

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.

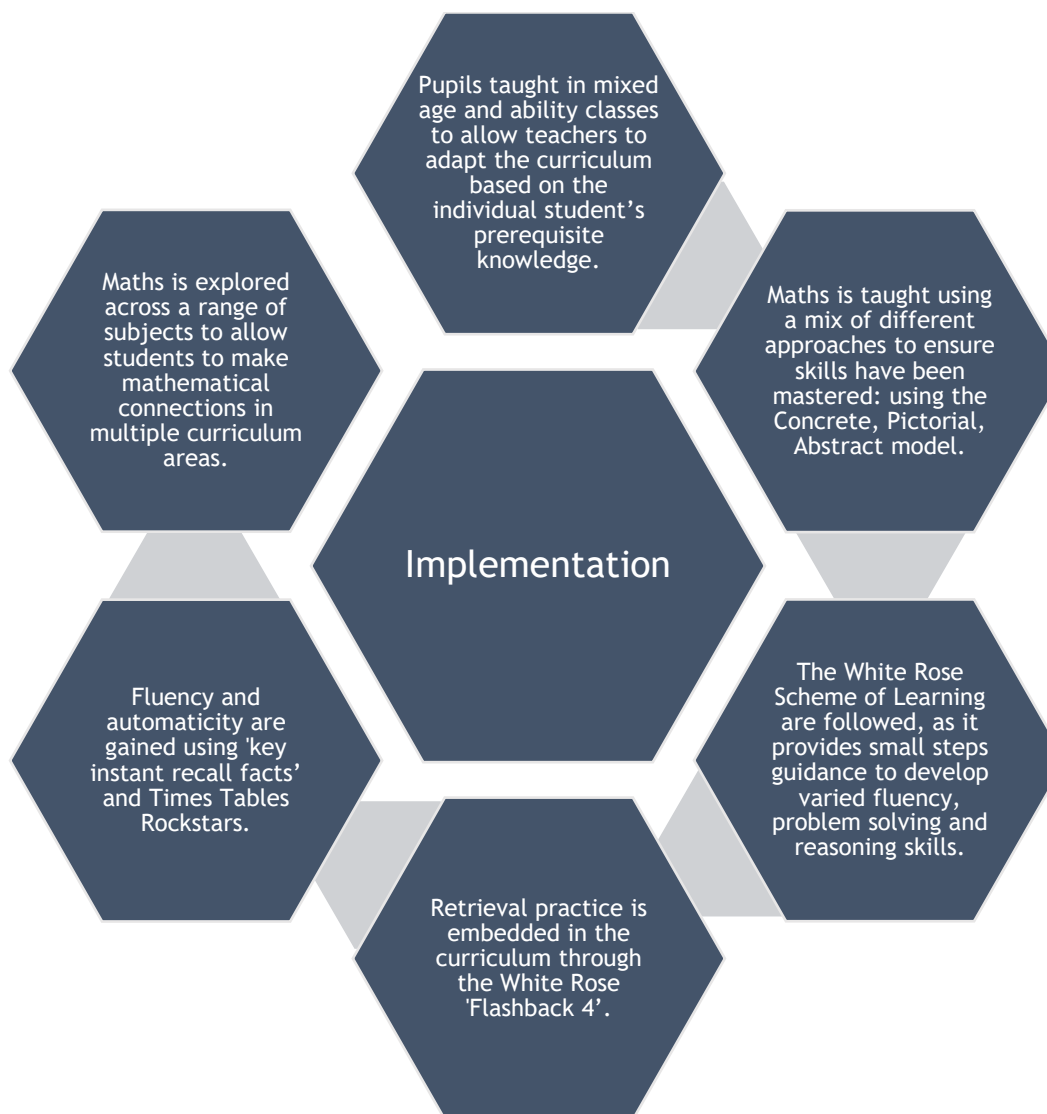
Primary Maths Curriculum

‘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 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:

Keys 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 | | | | | | | |

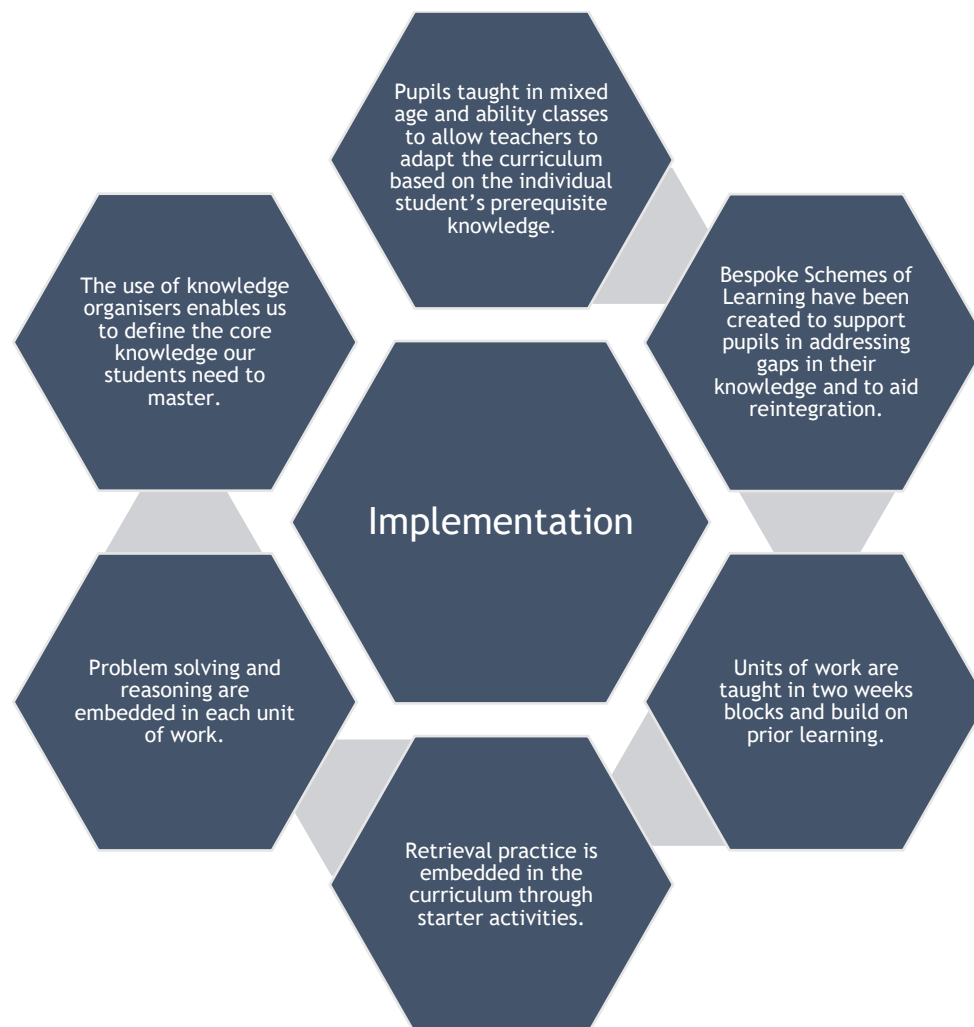
Secondary Maths Curriculum

‘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 | | GEOMETRY Area, Perimeter & Volume | |
| Summer | GEOMETRY Area, Perimeter & Volume | STATISTICS Probability | GEOMETRY Measures | REVISION | | | | | | | | |

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.

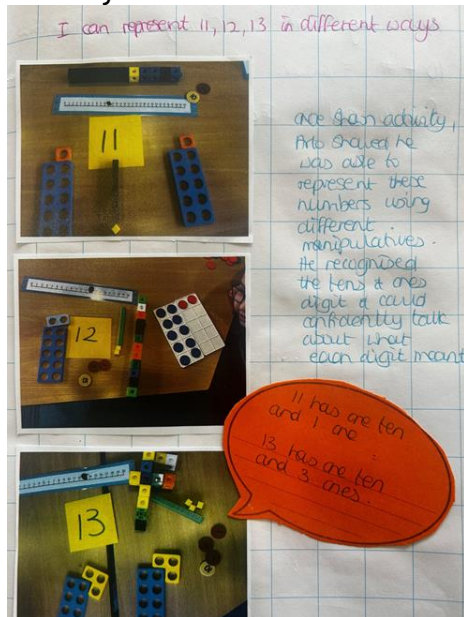
We use a range of assessment tools to check and monitor students' progress and understanding; from base line tests, diagnostic questioning, low stakes quizzes, end of topic assessments and mock exams. We strive to evaluate not only knowledge but also critical thinking, problem-solving skills, and application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



Primary Maths at Shoreline Academy



At Wave Primary we follow White Rose Maths, a programme of study that is influenced and inspired by researchers and practitioners across the world, which follow a mastery approach to learning maths. Students are assessed on entry to ensure teaching is appropriately matched to ability, and that gaps in knowledge are addressed. Students are then timetabled according to stage and participate in a 50 minute maths lesson each day in KS1 and 60 minutes in KS2. These small teaching groups are supported by a teaching assistant, and lessons are adapted and fluid to ensure the needs of all our students are met, giving options for 1:1 teaching if necessary. We follow the mixed-age planning from White Rose Maths so we are able to scaffold for the less able learners, and ensure there are challenge points for the more able. Flashback four slides allows prior learning to be revisited and recapped at the start of every lesson. Units of work usually last 2-3 weeks and a significant amount of time is devoted to developing key number concepts over the year. This ensures that students build fluency as number sense will affect their success in other areas of mathematics. Within a series of lessons around an area of learning, a concrete, pictorial and abstract (CPA) approach is used and children learn to build their skills through fluency activities, problem solving and reasoning. This enables our children to develop into confident, independent mathematicians.

We believe that all children, when introduced to a new concept, should have the opportunity to build competency by taking this approach:

- children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing
- alongside this, children should use pictorial representations. These representations can then be used to help reason and solve problems
- both concrete and pictorial representations should support children's understanding of abstract methods

In KS1, problems are almost always presented with objects (concrete manipulatives) for children to use. Materials such as dienes, numicon, number lines, number fans, bead strings and place value cards can be readily seen during the day-to-day teaching of numeracy. Children also use manipulatives in KS2 if needed and well as ICT resources and games to embed learning. 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. Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems.

At primary we draw on other resources to support and enhance our core curriculum such as NRich Activities, Top Marks interactive challenges and board and card games, as well as utilising our outdoor environment to ensure our students are getting broad, balanced, enriching and exciting learning opportunities both inside and outside the classroom.

Secondary Maths at Shoreline Academy

At Shoreline our secondary students are taught in mixed year groups in Key Stage 3 and in Year Groups for years 10 and 11. Some students have an online learning provision which allows for completely personalised learning. Class sizes are small with the addition of a 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. Our curriculum is designed to develop students' problem solving and reasoning skills alongside addressing any gaps in their mathematical knowledge and stretching them so that they can achieve their full potential. 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 and
Proportion

Statistics

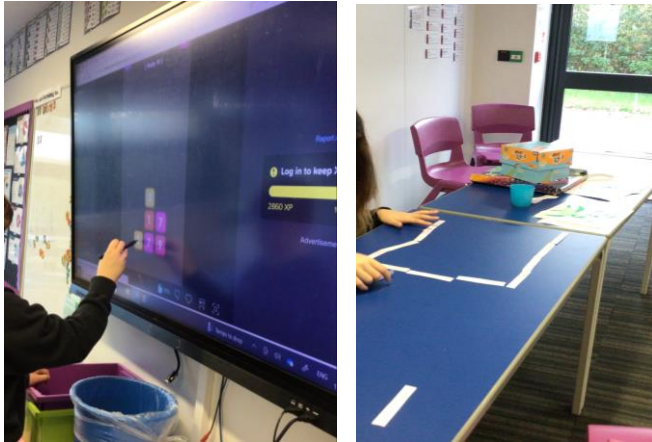
Geometry

Probability

These subject content areas are broken up across the year to ensure that whenever students join in the academic year, they do not miss out on an opportunity to develop the key skills needed to be able to access the entire breath of the curriculum. Frequent revisiting of the 6 areas also allows for revision and practice of the relevant skills.

We are committed to fostering a strong foundation in numeracy skills across the curriculum. We believe that numeracy is a vital aspect of a well-rounded education, extending beyond traditional Maths classes. Numeracy is integrated into subjects, providing students with real-world applications and problem-solving opportunities. Through this holistic approach, students not only develop a solid understanding of mathematical principles but also gain the ability to apply these skills in different academic and everyday scenarios. Our aim is to empower students with the confidence and proficiency in numeracy that will serve them well in their academic pursuits and future endeavours.

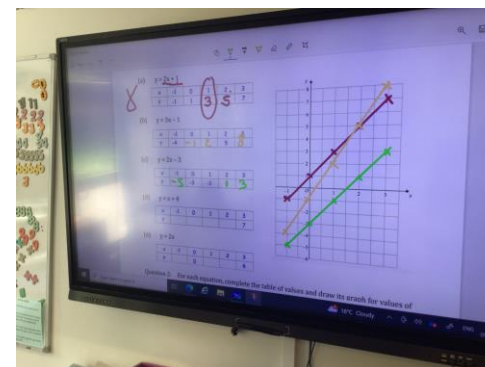
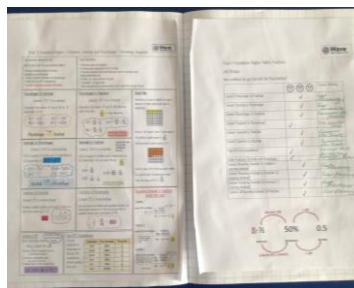
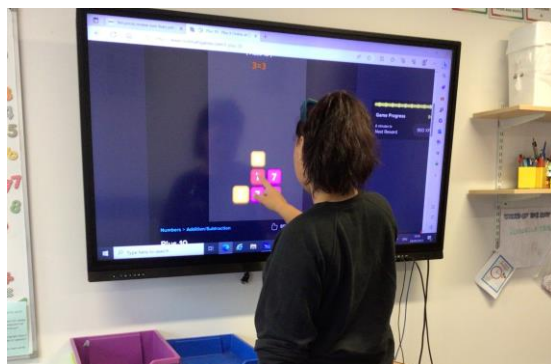
KS3



KS3 have 4 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. 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 a variety of topics, allowing for revisiting of previously learnt techniques as well as being able to practice recently acquired skills. 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 week 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 allows students to regain their confidence in the subject and enhances their 'Readiness for ReIntegration' as well as laying strong foundations for progression to GCSE.

KS4

KS4 follow 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 (differentiated according to ability) or an Interactive online starter based on real life maths skills, this allows for discussion and verbal reasoning practice. 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, rolling 'Recovery Curriculum' 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. 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.

We offer our KS4 students the opportunity to take 3 maths qualifications depending on their own individual needs. Entry level certificate, Functional Skills, and GCSE Maths. This is to provide them with the best possible opportunities at college and beyond