LIFE Wirral Sports School
SECONDARY MATHS SCHEME OF WORK

This policy, which applies to the whole school, is publicly available on the school website and upon request a copy (which can be made available in large print or other accessible format if required) may be obtained from school.

Document Details

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Availability: This policy applies to all activities undertaken by the school, inclusive of those outside of the normal school hours and away from the school site and is inclusive of all staff (teaching, support and agency staff), pupils on placement, contractors, the Chief Executive Officer, the Advisory Board and volunteers working in the school. All who work, volunteer or supply services to our school have an equal responsibility to understand and implement this policy being required to state that they have read, understood and will abide by this policy and its procedural documents and confirm this by signing the *Policies Register.*

Monitoring and review:

- This document will be subject to continuous monitoring, refinement and audit by the Headteacher.
- This policy was last reviewed agreed by the Advisory Board in January 2022 and will next be reviewed no later than January 2023 or earlier if significant changes to the systems and arrangements take place, or if legislation, regulatory requirements or best practice guidelines so require.

Signed:

Sarah Quilty	Alastair Saverimutto
Headteacher	Chief Executive Officer

Introduction

LIFE Wirral Sports School is committed to safeguarding and promoting the welfare of our pupils and expects all staff and volunteers to share this commitment. It is our aim that all pupils fulfil their potential.

Imagine a school where students are provided with lively, interactive learning experiences, fostering their enjoyment of, confidence in, and enthusiasm for Mathematics. The priority is to ensure that students grasp the fundamentals of the subject, so that they have a solid foundation for building their mathematical skills and knowledge to a high level. Students will thus learn number bonds and times-tables and will be taught a variety of methods for calculating mentally. As students' progress through the years they will be taught the skills needed for problem solving, algebra and more complex and abstract mathematical reasoning. They will have the opportunity to use the school's ICT facilities in order to enhance their mathematical learning experiences. Mathematics teaches us how to make sense of the world around us through developing a students' ability to calculate, to reason and to solve problems. It enables students to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, students learn to appreciate the contribution made by many cultures to the development and application of Mathematics.

Intent

- At LIFE Wirral Sports School our intent for mathematics is to teach a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each area.
- We aim to deliver a curriculum which allows children to be a part of creative and engaging lessons that will give them a range of opportunities to explore mathematics following a mastery curriculum approach.
- We give each pupil a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges.
- We recognise that mathematics underpins much of our daily lives and therefore is of paramount importance in order that children aspire and become successful in the next stages of their learning.
- Our curriculum aims to engage all children and entitles them to the same quality of teaching and learning opportunities, striving to achieve their potential, as they belong to our school community.
- We make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- The Board of Advisors have been actively involved in curriculum design. This means that the curriculum is fit for purpose for children with special educational needs. A large part of the curriculum is experiential as it is important for children on the autism spectrum to be able to make cohesive links that are not abstract. A fully immersive experience is required. Examples include through a range of trips and visits which enrich and complement children's learning.
- There is a projected flightpath for students at LIFE Wirral Sports School, including a Functional skills at Level 1 followed by 2, and an overall objective of achieving GCSE Success sitting the AQA paper.
- The experiential curriculum allows for a rich understanding in Mathematics through.

The aims of Mathematics are:
- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to understand the importance of mathematics in everyday life.

We aim to provide experiences that enable students to:
- develop Mathematical skills, knowledge and understanding;
- develop an ability to think clearly and logically showing imagination, initiative and flexibility of mind;
- develop an ability to work systematically, independently and co-operatively in appropriate situations;
- develop an ability to think in abstract ways;
- develop an understanding of the relationships in Maths through enquiry, discussion and experiment;

- develop a positive attitude to Maths realising its creative, aesthetic aspects and its relevance to real life situations.

We aim to maintain and/or stimulate lasting students' curiosity, interest and enjoyment in Mathematics and number to:
- work in small groups and individually
- recognise that literacy problems and poor organisational skills often necessitate different approaches
- develop and emphasise correct usage of Maths vocabulary and to encourage explanation of methods of calculations
- fill gaps in working knowledge
- provide for breadth as well as depth of experience
   use practical apparatus throughout the learning process
- reinforce and revisit topics frequently
- ensure all students achieve their potential and show maximum progress
- activities should be short and varied
- assess each students' level of attainment

Students will progress through a schemer of hierarchical concepts across a range of disciplines; shape, weight, length, number etc. It is essential for students to operate effectively in everyday situations and their future working world.

Mathematics is a core subject in the National Curriculum, the fundamental concepts, knowledge and skills are set out in the National Numeracy Strategy. The following categories in the Programme of Study include:
- counting, partitioning and calculating;
- securing number facts, understanding shape;
- handling data and measures;
- calculating, measuring and understanding shape;
- securing number facts relationships and calculating.

Teaching and Learning Style

Specific work is not designated for a particular year group since ability varies considerably from students to students. Students are set half termly individual targets in mathematics. LIFE Wirral Sports School appraises the range of texts that we give our students access to but the hierarchical concepts remain a constant. We are committed to enabling students to progress to levels of attainment matching National Curriculum expectations but taking into account different levels and varying speeds for individuals.

Mathematics Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for Mathematics. At LIFE Wirral Sports School we recognise that each student is unique. We acknowledge that they will all have strengths and will, at times, need support as part of their academic enrichment and enhancement. We have therefore created a system of half-termly targets. From Year 7, the specialist Maths teacher, with their awareness of each student's abilities and areas requiring support, will create a tailored schedule of work each week. During the week, they will assess attainment in each of the subject areas set as they mark each piece of work and it is this that will inform their decisions for the following week's target (Assessment for Learning). They may choose to reinforce, revisit or enrich particular subject areas depending on the students' progress. They may also feel that a student has grasped a particular concept and can move on.

Key points:
- We carry out the curriculum planning in Mathematics in three phases (long-term, medium-term, and short-term). The National Curriculum gives a detailed outline of what we teach in the long-term, while our yearly teaching programme identifies the key objectives in Mathematics that we teach in each year.

- Our medium-term Mathematics plans, which are adopted from the NC are laid out clearly in the scheme, give details of the main teaching objectives for each term, define what we teach. They ensure an appropriate balance and distribution of work across each term.

KS3

In Years 7, 8 and 9, students work through the Key Stage 3 syllabus.

KS4

Students then go on in Years 10 and 11 to study the AQA GCSE syllabus, with the majority of students sitting the examination in Year 11. This is formulated in Year 8, so that the GCSE syllabus can begin in Year 9.

Contribution of Mathematics to Teaching in Other Curriculum Areas

Maths skills are consolidated and enhanced when pupils have opportunities to apply and develop them across the curriculum. Poor maths skills hold back pupils' progress and can lower their self-esteem. Improving these skills can be tackled on a whole school basis by ensuring mathematical skills are used across the curriculum so that pupils become confident at tackling maths in any context.

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage students to read and interpret problems in order to identify the Mathematics involved. The students explain and present their work during plenary sessions. Students encounter Mathematical vocabulary, graphs and charts when using non-fiction texts. English - Spelling mathematical vocabulary correctly and using it in the correct context; mastery of maths is advanced by children being able to explain their mathematical thinking to others and to justify methods and conclusions.

Information and communication technology (ICT)

Students use and apply Mathematics in a variety of ways when solving problems using ICT. Students use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, students use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships.

Design and Technology

Mathematics supports pupils in reading scales; measuring ingredients and working out proportions; using ratios in recipes and being able to measure accurately.

Personal, Social, Health and Economic Education (PSHEE) and Citizenship

Mathematics contributes to the teaching of PSHEE, and Citizenship. The planned activities that students do during target time and within the classroom encourage them to work together and respect each other's views.

Spiritual, Moral, Social and Cultural Development

The teaching of Mathematics supports the social development of our LIFE Wirral Sports School students through the way we expect them to work with each other in lessons. We group students so that they work together, and we give them the chance to discuss their ideas and results. The study of famous mathematicians around the world contributes to the cultural development of our students.

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Teaching Mathematics to Students with Special Educational Needs.

At LIFE Wirral Sports School we teach Mathematics to all students - whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all students. Through our Mathematics teaching we provide learning opportunities which enable all students to make progress. We do this by setting weekly individual targets and responding to each student's different needs. Assessment against the National Curriculum allows us to consider each student's attainment and progress against expected levels. When progress falls significantly outside the expected range, the students may have special educational needs.

Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the students to learn more effectively. This ensures that our teaching is matched to the students' needs.

The ISP (Individual Support Plan) may include, as appropriate, specific targets relating to Mathematics. We enable students to have access to the full range of activities involved in learning Mathematics.

Mathematics encompass

Those who experience difficulty with number and spatial concepts.

Those who require and relish a challenge above their chronological level in all areas of the subject.

We work individually with these students providing extra opportunities for practical and written experience. Students are extended through the use of more complex problems and investigations.

To make mathematics lessons inclusive, teachers need to anticipate what barriers to taking part and learning particular activities, lessons or a series of lessons may pose for students with particular SEN and/or disabilities. So, in their planning teachers will take into consideration ways of minimizing or reducing those barriers so that all students can fully take part and learn. In some activities, students with SEN and/or disabilities will be able to take part in the same way as their peers. In others, some modifications or adjustments will need to be made to include everyone. For some activities, teachers may need to provide a 'parallel' activity for students with SEN and/or disabilities, so that they can work towards the same lesson objectives as their peers, but in a different way – e.g. using tactile equipment for work relating to shape, space and measures rather than visual information. Occasionally, students with SEN and/or disabilities will have to work on different activities, or towards different objectives, from their peers.

Teaching and Learning

We use a variety of teaching and learning styles. Lessons have a high proportion of:

- demonstration, explanation and instruction to the whole class, groups and individuals, whole class and group discussions;
- practical activities to provide concrete experience and to consolidate skills, developed through effective plenaries;
- Mental Mathematics involving quick recall and mental strategies.

During the lessons, we encourage the students to:

- ask questions and to question: how/why.
- demonstrate/explain their own/group methods.

At LIFE Wirral Sports School there are students of differing mathematical abilities - we therefore provide appropriate learning opportunities by:

- matching the level of task to ability for both individual and group work.

Schemes of Work

- National Curriculum for Years 7 – 9

Assessment and Recording

At LIFE Wirral Sports School we assess students' work in Mathematics from three aspects (long-term, short-term and medium-term). We make short-term assessments, which we use to help us adjust our weekly targets (Assessment for Learning). These short-term assessments are closely matched to the teaching objectives. We make medium-term assessments to measure progress against the key objectives. We use the class record of the key objectives as the recording format for this.

We make long-term assessments towards the end of the school year, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each students' progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments.

Formative Assessment is carried out informally by teachers in the course of a lesson. It is used to:

- guide the progress of the individual;.
- identify this progress in each area of the subject;
- determine what has been learnt;
- decide upon the next stage – whether it is a progression or consolidation.

Suitable tasks for assessment will include:

- discussions about a practical task
- short tests in which the teacher questions orally and students record answers and
- specific assignments for individual students according to ability.

When assessing students, teachers plan carefully to give students with SEN and/or disabilities every opportunity to demonstrate what they know and are able to do, using alternative means where necessary.

Calculators

These are used to enable students to work on investigative activities or when experimenting with larger numbers, however they do not take the place of pencil and paper computational/mental activities.

Feedback to students

Through effective marking we aim to:

- be encouraging and supportive;
- give helpful written comments or oral feedback indicating correct answers, whether targets and learning objectives have been met and next steps identified. This is often done whilst a task is being carried out through 1-1 discussion with the students. It is also done through self-assessment (see Marking Policy).

Summative assessments

Are carried out:

- As applicable for each year group, determined by the teacher.

Recording

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This is covered by referring to the Key Objectives for each year of the National Curriculum. Teachers records the students' progress:

Reporting

Reporting to parents includes written reports completed every term and two formal parent's evenings, which take place in the Christmas and Summer Terms. These reports take the form of:

- Parent's Evenings.
- Report

All forms of reporting focus on the students':

- attitude to Mathematics
- competence in basic skills
- ability to apply mathematical knowledge to a range of contexts/problems.
- attitude and standard/presentation of written work.

Homework

This is used to support Mathematics learning through such tasks as:

- specific tasks set by teachers
- regular revision exercises (Years 7 — 11).

Differentiation

In line with the above, work should be scaled up or down to enable all students to access the curriculum at a level which is appropriate to their needs.

Implementation

- Teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed.
- Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems.
- Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time.
- Children are taught through clear modelling and have the opportunity to develop their knowledge and understanding of mathematical concepts. The mastery approach incorporates using objects, pictures, words and numbers to help children explore and demonstrate mathematical ideas, enrich their learning experience and deepen understanding at all levels.
- A love of maths is encouraged throughout school via links with others subjects, applying an ever growing range of skills with growing independence.
- Quality Assurance activities include: half-termly book monitoring, learning walks, formal and informal lesson observations, pupil surveys.

Impact

- Children 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. Children are developing skills in being articulate and are able to verbally, pictorially and in written form reason well.
- The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others.
- Children also take tests at the end of each term to asses children's progress and identify gaps in learning.
- Regular feedback is sought from pupils.

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- Confidence, Resilience and Success are core values at LIFE Wirral Sports School. This means that the acquisition of social skills and personal development are of paramount importance to our pupils to life beyond school. Impact is therefore demonstrated through social and linguistic development which the school evidences through case studies.
- Pupils have significant barriers to learning which the school works hard to help pupils overcome. This means that the school works with a wide variety of partners such as medical professionals, parents/carers, education professionals and the wider community to promote pupils engagement in learning.
- Students should graduate from the school with qualifications including Functional skills level 1 as well as level 2, and ultimately a GCSE qualification.

Statutory Guidance – Maths

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics including through varied and frequent practice with increasingly complex problems over time so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Our curriculum is designed with our children in mind but is subject to change. Units may be moved around to suit children's interests, current affairs and to make better use of resources. If this happens staff ensure that there is breadth and balance across the year to ensure coverage

KS3

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	Algebraic Thinking	Place Value and Proportion	Applications of Number	Directed Number and Fractional Thinking	Lines and Angles	Reasoning with Number
Year 8	Proportional Reasoning	Representations	Algebraic Techniques	Developing Number	Developing Geometry	Reasoning with Data
Year 9	Reasoning with Algebra	Constructing in 2 and 3 Dimensions	Reasoning with Number	Reasoning with Geometry	Reasoning with Proportion	Representations

KS4

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	Similarity	Developing Algebra	Geometry	Proportions and Proportional	Delving into Data	Using Number

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				Change		
Year 11	Graphs	Algebra	Reasoning	Revision and Communication	Revision	Exams

Curriculum Map

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	Algebraic Thinking	Place Value and Proportion	Applications of Number	Directed Number and Fractional Thinking	Lines and Angles	Reasoning with Number
Learning Objectives Covered	Describe and continue sequences in diagram and number forms, both linear and non-linear Using single function machines and series of two function machines with numbers bar models and letters Forming and substituting into expressions, including generating sequences Representing functions graphically Understanding equality and fact families Forming and solving one-step equations Understanding equivalence Collecting like terms	Describe and continue sequences in diagram and number forms, both linear and non-linear Integer place value up to one billion Decimal place values to hundredths Working out and using number lines Comparing and ordering numbers The range and the median Rounding to positive powers of ten and to one significant figure Representing tenths and hundredths of diagram and number lines Interchanging between fractions, decimals and percentages for multiples of tenths and quarters Interpreting pie charts Equivalent fractions Converting between any fraction, decimal and percentage	Use formal methods of addition with integers and decimals Solve problems in the context of perimeter, money and frequency trees and tables Solve problems in the context of perimeter, money and frequency tree's and tables Multiplying by 10, 100, and 1000 Unit conversions Formal methods of multiplication and division HCF and LCM Areas of triangles, rectangles and parallelograms Finding the mean Finding fractions and percentages of amounts Solving two-step equations (with and without a calculator) Introducing to the order of operations	Ordering directed numbers with and without context Revisit four operations to include directed number Order of operations Representing tenths and hundredths on diagrams and number lines Adding and subtracting fractions with a common denominator, including with answers above one Revisit equivalent fractions Adding and subtracting fractions with simple different denominators e.g quarters / eights, thirds/sixths Mixed questions e.g ¾ + 0.2	Drawing and measuring lines and angles using ruler and protractor Understanding and using notation for line sand angles Understand parallel and perpendicular Recognise types of triangle, quadrilateral and other polygons Drawing and interpreting pie charts Calculating using angles at a point, angles on a straight line and vertically opposite angles Calculating missing angles in triangles and quadrilaterals	Mental arithmetic strategies Using known facts to derive other facts, including algebraic expressions Understanding and using set notation Venn diagrams Probability of a single event Types of number, including prime factorisation Powers and roots Using counter examples

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 8	Proportional Reasoning	Representations	Algebraic Techniques	Developing Number	Developing Geometry	Reasoning with Data
Learning Objectives Covered	Understanding ratio and its link to multiplication Circumference of a circle Use ratio notation Reduce ratios to simplest form Solve ratio problems Use scale factors, linking to ratio solve simple direct proportion problems Scale diagrams and maps Multiplying and diving a fraction by an integer Multiplying and diving a fraction by a fraction	Plotting and interpreting straight line graphs Equations of lines parallel to the axes Model situation by translating them into expressions, formulae and graphs Scatter graphs and correlation Designing and using one and two way tables Listing outcomes Using simple space diagrams Using tables	Multiplying out single brackets Forming and using expressions, formulae and identities Forming and solving equations and inequalities with and without brackets Using more complex rules e.g. with brackets and squared terms Writing expressions with powers	Revisit fraction, decimals and percentage equivalence One number as a percentage of another Conversation between numbers in ordinary and standard form Comparing numbers in standard form Developing mental strategies Measures and units Estimation, including rounding to a given number of decimal places Revisit order of operations	Review Y7 angles rules Parallel lines and angles Revisit geometric notation Angles in special quadrilaterals Angles in a polygon Review area of shapes covered in year 7 Area of trapezium Area of a circle and parts of a circle Using significant figures Area of compound shapes Line symmetry in polygons and other shapes Reflections of shapes in horizontal, vertical and diagonal lines	Collecting data Interpreting statistical diagrams Dual bar charts Constructing and interpreting pie charts Median and mean revisited including finding the total Mean for grouped data The mode Choosing the appropriate average Revisit finding the range Comparing distributions

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 9	Reasoning with Algebra	Constructing in 2 and 3 Dimensions	Reasoning with Number	Reasoning with Geometry	Reasoning with Proportion	Representations
Learning Objectives Covered	Interpret straight line graphs Find and use the equation of a straight line Compare to linear sequences and finding the rule for the nth term Revisit and extend to equations and inequalities with unknowns on both Sides Use all previous contexts: angles, probability, area etc. Test conjunctures in a wide range of context e.g sums and products of odd and even numbers, is a given number in a sequence? are these lines parallel? What would happen if?	Understand the language of faces, edges and vertices Know the name of common prisms and non-prisms Identify 2D shapes and 3D shapes Work out the volume and surface area of cuboids and cylinders Work out the volume of any prism Work out missing lengths given area and/or volume Construct 3D shapes from nets, and construct the net of a given 3D shape Construct and use scale drawings Construct perpendiculars and bisectors Understand congruency Exploring congruency via construction	Revisit types of number Revisit fraction arithmetic Extend knowledge of HCF and LCM Revisit standard form Revisit percentage increase and decrease Use percentages over 100% Find percentage changes Use multipliers in a variety of contexts Explore financial mathematics including: bills and bank statements, interest, unit pricing	Revisit angles rules, including within special quadrilaterals Find angles using algebraic methods Use chains of reasoning to evaluate angles Identify the order of rotational symmetry of a shape Find the results of rotating a shape Translate points and shapes by a given vector Understand variance and invariance in the context of transformations Identify the hypotenuse of right-angled triangle Determine whether a triangle is right-angled Calculate missing sides in right-angled triangles	Enlarge shapes by a positive scale factor, including from a given point Calculate the lengths of missing sides in similar shapes Direct proportion problems and graphs Conversion graphs Solving ratio problems given the whole or a part Simple inverse proportion Work with speed, distance and time Solve problems involving density Work with compound units	Revisit date charts and graphs including bivariate data Revisit alternative representations of sequences Revisit frequency trees and other representations e.g. tables Revisit converting between standard and ordinary form Create and interpret tables and timetables Solve inequalities on number lines, including error intervals Criticise misleading graphs Represent word problems in a variety of forms (graphs, tables, expressions) Interpret graphs of any form (Exponential, pricewise, reading from quadratics) Probability of two or more events, including tree diagrams

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	Similarity	Developing Algebra	Geometry	Proportions and Proportional Change	Delving into Data	Using Number
Learning Objectives Covered	Understand the difference between congruence and similarity Enlarge a shape about a given point, understand and use similarity Find missing sides in similar shapes including pairs of similar triangles Understand and use the corrections for a pair of congruent triangles Understand trigonometric ratios Work out missing lengths and angles in right-angled triangles Know and use the exact values of key angles	Form and solve equations and inequalities in a variety of contexts, including with unknows on both sides Represent solutions to inequalities on a number line Represent solutions to equations graphically Form and solve a pair of linear simultaneous equations graphically Form and solve a pair of linear simultaneous equations algebraically	Review KS3 angles rules Understand use bearings Review area and circumference Name parts of a circle and perform related calculations Find areas and volumes related to circles including cylinder, cone, sphere etc. Understand vector notation Vector arithmetic Vectors and translations	Use ratios, including with mixed units Fractions in ratios Fractions from ratios Convert fractions, decimals and percentages Find percentages and percentage of changes Find one number as a percentage of another Calculate simple and compound interest Evaluate exponential change e.g. depreciation	Understand sampling including possible limitations Construct and interpret tables and line graphs for time series data Understand and represent with grouped data Understand and identify correlation Use lines of best fit, understand the dangers of extrapolation Construct and interpret frequency polygons Evaluate measures of location and dispersion Use statistical diagrams and measures to compare distributions	Use four operations with integers (positive and negative, decimals and fractions with and without context) Work with exact answers Evaluate calculations involving percentages Use factors, multiples, primes and prime factorisation Recognise arithmetic and geometric sequences Recognise and use other sequences Work out powers and roots Use the rules of indices Calculate with standard index form

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 11	Graphs	Algebra	Reasoning	Revision and Communication	Revision	Exams
Learning Objectives Covered	Find and use equations of straight lines Plot and read from quadratic curves Understand and find roots Plot cubic and reciprocal graphs Construct and interpret real-life graphs Reflect shapes in a given line Construct and interpret speed, distance and time graphs Interpret real-life graphs	Expand a single bracket and binomials Factorise into a single bracket Factorise quadratics of the form $x^2 + bx + c$ Solve quadratic equations Simplify complex algebraic expressions Review solving linear equations Change the subject of a formula where the subject appears once Find inputs and outputs Show algebraic expressions are equivalent Solve problems using the kinematics formulae	Review scale and enlargement Work with direct and inverse proportion Calculate with pressure and density Review angle facts, focusing on language of reasons and chains of reasoning Review Pythagoras' theorem and trigonometrical ratios Work with complex indices Review simplification of complex expressions and finding the nth term rule Justify e.g. why a number is/isn't in a given sequence	Revisit transformations of shapes, linking to types of symmetry Perform standard constructions using ruler and protractor or ruler and compasses Work with organised lists Complete and use Venn diagrams Work with plans and elevations Use data to compare distributions Illustrate equivalence Justify answers Use the language of angles rules Use the conditions for congruent triangles.		