

# Wave Trust

# Maths Curriculum

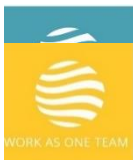
Our Trust curriculum, used in Primary and the Regional APA Solo Maths Leads, is underpinned by our WAVE values, which also serve as powerful and unique drivers for our curriculum:



**Be positive:** We have the highest expectations of what our pupils are capable of, no matter what their starting points, and no matter how many fresh starts. Through our Curriculum offer, we will strive to develop unique talents; build confidence; character, aspiration; attainment and at KS4, also qualifications. We aim to prepare pupils for their next steps, and life in modern Britain. We believe every child can learn to read. In Maths, we aim to reengage pupils with Maths where needed, building a 'can do' approach and ensuring accurate assessment informs teaching.



**Have empathy:** We seek first to understand, then to be understood. Through our curriculum, we will develop empathetic learners who have an awareness, understanding and are considerate of themselves; their peers; our communities; as well as of the world around us all. In Maths lessons we create an atmosphere where students feel comfortable to express their thoughts, concerns, and questions.



**Show respect:** Our curriculum will support of students to respect themselves, each other and teach an understanding and awareness of diversity. In Maths this is demonstrated by listening to other people's ideas and explanations.



**Work as one team:** Our curriculum gives our students opportunities to work collectively together, through opportunities to talk, listen, and create. We will draw on every opportunity for learning, both planned and unplanned, to develop pupils' ability to reflect, engage and relate positively to one another. In Maths we work together through group discussions, peer teaching and collaborative problem solving. This is to build social skills, empathy and a sense of community within the classroom.

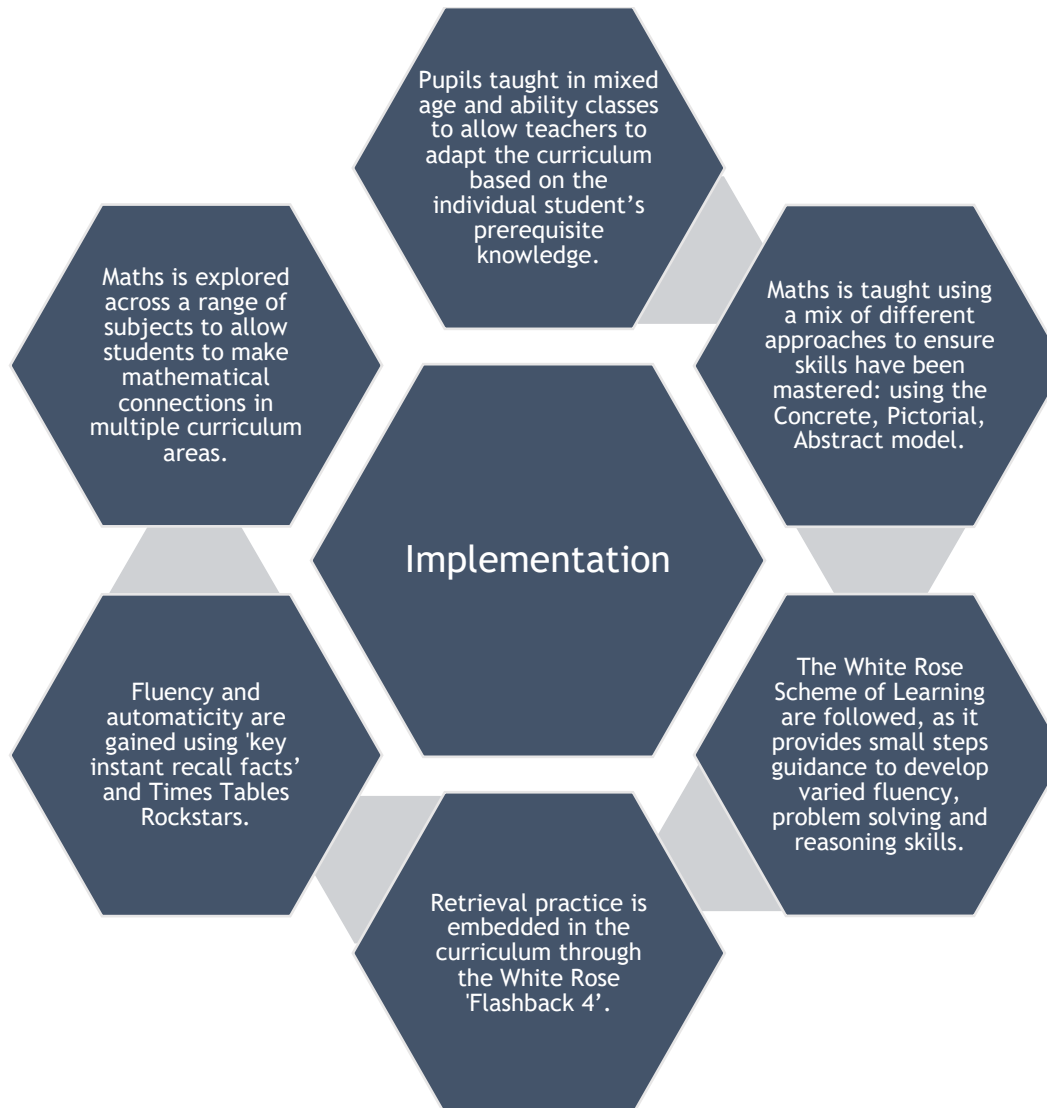
**Be inclusive:** We will strive to ensure our curriculum is accessible and meets the needs of all our learners. Not one size fits all, but skilfully adapted to meet individual need and SEND/SEMH need. In Maths we have high expectations of all our students and ensure an inclusive environment by using adaptive teaching to ensure all learners are able to access the curriculum.

# Primary Maths Curriculum

*‘What is mathematics? It is only a systematic effort of solving puzzles posed by nature.’*  
– Shakuntala Devi

The intent of our mathematics curriculum is to be a curriculum, which is accessible to all and will maximise the development of every child’s ability and academic achievement. We deliver lessons that are creative, engaging whilst identifying gaps in learning and work on these with the pupils. Many pupils in an APA have missed lessons or not been emotionally able to engage in learning due to the challenging behaviours and additional needs. Pupils can have fundamental gaps in their mathematical understanding that are significantly affecting their confidence and ability to move forward. To identify strengths in understanding and ability, as much as it is important to work on what pupils can’t do, we need to show them what they are capable of and CELEBRATE their successes. Building confidence and self-esteem is vital for the pupils in an APA in terms of longer-term engagement with learning. We want children to make rich connections across mathematical ideas to develop fluency, mathematical reasoning, and competence in solving increasingly sophisticated problems. For pupils to be able to apply their mathematical knowledge to a wide range of subjects and understand that it is essential to everyday life and necessary for financial literacy and most forms of employment. As our pupil’s progress, our intention is for the pupils to have the ability to reason mathematically. This will help to support our pupils gain qualifications that are appropriate to their ability and potential. Ultimately our aim is to foster an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Maths Primary Curriculum Implementation Model...



The White Rose scheme covers all aspects of the national curriculum and is sequenced so that topics that rely upon other areas of maths are taught first, it is also structured so that the same topic is not always at the end of the year to minimise the chance of a topic not being

covered. It has been designed by experts to develop conceptual understanding through the use of concrete, pictorial and abstract representations. The schemes of work also support the development of reasoning and problem solving as well as fluency. The small steps approach which are sequenced in order of difficulty allows all pupils to learn at their own pace whilst still achieving high standards. This approach is particularly useful with mixed ability classes and enables our teachers to adapt the curriculum based on the pupil's prerequisite knowledge. Key concepts are interleaved throughout the curriculum to ensure the long-term retention of knowledge. We use the White Rose [Calculations Policies](#) to ensure a consistent approach that promotes progression in the teaching of calculations at KS1 and KS2.

The majority of our classes in our behaviour APA primary settings are structured as:

Key Stage 1

Lower Key Stage 2

Upper Key Stage 2

At times, the above make up of classes, or in a 2 Teacher primary setting, this may vary.

For this reason we run a rolling Year A and Year B Primary curriculum for Foundation Subjects and Science. In Maths and English, pupils are entirely taught at stage not age and thus planning is highly individualised by teachers.

## Maths Overviews:

### Years 1 and 2

	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	NUMBER Place Value			NUMBER Addition and Subtraction						NUMBER Place Value and Multiplication		
Spring	NUMBER Division		NUMBER Place Value/Statistics		MEASUREMENT Length and Height	GEOMETRY Shape			NUMBER Fractions		Consolidation	
Summer	GEOMETRY Position and Direction	MEASUREMENT Time		Problem Solving		MEASUREMENT Weight, Volume, Mass, Capacity, and Temperature			Investigations and Consolidation			

### Years 3 and 4

	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	NUMBER Place Value			NUMBER Addition and Subtraction						NUMBER Multiplication and Division		
Spring	NUMBER Multiplication and Division		MEASUREMENT Length, Perimeter and Area		NUMBER Fractions			MEASUREMENT/NUMBER Mass and Capacity/Decimals		Consolidation		
Summer	NUMBER Decimals			MEASUREMENT Time		STATISTICS Statistics		GEOMETRY Position and Direction				

## Years 5 and 6

	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	NUMBER Place Value		NUMBER Four Operations				NUMBER Fractions					
Spring	NUMBER Fractions		NUMBER Decimals and Percentages			NUMBER Decimals		MEASUREMENT Converting Units	MEASUREMENT Area, Perimeter and Volume		STATISTICS Statistics	
Summer	GEOMETRY Properties of Shapes		GEOMETRY Position and Direction SATS		Investigations and Consolidation							

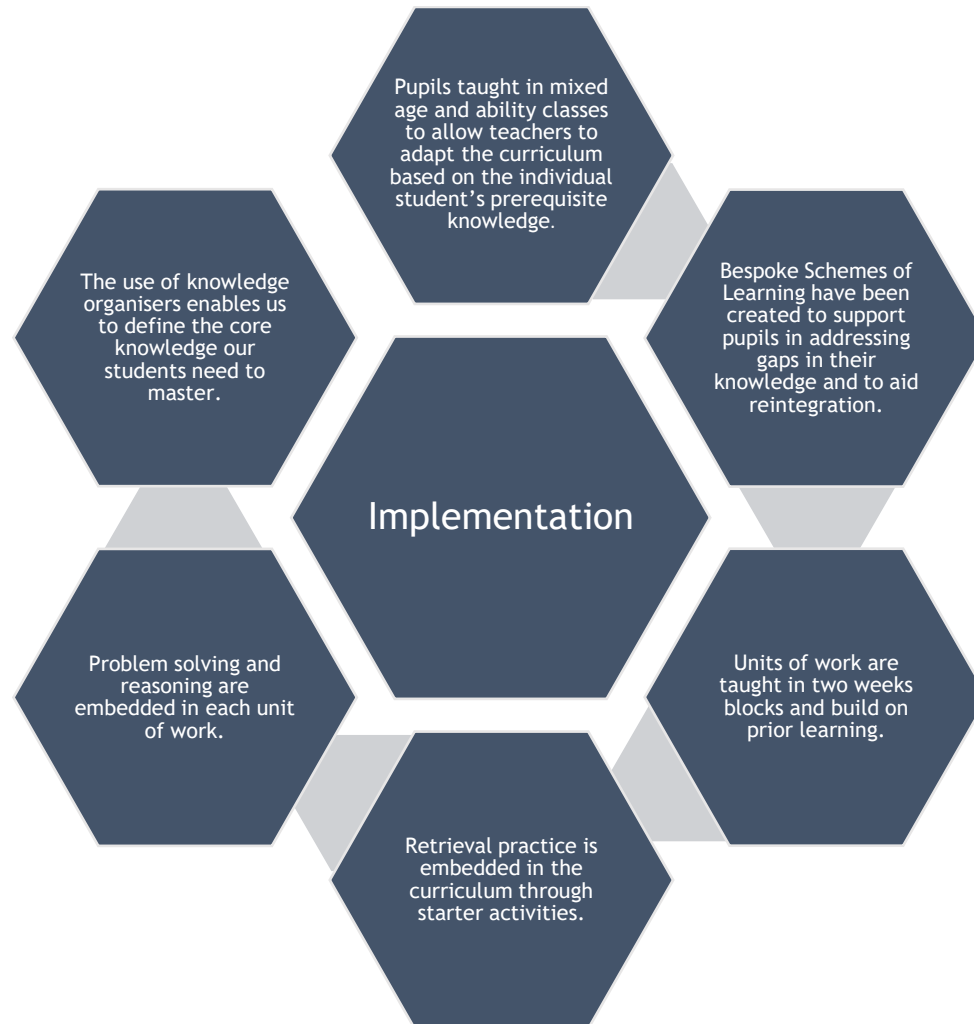
# Secondary Maths Curriculum

*'Pure mathematics is, in its own way the poetry of logical ideas.'*

– Albert Einstein

The intent of our mathematics curriculum is to be a curriculum, which is accessible to all and will maximise the development of every child's ability and academic achievement. We deliver lessons that are creative, engaging whilst identifying gaps in learning and work on these with the pupils. Many pupils in an APA have missed lessons or not been emotionally able to engage in learning due to the challenging behaviours and additional needs. Pupils can have fundamental gaps in their mathematical understanding that are significantly affecting their confidence and ability to move forward. To identify strengths in understanding and ability, as much as it is important to work on what pupils can't do, we need to show them what they are capable of and CELEBRATE their successes. Building confidence and self-esteem is vital for the pupils in an APA in terms of longer-term engagement with learning. We want children to make rich connections across mathematical ideas to develop fluency, mathematical reasoning, and competence in solving increasingly sophisticated problems. For pupils to be able to apply their mathematical knowledge to a wide range of subjects and understand that it is essential to everyday life and necessary for financial literacy and most forms of employment. As our pupil's progress, our intention is for the pupils to have the ability to reason mathematically. This will help to support our pupils gain qualifications that are appropriate to their ability and potential. Ultimately our aim is to foster an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

# Implementation





# Key Stage 3

KS3 have 4-5 lessons a week and follow a scheme of work which is an amalgamation of the White Rose schemes for years 7/8/9. This ensures all aspects of the National Curriculum are covered and enables for differentiation in mixed ability and mixed year group classes. Each module is approximately 2 weeks in length and has been sequenced to build on prior knowledge for example they will learn how to use a protractor before being asked to construct a pie chart or how to convert between fractions, decimals, and percentages before talking probability. Each lesson begins with a starter which has been written to address gaps in knowledge and as part of a retrieval curriculum. The starters cover the current topic, one from 2 weeks prior and another from 4 weeks prior. However, with some KS3 students who have low levels of numeracy their starters may focus on a helping them to master a fundamental skill that is necessary for their progression such as knowing their times tables. Once a topic students will complete a problem solving or real-life based task to develop their mathematical reasoning and appreciation for the maths all around them. Our curriculum is designed to be adaptive and based on the prerequisite knowledge of the pupils we teach. Maths Leads in each setting rotate the below map in Year A and Year B, so pupils who are with us for longer than a year spiral and revisit the topics laid out below, further deepening their knowledge within the topic, rather than repeating content.

## Overview

	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	NUMBER Calculations		GEOMETRY Constructions and Loci		STATISTICS Charts and Graphs		NUMBER Fractions, Decimals and Percentages		ALGEBRA Sequences, Functions and Graphs		GEOMETRY Measures	
Spring	NUMBER Types and Properties of Number		ALGEBRA Simplifying and Substitution		NUMBER Ratio and Proportion		GEOMETRY Lines, Angles and Shapes		NUMBER Rounding and Accuracy		ALGEBRA Forming and Solving Equations	
Summer	GEOMETRY Transformations		NUMBER Percentages		STATISTICS Averages		GEOMETRY Area and Perimeter		NUMBER Fractions	GEOMETRY Volume and Surface Area		STATISTICS Probability

# Key Stage 4

KS4 are following a scheme of work based on the AQA GCSE objectives. Each module is approximately 2 weeks in length and has been sequenced to build on prior knowledge. Every lesson begins with a Corbett maths 5 a day starter which is differentiated according to ability, but not in a way that limits attainment. Using these starters serves to address any gaps in knowledge and as part of retrieval process which aims to embed key mathematical concepts in pupils' long-term memory. The main part of the lesson will focus on the current topic and will build on skills developed in the previous lesson (except at the start of the module). Due to a wide range of abilities in classes the work is differentiated by the level of support offered to pupils rather than by outcome for all pupils following the same scheme of work. Both year 10 and year 11 follow a one-year scheme of work to ensure that if a pupil is reintegrated into mainstream at the start of year 10 or joins us at the start of year 11, they are not disadvantaged by not being taught the entirety of the curriculum. This does not mean that pupils staying with us repeat the same work. Pupils are taught in small groups, and the work is carefully planned to add breadth and depth. Problem solving tasks or exam style question are used on a regular basis to help pupil improve their mathematical reasoning and to interleave different mathematical areas together. Our curriculum is designed to be adaptive and based on the prerequisite knowledge of the pupils we teach.

## 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	NUMBER Types and Properties of Number		ALGEBRA Sequences, Functions and Graphs		GEOMETRY Lines, Angles and Shapes		NUMBER Fractions, Decimals and Percentages		STATISTICS Charts and Graphs		GEOMETRY Constructions and Loci	
Spring	NUMBER Calculations and Accuracy	GEOMETRY Transformations		ALGEBRA Simplifying and Substitution		NUMBER Ratio and Proportion		GEOMETRY Pythagoras and Trigonometry		ALGEBRA Equations and Inequalities		NUMBER Percentages
Summer	NUMBER Percentages	GEOMETRY Area and Perimeter		STATISTICS Probability	GEOMETRY Volume and Surface Area		NUMBER Fractions		STATISTICS Averages		GEOMETRY Measures	

## 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	NUMBER Types and Properties of Number		ALGEBRA Sequences, Functions and Graphs		GEOMETRY Lines, Angles and Shapes		NUMBER Equivalent FDP	STATISTICS Charts, Graphs and Averages		GEOMETRY Constructions and Loci		NUMBER Rounding and Accuracy
Spring	GEOMETRY Transformations		ALGEBRA Simplifying and Substitution		NUMBER Ratio and Proportion		GEOMETRY Pythagoras and Trigonometry		ALGEBRA Equations and Inequalities		NUMBER Fractions and Percentages	
Summer	GEOMETRY Area, Perimeter & Volume	STATISTICS Probability	GEOMETRY Measures		REVISION							GEOMETRY Area, Perimeter & Volume

# Shared resources

We have an active maths area on SharePoint where our teachers share resources and work collaboratively.

## Subscriptions

- White Rose Maths
- Dr Frost Maths

All our School make use of the wealth of free maths resources that are available such as:

- Corbett Maths
- Maths Bot
- NRich
- Pixi Maths
- Mr Barton Maths
- Maths White Board
- Starting Points Maths
- NCTEM

## The SAL (Subject Advisory Lead)

The SAL role is part of the Trust School Development Team, and supports the subject, particularly with regard to behaviour AP settings and Special (Medical have their own dedicated Subject Leads who lead their own department) Medical Subject Leads and the SAL liaison.

The Subject Advisory Lead are full time subject specialist classroom practitioners and receive a TLR to:

Champion the subject and its intent; coordinate a SharePoint of resources; lead the half termly Subject Network Meetings and contribute to the Primary network; coach and advise staff; plan needs driven CPD at 2 Trust INSET days a year.

These days are a significant part of the Trust INSET calendar. The SAL plans and leads the day where the subject network will come together as one time to develop subject and pedagogical knowledge and practice around issues of assessment, EDI, disciplinary literacy, cognitive science and educational research, national Hub guidance as relevant to that subject, EEF etc and in line with the Trust strategic plan and subject development plan.

The SAL supports the Maths Subject Leader in the AP keep up to date with best practice as well as provide guidance and support for the ongoing refinement of the curriculum and assessment practices.

We hope that all subject leads, and new members of staff, at whatever level of experience as practitioners, will actively contribute to the network, playing their part as we work as a Team.

In the allocated Trust SAL days, they can support the SLT in the school with their monitoring of the curriculum area up to 2 times a year, coach/advise as needed; and signpost relevant CPD. They cannot replace accountability with school leaders on the ground for the monitoring of the implementation and impact of the subject curriculum within their Academy.

# Assessment in maths

## Please also refer to the Trust Assessment Policy

### Primary:

White Rose termly assessments are used to track and evaluate pupil progress along with formative assessment opportunities in every lesson.

### Secondary:

At Wave we have a dynamic and comprehensive approach to assessment that fosters a deep understanding of mathematical concepts, promotes student growth and addresses gaps in students understanding. Our assessment strategies are designed to provide meaningful insights into students' progress while encouraging a positive and collaborative learning environment.

We use a range of assessment tools to check and monitor students' progress and understanding; from base line tests, diagnostic questioning, low stakes quizzes, end of topic assessments and mock exams. We strive to evaluate not only knowledge but also critical thinking, problem-solving skills, and application of mathematical concepts in real-world scenarios.

Our assessments are aligned with our curriculum, ensuring that each evaluation is purposeful and directly contributes to the development of key mathematical skills. This targeted approach allows us to track progress on a granular level and tailor instruction to meet individual student needs.

Real-time feedback is crucial for student success. We incorporate formative assessment strategies into our daily lessons, enabling teachers to gauge understanding, identify misconceptions, and adapt their teaching strategies promptly. This process ensures that students receive the support they need when they need it most.

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# Maths at Penwith Academy

At Penwith in our **secondary department** students are taught in the following three groups:

- Key stage 3
- Year 10
- Year 11

Class sizes are no more than 7, with the addition of a higher level teaching assistant to support learning. The aim of the curriculum is to develop thinking and problem-solving skills in our students so that they can become increasingly independent. This is done by identifying any gaps, then setting work at a level that addresses these, while also stretching them to achieve their best. Through the sequence of lessons students are taught to develop fluency, reason mathematically and solve problems this is achieved through 6 different areas:

- number
- algebra
- ratio, proportion and rates of change
- geometry and measures
- Probability
- Statistics

These subject content areas are broken up across the year ensuring students who join in the academic year do not miss out on an opportunity to develop the key skills needed to be able to access the entire breath of the curriculum.

At Key Stage 3 classes consist of students in years 7-9, while all students follow the same learning journey, work is differentiated to their specific ability and needs.

In Key Stage 4 students follow one of two learning journeys in preparation for sitting either the AQA foundation or higher GCSE exam at the end of year 11. The learning journey repeats itself in both year 10 and 11 therefore covering all areas of the curriculum to. In year 10 greater focus is placed on developing the key skills and techniques required to be successful, in year 11 greater focus is placed on the problem-solving element using the skills developed in year 10 and the ability to successfully decode the questions and allow them to be successfully answered. In addition to preparing for their GCSE exams all students in both year 10 and 11 will be prepared for and have the opportunity to sit exams in AQA functional skills at both level 1 and level 2.

In our **primary department**, we strive to help our pupils be confident mathematicians who are well equipped to use maths in their every day lives. All classes use the White Rose maths Scheme which covers the National Curriculum and helps children develop their conceptual understanding of mathematics by using a range of pedagogical approaches. This is an inclusive approach that takes into account individual learning needs and progression. Teachers adapt the scheme so that it meets the needs of our individual pupils. We make explicit links with how maths is used in other subject areas and in our everyday lives boosting the relevance of the subject which supports engagement for our

pupils. We practise maths skills such as times tables, number bonds and mental arithmetic daily as being able to recall these quickly boosts confidence to have a go at a mathematical challenge with more confidence and resilience.