

Curriculum Statement Maths

At Walderslade Girls School, our intention is to make Mathematics accessible to all, through the Skills for Life values. It is our intent, that our Mathematics provision will provide children with at the very least, a foundation for understanding number, reasoning, thinking logically and problem solving having shown and developed the Skills for Life values in everything they do, so that they are fully prepared for the future.

*The Mathematics department offers a comprehensive and engaging curriculum for students to learn and thrive. Throughout their time with us, students study key mathematical skills that strive to enthuse, interest and engage. These are designed not only to allow our students to succeed in their GCSE's but to instil a love of mathematics into our students and to provide them with the mathematical skills needed to succeed in their futures. The department also offers a wide range of enrichment opportunities and extra-curricular activities to further enhance students' learning. This includes number week activities and the use of Sparx Maths (sparxmaths.com) to enrich students learning. From January 2024, we will be offering an **extended topic task** for every year group once per term.*

What you will study in your Mathematics lessons

Year 7

Terms 1 and 2

Our first topic in Year 7 is Algebra. This topic includes work on coordinates, substitution and sequences. The next topic is Number, where we will be working on basic number skills. This includes solving problems with all four operations with both positive and negative numbers. Next is Geometry. In this unit, we look at how we use scales to measure quantities along with work on finding the perimeter and area of 2D shapes and the volume of 3D shapes. Next is fractions. Students will look at simplifying fractions along with converting from improper fractions to mixed numbers. Students will also look at how to add and subtract fractions. To finish, students look at how to draw and interpret a number of different graphs. This includes pictograms, bar charts, line graphs and pie charts.

Terms 3 and 4

Term 3 begins with students completing their mid-year assessments.

In term 3 and 4 students will begin looking at the different averages and how we find these from discrete data. We then return to algebra where students will be looking at collecting like terms and how to expand brackets. Following this, students begin work on angles. The last topic covered in terms 3 and 4 is looking at BIDMAS, finding factors and multiples, how we round numbers and how we can estimate answers.

Terms 5 and 6

Students will begin the term completing their end of year assessments.

They will then learn how to solve an equation and will revisit coordinates. Following this, students look at the properties of 3D shapes including drawing them on isometric paper and finding their nets. The next topic is ratio. In this, students learn how to simplify a ratio, how to use the unitary method and how to share in a given ratio. We then look at transformations. In this unit, students

learn how to reflect, rotate, enlarge and translate a shape. To finish Year 7, students look at basic probability.

For more information on what students study in Year 7, please see Curriculum Journeys.

Year 8

Terms 1 and 2

Following this, students begin their first algebra topic. This includes a recap or substitution before looking at drawing linear graphs and determining the n th term of a sequence. Students then look at using negative numbers. Next is prime factor decomposition and using this to find the HCF and LCM of numbers. Students then revisit Geometry and recap finding areas, perimeters and volumes. Students are introduced to circles and cylinders. We then recap fractions, developing from Year 7 by including multiplication and division along with addition and subtraction when my denominators are different. To finish the term, students revisit graphs. In Year 8 students develop this further by looking at interpreting two-way tables and how we sample to generate data.

Terms 3 and 4

We then revisit averages. Students will now learn how to find these from grouped table data. Students will then look at how to derive formulae, rearranging formulae and learn how to factorise an expression. Students then revisit the angle facts learnt in Year 7 along with finding angles from parallel lines and in polygons. Students also look at how to calculate bearings. To finish the term, students recap rounding and look at converting numbers into standard form along with finding the best buy.

Terms 5 and 6

Students begin term 5 by completing their end of year assessments.

Students then look at solving equations involving brackets and fractions along with how to solve equations with unknowns on both sides. Students will then look at inequalities. Students then look at how to accurately draw triangles. Students then learn how to bisect an angle and find a perpendicular bisector. Students will then learn about direct and indirect proportion. To finish year 9 students will revisit transformations and probability.

For more information on what students study in Year 8, please see Curriculum Journeys.

Year 9

In year 9 students are split into foundation and higher tiers and will follow different pathways dependent on their tier.

Foundation Year 9

Terms 1 and 2

Students complete start of year assessments at the beginning of Term 2.

Students begin Year 9 by reviewing their number skills. This includes work on integers, decimals, fractions and percentages. Students then revisit ratio, recapping their skills on simplifying ratios,

sharing in a ratio and best buys. Student then look at factors and multiples followed by coordinates and plotting and interpreting linear graphs.

Terms 3 and 4

Students complete mid-year assessments at the start of Term 4.

In terms 3 and 4 students will be studying sequences. This includes looking at different types of sequence, finding the next term and what the n th term for a sequence is. Following this, students begin a unit looking at finding the perimeter and area of different 2D shapes. This is developed further in the following unit where students focus on circles and finding their areas and circumferences. Students then finish their work on shapes by looking at finding the volume and surface area of 3D shapes. We then begin a topic looking at probability. The term is finished by recapping our algebra skills. This includes collecting like terms, indices and factorisation.

Terms 5 and 6

Students complete end of year examinations at the start of Term 6.

Term 5 begins by recapping how we solve equations. This includes those with brackets, fractions and unknowns on both sides. Following this, we look at 2D representations of 3D shapes. The next unit focusses on how we collect and represent different data. The year is finished by returning to work on Geometry. This includes looking at angles, how to find a bearing and drawing constructions and loci. Year 9 is finished by introducing Pythagoras.

For more information on what students study in Year 9 Foundation, please see Curriculum Journeys.

Higher Year 9

Terms 1 and 2

Students complete start of year assessments at the beginning of Term 2.

In terms 1 and 2 students begin by reviewing their basic number skills. This includes work on fractions, decimals and whole numbers. Following this, students look at finding percentages and ratios. The following unit is looking at prime factor decomposition and how this can be used to solve problems. Students then recap co-ordinates and drawing linear graphs. Students then look at sequences and begin work on shapes. This includes perimeter, area, circumference and finding the area of a sector and arc lengths.

Terms 3 and 4

Students complete mid-year assessments at the beginning of Term 4.

In terms 3 and 4 students continue working on shapes by looking at finding the volume and surface area of different 3D shapes. Students then look at probability before returning to algebra. Students will recap how to expand and factorise into a single bracket before being introduced to quadratics. Students will then look at solving equations. To end the term students look at 2D representations of 3D shapes.

Terms 5 and 6

Students complete end of year assessments at the beginning of Term 6.

Term 5 begins with students looking at different data types and producing graphs from this. Students are introduced to box plots and cumulative frequency curves. We then look at angles, recapping key angle facts and how to use our algebra skills to find missing angles. The last part of Year 9 is focused on Geometry. Students begin looking at bearings and scale diagrams before moving onto constructions and loci. To end the year students begin looking at Pythagoras and are introduced to trigonometry.

For more information on what students study in Year 9 Foundation, please see Curriculum Journeys.

Year 10

In year 10 students continue to follow different schemes of learning depending on their tier.

Foundation Year 10

Terms 1 and 2

Students complete start of year assessments at the beginning of Term 2.

In Year 10 students begin the year looking at indices and how they use index rules. This is followed by looking at standard form and how to convert between ordinary numbers and standard form along with calculating with numbers in standard form. Next students recap rounding and finding bounds. Students then look at finding percentages and interest before moving onto direct and inverse proportion. The term is finished with students looking at how to find averages from discrete data, ungrouped and grouped data.

Terms 3 and 4

Students complete mid-year assessments at the beginning of Term 4.

Terms 3 and 4 begin with students in Year 10 looking at scatter graphs and correlation. Lessons then focus on recapping our Algebra skills. This includes collecting like terms, expanding brackets and solving equations. This is followed by work on drawing straight line graphs. This includes finding the gradient and the equation of a line. Students are then introduced to simultaneous equations and how to solve these. We then move onto quadratic equations and how to factorise and solve these. Students then look at drawing and interpreting distance time graphs. The term is finished by looking at polygons including how to find interior and exterior angles.

Terms 5 and 6

Students complete end of year mock exams in term 6.

Students begin terms 5 and 6 by looking at how we draw accurate triangles, bisect angles and find a perpendicular bisector. Students will then look at converting units and using compound measures to solve problems. Students then revisit transformations. Next is congruence and similarity of shapes and probability. The year is then finished by looking at Pythagoras and trigonometry.

For more information on what students study in Year 10 Foundation, please see Curriculum Journeys.

Higher Year 10

Terms 1 and 2

Students complete start of year assessments at the beginning of Term 2.

Year 10 starts with students looking at indices and standard form. This is followed with recaps of rounding and finding percentages. Students will then look at ratio and proportion. Following this students will look at types of data and finding averages. The term is finished by students looking at drawing box plots, sampling and finding correlations.

Terms 3 and 4

Students complete mid-year assessments at the beginning of Term 4.

Term 3 begins with students learning how to draw and interpret a histogram. Students then look at drawing linear and quadratic graphs and how to solve equations. Students will then look at solving simultaneous equations. The next topic is factorising equations, completing the square and using the quadratic formula. Students will then learn about surds. Following this, students will look at the properties of polygons and circle theorems.

Terms 5 and 6

Students complete end of year mock exams in term 6.

Terms 5 and 6 begin with students looking at drawing accurate triangles, bisecting angles and finding loci problems. Students then look at bounds and compound measures. Following this, students look at transformations, congruency and similarity. Students then look at sequences, looking at finding the n th term. Students then look at probability and the use of Venn diagrams and frequency trees. The year ends with students looking at sets as well as reviewing Pythagoras and trigonometry.

For more information on what students study in Year 10 Higher, please see Curriculum Journeys.

Year 11

In year 11 students continue to follow different schemes of learning depending on their tier.

Foundation Year 11

Terms 1 and 2

Students complete Mock exams in term 2.

Year 11 starts with students reviewing their algebra skills, focusing on collecting like terms, expanding and factorising before looking at solving quadratics. Following this, students look at solving inequalities and how to represent these on a number line. Lessons then focus on the four transformations along with introducing the students to vectors.

Terms 3 and 4

Students complete Mock exams in term 3.

Terms 3 and 4 begin with students recapping finding the area and perimeter of shapes before moving onto recapping how to find the volume of different 3D shapes. Students then recap trigonometry and Pythagoras. The term is finished with students revisiting percentages.

Terms 5 and 6

Students complete GCSE examinations in this term.

The year is finished with students revising their basic number skills. This includes work with whole numbers, fractions and decimals. Students then recap converting to standard form and the laws of indices. To finish, students recap statistics topics. These include probability, collecting and representing data and finding averages.

For more information on what students study in Year 11 Foundation, please see Curriculum Journeys.

Higher Year 11

Terms 1 and 2

Students complete Mock exams in term 2.

Students begin the year looking at trigonometry, including how to find missing sides or angles, 3D trigonometry problems and how Pythagoras and trigonometry can be used in proofs. Following this, students look at the sine and cosine rules. Next is a recap of finding the gradient and intercept from a straight-line graph along with how to sketch cubic, reciprocal and exponential graphs. Students will then look at transforming functions, this includes how to draw and recognise sine, cosine and tangent graphs and how to transform graphs when either the x or y axis is manipulated. Next, students look at finding the equation of a circle. Following this, students will look at how to change the subject of a formula, how to find composite and inverse functions and how to use algebraic proofs. The term is finished with students looking at algebraic fractions.

Terms 3 and 4

Students complete Mock exams in term 3.

In terms 3 and 4 students look at solving inequalities and revisit direct and inverse proportion. Students will then study iterations and compound interest. The next topic reviews transformations. Students will then review surds including how to simplify, calculate with and rationalise a denominator. The last topic studied this term is vectors.

Terms 5 and 6

Students complete GCSE examinations in this term.

The year is finished by looking at the following topics. Students begin by looking at properties of polygons and reviewing circle theorems. This includes using these to solve problems and proving circle theorems. Students then recap indices and standard form. Next is a review of solving quadratics through factorisation, the quadratic formula, completing the square and finding the difference of two squares. Students will then revisit finding the area and volume of shapes before looking at sequences. Students then recap probability and sets. The year is finished by recapping Pythagoras and trigonometry.

For more information on what students study in Year 11 Higher, please see Curriculum Journeys.

If you would like further information about the Mathematics curriculum at Walderslade Girls School please contact:

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Or visit our exam board AQA for further information:

<https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300>