

Subject Curriculum Maths

Why is *Maths* important?

Maths is a key subject, both in terms of life skills and as gateway to many careers. Developing a fluency of number is important in everyday life, helping with things like shopping and personal finance. A good grade in maths is a requirement for most jobs and careers. Studying maths helps you develop skills in logical thinking, problem-solving and decision-making, which are valued by employers across many job areas such as Accountancy, Teaching, Data Analysis, Banking, Finance, Insurance, Computing and Statistics.

Summary of the Department

Mr Chris Kearton - Assistant Head Teacher and Director of Maths

Miss Sarah Hibberts -Curriculum Leader

Mr Andy Freeland -Assistant Curriculum Leader

Mx Anna Finn -KS5 Coordinator

Mrs Andrea McAllister -Head of WA Sixth Form and Careers lead

Mr Andrew Branthwaite -Maths Teacher

Mr Steve Hartley -Maths Teacher

Miss Abigail Denham -Maths Teacher

Mr Lewis Maxwell -Maths Teacher

Mr Ethan Cross -Maths Teacher

Mrs Lisa Fulton -HLTA Maths

Mr Alexander Carter -HLTA Maths

General lesson structure

Workington Academy takes a mastery approach to the teaching of maths. Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject.

This is achieved using pictorial representations, developing mathematical thinking, making connections through variation of questions and achieving fluency through revisiting topics in other contexts.

Every lesson students' complete a mixed starter with pre-determined 'Nail it down' topics that allow them to revisit and reinforce these topics throughout the week and develop their confidence at answering questions of varying difficulty and practice different starting points along the way.

Key Stage 3

At WA we follow the White Rose Maths scheme of work for KS3. Below is a breakdown of the topics covered for each year.

Year 7

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Algebraic Thinking						Place Value and Proportion					
	Sequences		Understand and use algebraic notation		Equality and equivalence		Place value and ordering integers and decimals		Fraction, decimal and percentage equivalence			
Spring	Applications of Number						Directed Number		Fractional Thinking			
	Solving problems with addition & subtraction		Solving problems with multiplication and division			Fractions & percentages of amounts	Operations and equations with directed number		Addition and subtraction of fractions			
Summer	Lines and Angles						Reasoning with Number					
	Constructing, measuring and using geometric notation			Developing geometric reasoning			Developing number sense		Sets and probability		Prime numbers and proof	

Year 8

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Proportional Reasoning						Representations					
	Ratio and scale		Multiplicative change		Multiplying and dividing fractions		Working in the Cartesian plane		Representing data		Tables & Probability	
Spring	Algebraic techniques						Developing Number					
	Brackets, equations and inequalities				Sequences	Indices	Fractions and percentages		Standard index form		Number sense	
Summer	Developing Geometry						Reasoning with Data					
	Angles in parallel lines and polygons		Area of trapezia and circles		Line symmetry and reflection		The data handling cycle				Measures of location	

Year 9

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Reasoning with Algebra						Constructing in 2 and 3 Dimensions					
	Straight line graphs		Forming and solving equations		Testing conjectures		Three dimensional shapes		Constructions and Congruency			
Spring	Reasoning with Number						Reasoning with Geometry					
	Numbers		Using percentages		Maths and money		Deduction		Rotation and translation		Pythagoras' Theorem	
Summer	Reasoning with Proportion						Representations					
	Enlargement and similarity		Solving ratio and proportion problems			Rates	Solving problems using graphs, tables and algebra					

Students are assessed at the end of the first half term of year 7 and placed in set 1 or mixed ability sets. Students are assessed at the end of each half term students on the topics covered during that time. This allows the opportunity for all students to be challenged at what ever level they are working at.

Key Stage 4

In year 10 and 11 students continue to follow the WRM scheme of work and then are assessed by the AQA GCSE paper in June of Year 11. Students have the opportunity to be assessed at either Foundation (grade 1 – 5) or Higher for those students aiming to achieve above this.

Year 10

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Similarity						Developing Algebra					
	Congruence, similarity and enlargement			Trigonometry			Representing solutions of equations and inequalities			Simultaneous equations		
Spring	Geometry						Proportions and Proportional Change					
	Angles & bearings		Working with circles		Vectors		Ratios & fractions		Percentages and Interest		Probability	
Summer	Delving into data						Using number					
	Collecting, representing and interpreting data						Non-calculator methods		Types of number and sequences		Indices and Roots	

Year 11

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Graphs						Algebra					
	Gradients & lines		Non-linear graphs		Using graphs		Expanding & Factorising		Changing the subject		Functions	
Spring	Reasoning						Revision and Communication					
	Multiplicative		Geometric		Algebraic		Transforming & Constructing		Listing & Describing		Show that...	
Summer	Revision						Examinations					

Key Stage 5

At Key stage 5, students can take AS and A levels in Maths and Further Maths. These courses extend the skills and knowledge covered at GCSE and introduce new topics. The transferable skills of analysis, logic and problem solving will always be valuable and students can progress to a wide range of university courses, apprenticeships and careers. Indeed, there are many future paths where an A level in Maths is a requirement,

We have experienced specialist teachers who enjoy sharing their enthusiasm for maths with students. We use a mixture of learning resources, including an excellent website (with a plethora of videos, examples and questions to practice), text books & graphing software. Students complete weekly home learning and independent work, and take assessments at the end of each topic (usually once every two to three weeks).

The Further Maths course is for those who truly love maths and want to delve into both more abstract concepts and more sophisticated applications of mathematics. This course can only be taken alongside the Maths A level.

Students take two to four exams in the summer term - Edexcel exam board - with papers on pure maths, mechanics and statistics.

Outside the classroom

During a student's time at WA there is opportunity to thrive at both individual and team maths competitions by taking part in individual challenges: Junior – (Y7 & 8), Intermediate – (Y9, 10 & 11) or Senior (Y11,12 & 13). The team competitions involve groups of four students going to complete against other schools in the region (with the opportunity to progress to nationals).

If students opt to take maths at A-Level there are also opportunities to take part in the lectures and workshops led by AMSP at Lancaster University. Support is provided for those taking the extra papers (such as STEP, MAT and TMUA) required to gain a place at the top universities.
