and percentages.

Students continue to explore Ratio, including simplifying, equivalent ratio, and sharing into a ratio. Students will also start to explore direct proportion problems and multiplicative relationships.

In algebra, students will extend their knowledge to expanding and factorising, solving a wide variety of linear equations, and then moving on to linear inequalities, linear graphs and linear sequences.

Year 10 (F):



In Measures and Shape, students explore calculating the area and circumference of circles, reflections over mirror lines given as equations, rotations on coordinate axes, translation by vectors, describing transformations, and properties and angles in polygons.

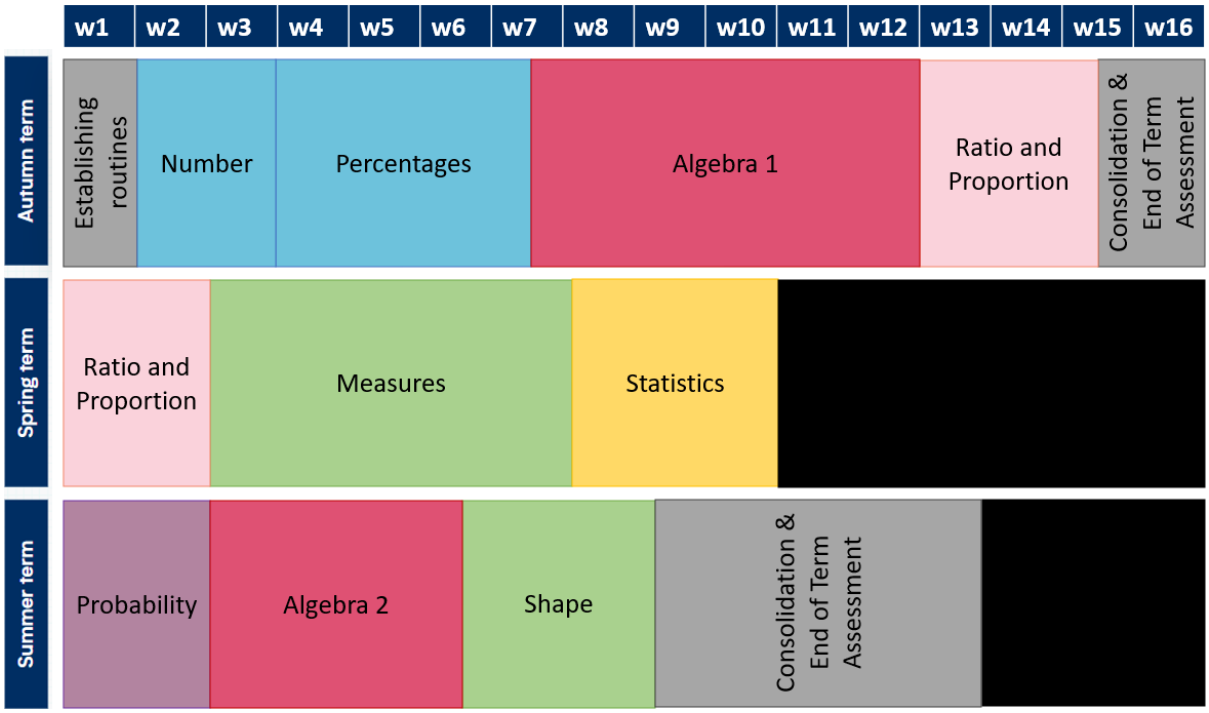
In Percentages, students will explore percentage increase and decrease, reverse percentage problems and problem solving with percentages, such as calculating compound interest. Students will extend their knowledge of Ratio through problem solving and solve direct and inverse proportion problems. They will also explore scale factors, enlargement, similarity and scale diagrams.

As students continue their journey with Algebra, developing a full understand of linear equations, graph, inequalities and sequence and explore how they are all connected.

In Statistics, students will compare data presented in different types of chart, as well as calculating averages and spread from data presented in tables.

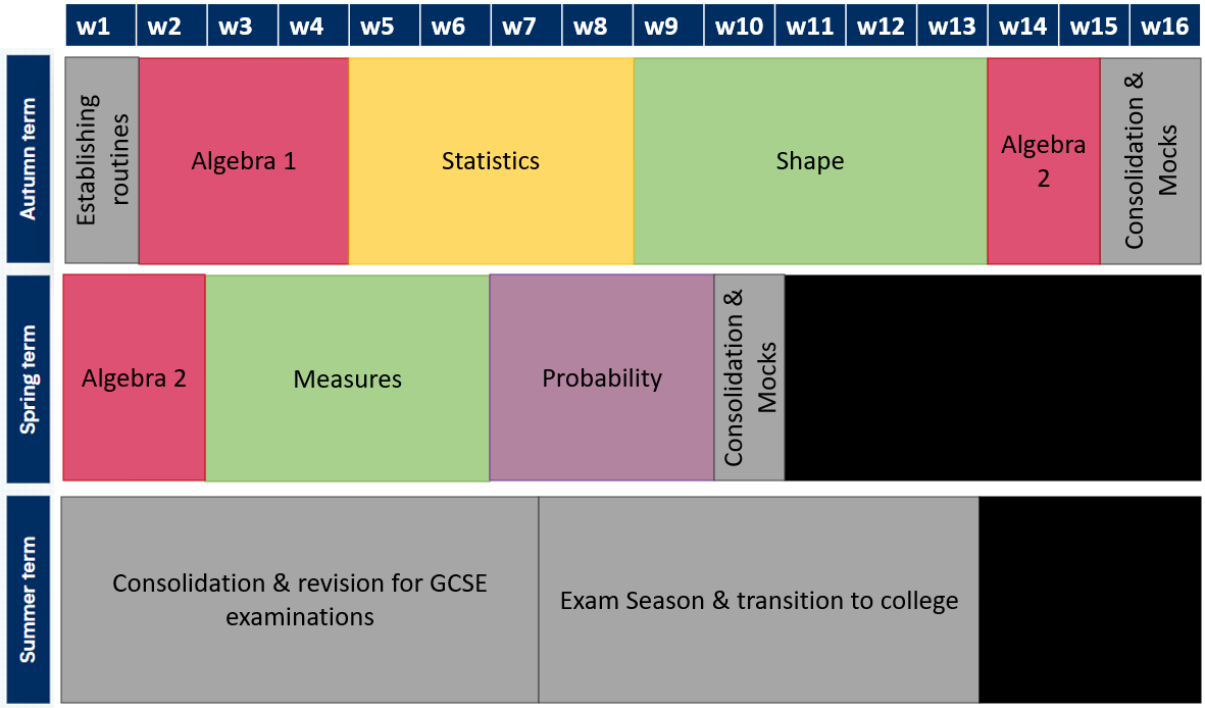
Students will visit Probability for the first time; looking at the likelihood of single events occurring; alongside listing outcomes and calculating probabilities from different tables and diagrams.

Year 10 (H):



Some pupils in year 10, who are on a path to sit the Higher Tier GCSE will begin to explore some of this content. This includes the laws of indices at all levels, error intervals, Pythagoras' Theorem and Trigonometry, and content relating to quadratics (graphs, equations, solving).

Year 11 (F):



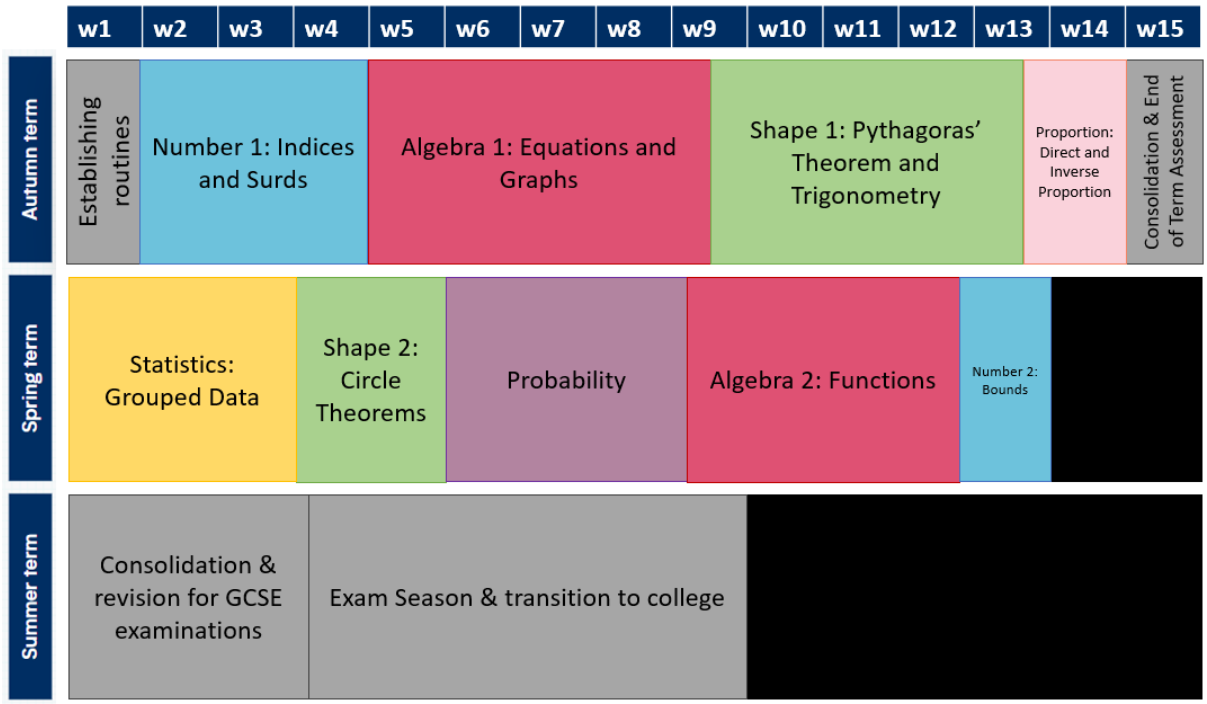
In Measures and Shape, students will explore calculating the volume of prisms, as well as learning about Pythagoras' Theorem and Trigonometry. Students will also look and combinations of transformation, congruent shapes, and bearings.

In Statistics, students will cover grouped data; looking at frequency polygons and calculating an estimate for the mean.

In Algebra, students will explore rearranging formulae and equations and solving linear simultaneous equations.

In probability, students will explore multiple event probability and tree diagrams as well as problem solving involving probability.

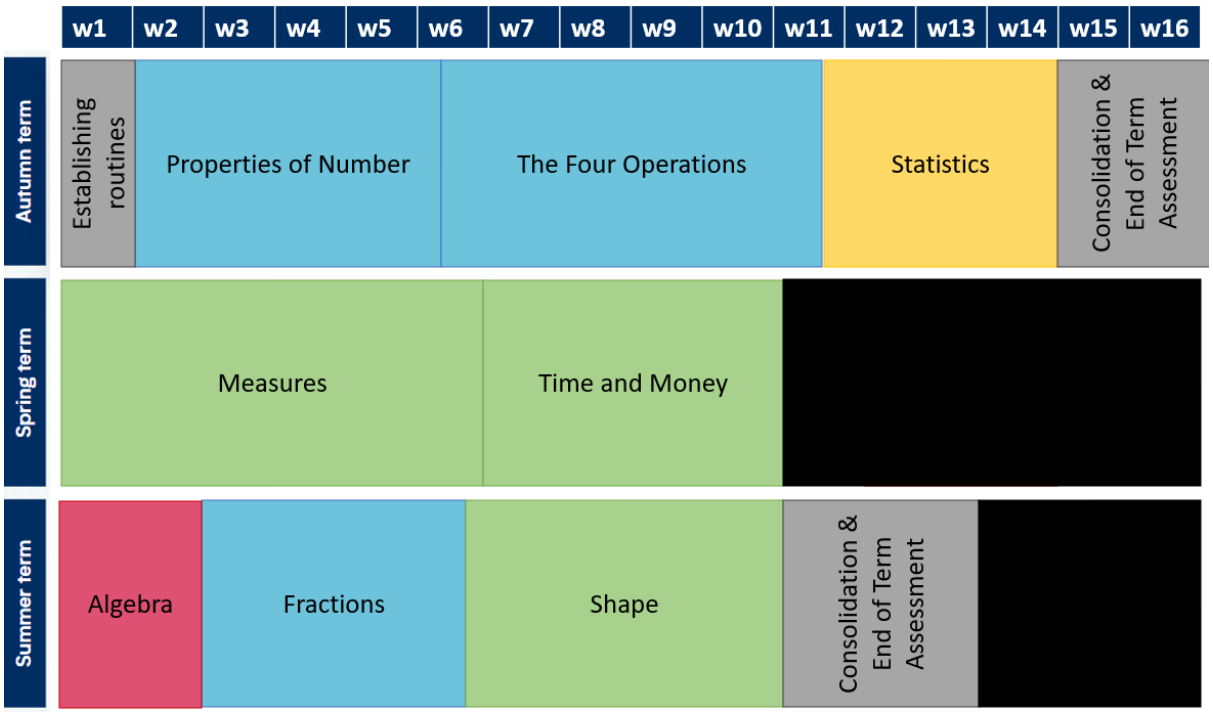
Year 11 (H):



In our Higher group, students will explore topic exclusive to the higher tier. This will include surds, solving quadratics, non-right-angled trigonometry, algebraic proportion, representations of grouped data, circle theorems, functions, iteration, and bounds.

Pathway B

Year 7:



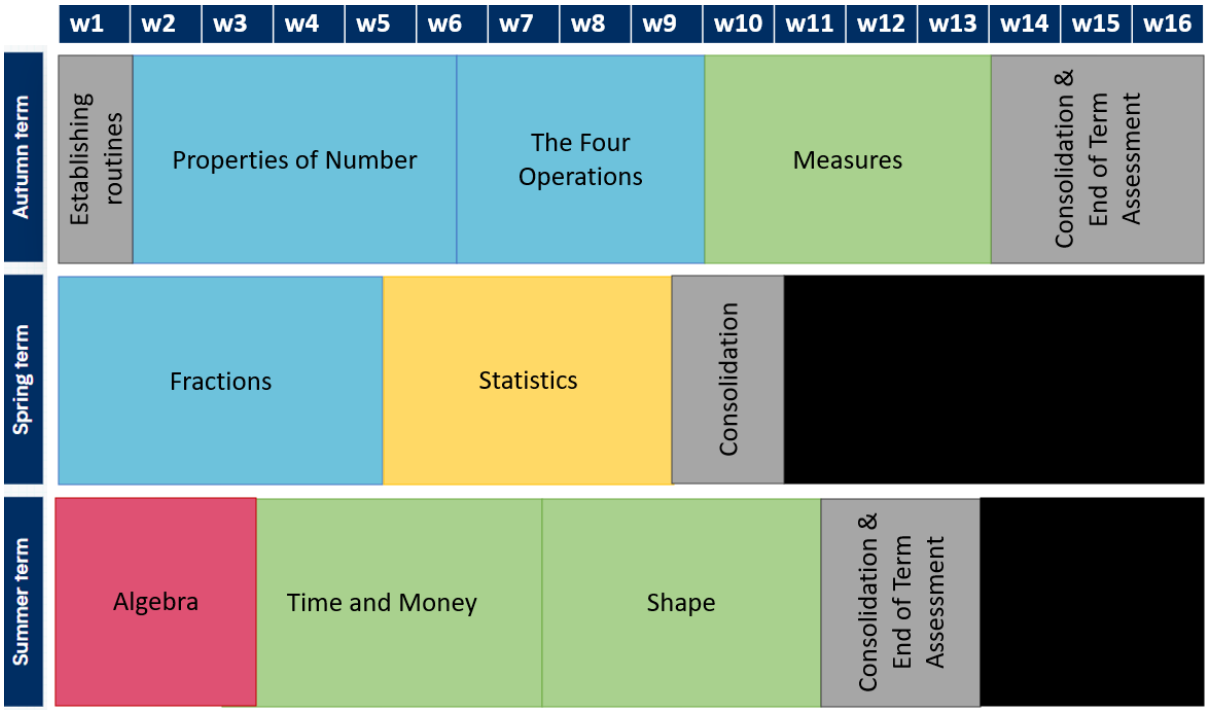
Students explore Place Value with numbers up to 10,000, as well as being introduced to rounding. Students will also learn formal written methods for the Four Operations. Students will begin learning about fractions from images and shapes; looking specifically at halves, thirds and quarters.

In Statistics, students will explore collecting data, tallies and frequencies, block diagrams and pictograms.

In Measures and Shape, students will learn about measuring length, mass and volume. They will also learn how to tell the time on an analogue clock, and recognise and use money. Students will explore the names and properties of 2D and 3D shapes, as well as describing position, movement and turns.

Students will get a basic introduction to algebra; exploring using shapes and symbols to represent unknown values, and looking at one step function machines and formula triangles.

Year 8:



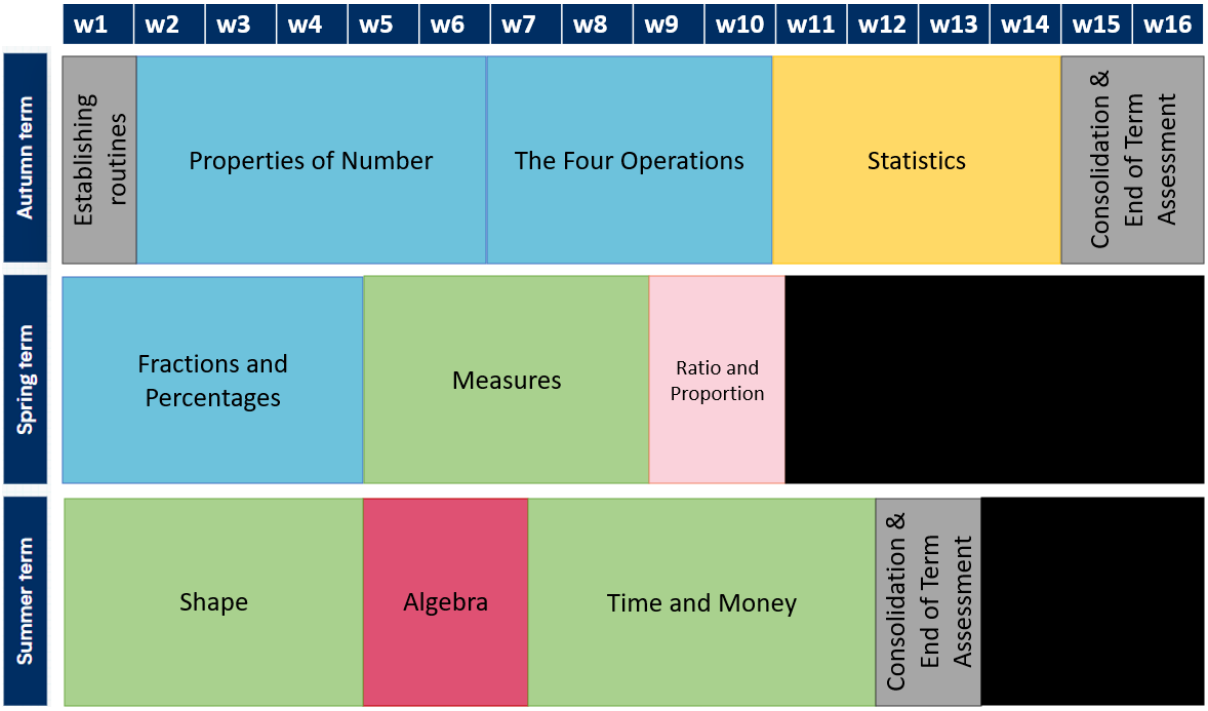
Students explore Place Value with numbers up to 1,000,000, as well as continuing to learn about rounding. They will also be introduced to multiples and Roman Numerals. Students will also learn formal written methods for the Four Operations, including applying them to worded problems. Students will continue to explore fractions, calculating simple fractions of amounts, comparing and ordering fractions with the same denominator and adding and subtracting fractions with the same denominator.

In Statistics, students will explore collecting data, tallies and frequencies, bar charts, pictograms and two-way tables.

In Measures and Shape, students will continue to explore measuring length, mass and volume. They will deepen their understanding of telling the time, including looking at digital time, and continue looking at money; finding totals and giving change. Students will start to explore angles.

Students will continue to study algebra, moving on to substitution into basic formulae.

Year 9:



Students explore Place Value moving into decimal numbers, as well as exploring factors and multiples. Students will be introduced to negative numbers. Students will also learn formal written methods for the Four Operations, moving into decimals and negative numbers. Student will continue to explore fractions by calculating fractions of amounts, exploring equivalent fractions and applying the four operations to fractions.

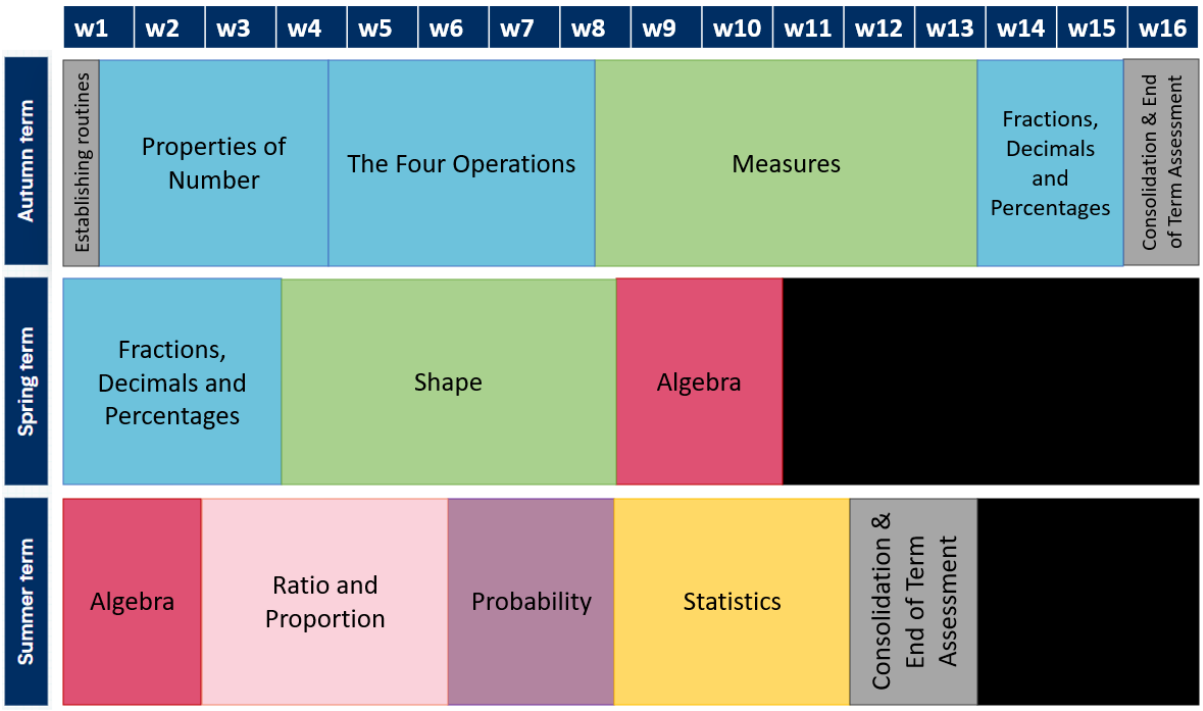
In Statistics, students will explore collecting data, tallies and frequencies, comparing data presented in bar charts and pictograms, and draw and interpret vertical line charts.

In Measures and Shape, students will continue to explore measuring length, mass and volume. They will also begin to explore temperature, looking at both positive and negative values. They will deepen their understanding of telling the time, including looking at both analogue and digital time, and using a calendar. Students will solve problems involving money. Students will explore triangles and quadrilaterals in more depth, look at regular and irregular polygons and explore symmetry in shapes. Students will explore angles in triangles and quadrilaterals as well as plotting coordinates and translating shapes.

Students will continue to study algebra; exploring collecting like terms, multiplying terms and expanding single brackets, solving one-step equations, and an introduction to sequences.

Students will be introduced to ratio as a comparison tool, and exploring equivalent ratio.

Year 10:



Students will continue to explore types of numbers including square numbers, primes, multiples (and LCM), factors (and HCF). Students will also learn formal written methods for the Four Operations, including applying the order of operations. Students will continue to explore fractions by applying the four operations to fractions and exploring key equivalent fractions, decimals and percentages.

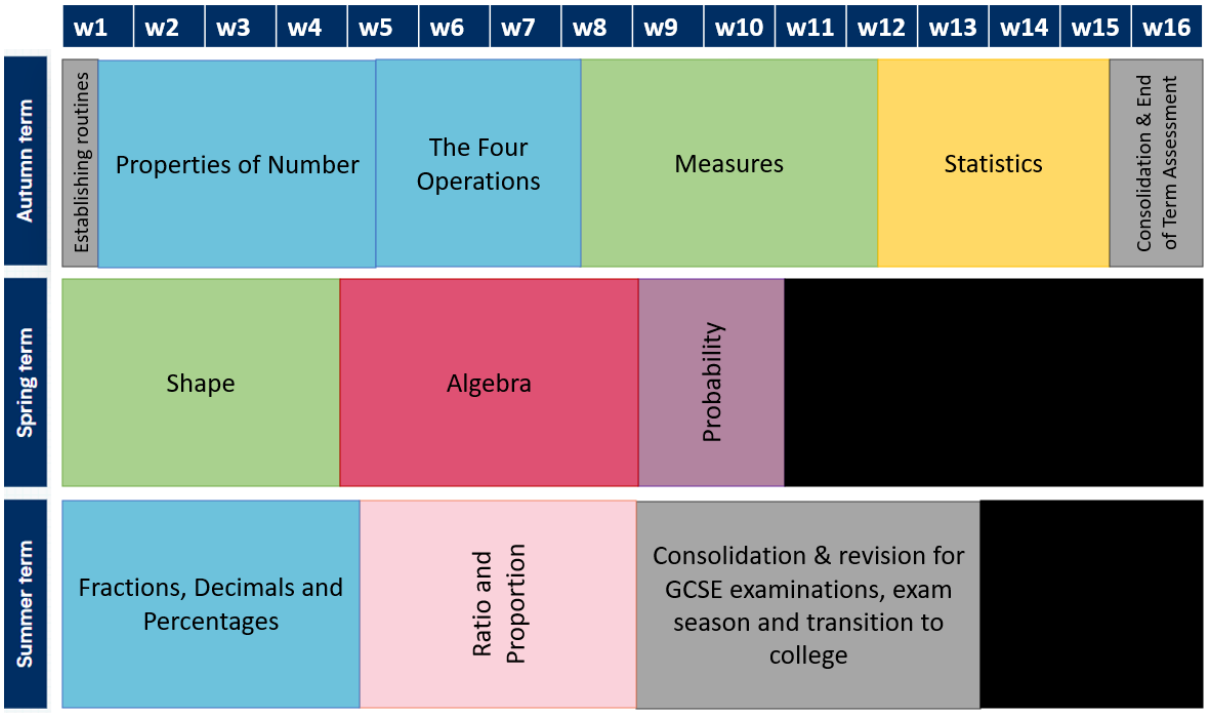
In Statistics, students will explore collecting data, tallies and frequencies, bar charts, pictograms, scatter graphs (and correlation), and calculating averages and spread. Students will also be introduced to basic probability of single events.

In Measures and Shape, students start to explore perimeter and area, angles on lines and about points, plotting coordinates in four quadrants, and exploring line segments and midpoints.

In algebra, students will move onto more advanced collecting like terms problems, multiplying and dividing terms, expanding and factorising, solving one- and two-step equations, substitution, and arithmetic sequences.

Students will continue to study ratio, and begin to look at proportion problems such as recipes and best buys. Students will learn how to calculate percentages and look at multiplicative relationships; such as in scale diagrams.

Year 11:



After finalising their ELC portfolios, students will begin to cover GCSE content including place value for integers and decimals, rounding, estimation and learning about types of numbers including square numbers, primes, factors and multiples. Students will also learn formal written methods for the Four Operations for positive and negative integers and decimals, including applying the four operations to worded problems. Students will continue to explore fractions by looking at mixed numbers, and applying the four operations to them. They will also compare and order fractions, decimals and percentages.

In Statistics, students will explore collecting data through questionnaires, tallies and frequencies, bar charts, pictograms, pie charts, and calculating averages and spread from data in a table. Students will continue to study probability looking at two-way tables, Venn diagrams and frequency trees.

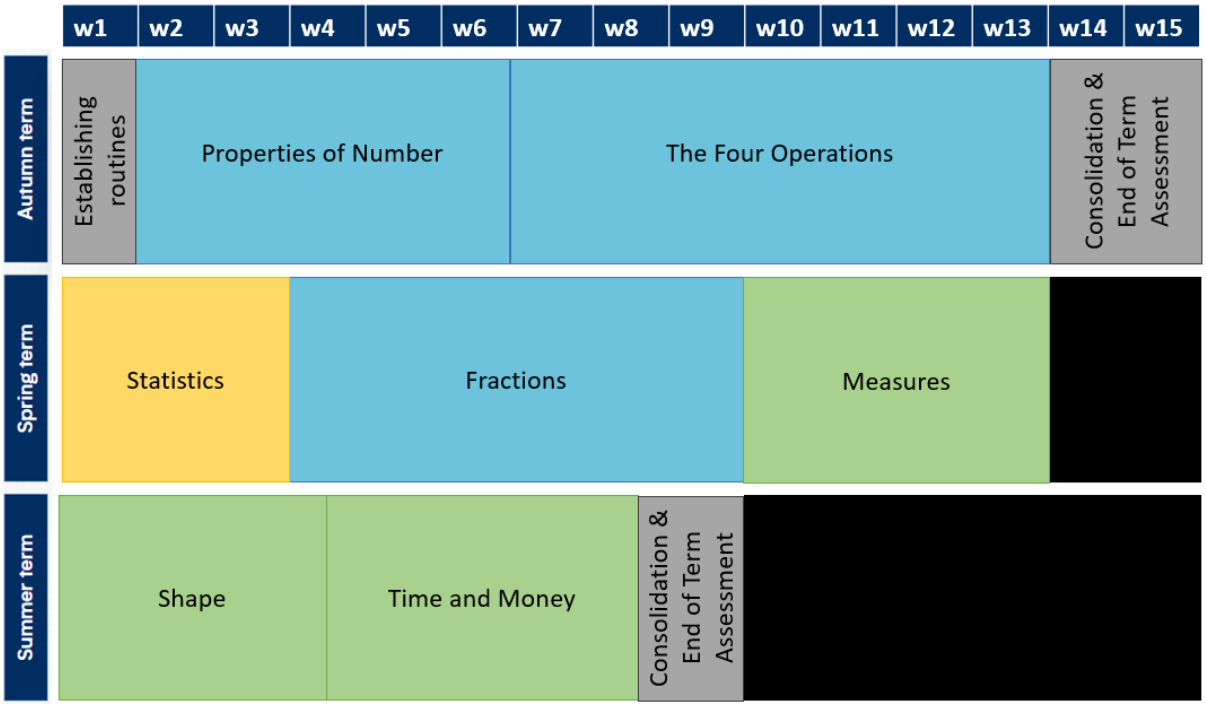
In Measures and Shapes, students explore converting between metric measures, and using formulae to calculate the area of rectangles, triangles, parallelograms, trapezia and circles. They will also explore properties and angles of polygons, angles in parallel lines, and transformations.

In algebra, students will explore the laws of indices, expanding and simplifying, linear inequalities, basic linear graphs, and the nth term rule for sequences.

Students will continue to study ratio and proportion, solving ratio problems and exploring direct and inverse proportion. Students will continue to explore multiplicative relationships.

Pathway C

KS3:

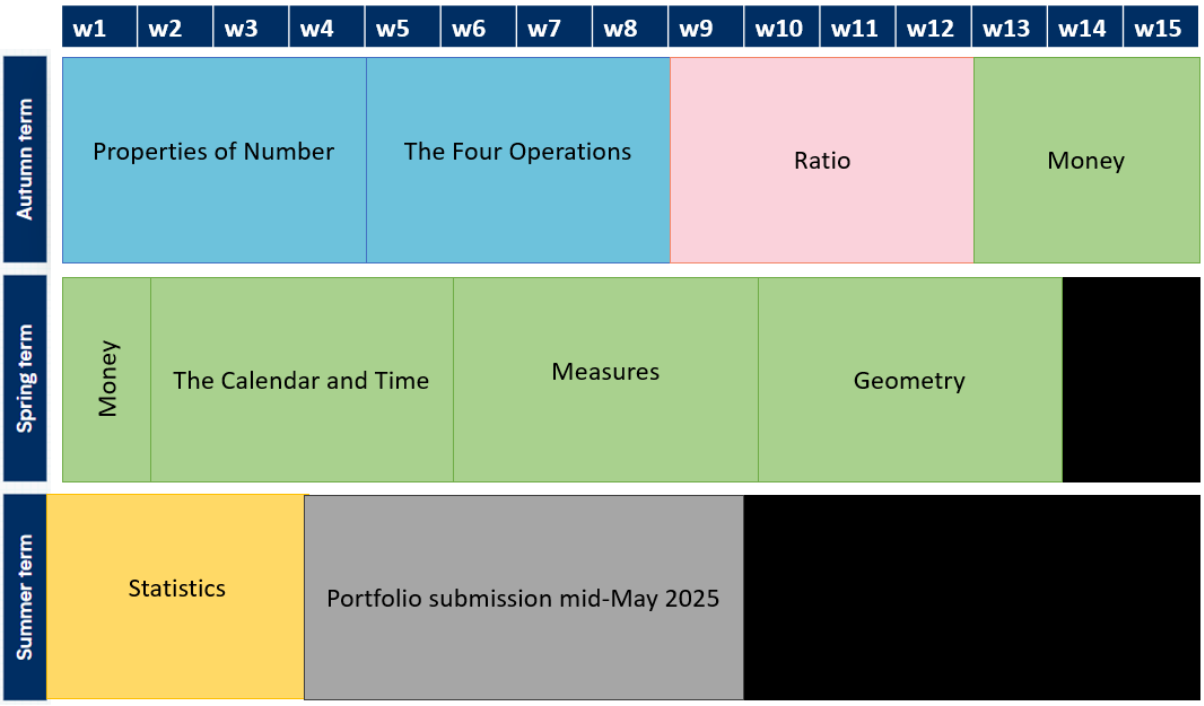


In Number, students will explore place value for numbers up to 100, including number bonds to 10, 20 and 100, comparing and ordering values, number lines and rounding. Students will be able to add and subtract integers by counting on and back moving forward to written column methods. Students will be fluent in their times tables up to 10x10 and complete number sentences. Students will also explore halves, thirds and quarters by counting objects and shading shapes. They will also explore fractions on number lines, counting beyond 1, and making wholes from halves, thirds and quarters.

In Measures and Shape, students will learn to recognise all the British coins and notes, to create amounts, find totals and calculate and give change. They will look at telling analogue and digital time, explore the days of the week, months of the year and seasons. They will also explore measuring length with non-standard and standard units of measure, compare lengths, measure mass, volume and temperature and use suitable units. They will recognise and name 2D shapes and describe their properties. They will explore horizontal, vertical and parallel lines, use the language of position, explore angles as turns and begin looking at 3D shapes.

In Statistics, students will explore sorting and gathering data, recording tallies and drawing pictograms. Students will look at different data sets and answer questions about them.

KS4:



Students will be studying skills across eight components as they complete their ELC portfolio.

Properties of Number – Place Value to 10,000, reading and writing numbers in numerals and words, rounding, and times tables.

The Four Operations – to use the column method to add and subtract up to 3-digit numbers including with exchange, to know times tables to 10x10, inverse operations, and problem solving. To use formal written methods for multiplication and division.

Ratio – to explore halves, thirds, quarters, tenths and hundredths, doubling and tripling, 5, 8 and 10 times amounts. To explore fractions on number lines including mixed numbers, equivalent fractions, and adding and subtracting fractions.

Money – to recognise all the British coins and notes, to create amounts, find totals and calculate and give change. To understand the purchasing power of money. To explore decimal notation when working with money and solve real-life problems.

The Calendar and Time – to tell analogue and digital time and convert between them, to explore the days of the week, months of the year and seasons and know how to write the date in numerical format. To read timetables and use calendars.

Measures – to use vocabulary of measures, draw and measure lines and perimeter of shapes, compare and order measures of length, explore mass and capacity with equipment for measuring. Students will also explore temperature.

Geometry – to recognise and name 2D and 3D shapes, alongside their key properties. Explore horizontal, vertical and parallel lines, to recognise, classify and measure angles.

Statistics – to sort and classify objects, to collect data using a survey, record data in lists and tallies, draw pictograms, block diagrams, bar charts, vertical line graphs, two-way tables, and interpret them in order to answer questions.