South Hams Hub: Mathematics

Our Overarching Curriculum Intent

Our curriculum is the beating heart of our academy and is rooted in John 10:10.

"I came that they might have life and live it to the full"

Our children will flourish through experiencing a knowledge-rich curriculum which is both broad and balanced and fosters a love of learning, enabling all children to make connections and be well prepared for the next stage of their education.

Curriculum Intent for Mathematics

As mathematicians, our children will develop a deep conceptual understanding through exploration, reasoning and problem solving of all areas. We expect our children to explain and articulate their understanding and become fluent in number so they can use known number facts to make efficient choices with calculations.

They will make connections and discover patterns to take creative approaches when faced with challenges and show appreciation of the beauty and power of Mathematics. We aim to develop resilient learners and our children take time to deepen their understanding of mathematical structures through the use of resources and representations.

Fluency in number facts

All classes have a daily 15-minute fluency session, in addition to the main maths lesson. In Key Stage 1, the focus is on additive fact fluency and in Key Stage 2 the focus is on multiplicative fluency. Evidence tells us that children who can recall facts enjoy and are able to master the maths curriculum easier than the children who can't recall these facts.

How we teach Mathematics

The Trust's long-term planning document is the National Curriculum 2014 Programme of Study. This should always be a teacher's first starting point for reference, particularly the first two pages which highlight the three aims underpinning all Trust CPD, teaching and learning activity in mathematics.

Teachers use the **DfE NSG RTP materials** and **White Rose block overview** to organise the teaching sequences for maths in their class, which:
- Gives an overview of what is to be taught and when
- Provides a clear end goal for what children need to be able to progress in the next phase of their learning

- is based on age appropriate content to ensure children move through the curriculum at broadly the same pace
- supports the small steps in learning for each area of mathematics
- draws on key representations to use that support children to see and understand the structure of the mathematics

Any materials that are used to support learning and teaching pedagogy are interrogated by teachers, who consider why those specific examples have been chosen and how the representations expose the structure of the mathematical concept being taught. Teachers have the flexibility to supplement these resources with others, as they feel appropriate to the needs of the children.

In our aim to develop mathematical thinkers, a reasoning culture should be evident in every classroom: children expect to have to justify their answers, show their thinking, explain their methods and find more than one solution.

In line with Dienes' research on the six stages of learning our lessons start with a problem that all children can access (the teacher ensures that this is the case) and children are expected to work collaboratively to solve it, exploring and discovering the maths for themselves, before scaffolding up and applying concepts to different contexts, in pairs and then independently. Vygotsky's work talks of rich discussion and peer talk and this is a fundamental part of this aspect of the lesson, as children talk and work together to internalise their thinking and restructure their thoughts.

We expect the majority of our children to move through the programme of study for their year group at broadly the same pace, respecting teacher's professional judgement in making decisions about readiness to progress to the next stage, although this will not be into new content from a year group above. Rapid graspers are challenged through rich and sophisticated problems and expected to demonstrate their reasoning, explain their thinking to others and be able to model the concept in more than one way to show a true depth of understanding and grasp of the topic.

Some classes across the Hub will be taught in line with the single age planning overviews, whereas others will follow the mixed age overviews. This reflects the teacher's professional judgement and the make up of each class.

Mathematics in the Early Years

Our children are provided with a wealth of opportunities that empower them to develop a range of transferable knowledge, skills and attributes including problem-solving, observation, collaboration, resilience and curiosity. These combine to allow them to explore, interpret and experience the world around them, as well as providing the foundations on which all future learning can be built.

Carefully planned learning opportunities enable the children to make sense of their physical world and community through a range of personal experiences. These will be expertly planned around the interests of the children and empower them to develop their design and construction knowledge and skills collaboratively and independently.

EYFS: Nursery

Number and Place Value					
Counting	*Identifying, Representing and Estimating Numbers*	*Reading and writing numerals*	*Compare and order numbers*	*Understanding place value*	*Solve problems*
Recite numbers past 5. Say one number name for each item in order: 1, 2, 3, 4, 5. Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').	Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Show 'finger numbers' up to 5. Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	Compare quantities using language: 'more than', 'fewer than'.	Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to 10.	Solve real world mathematical problems with numbers up to 5.

Pattern, Shape, Space and Measure				
Describing	*Telling the time*	*2D and 3D shapes*	*Position and Direction*	*Pattern*
Make comparisons between objects relating to size, length, weight and capacity.	Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then…'	Talk about and explore 2D and 3D shapes (for example, circles, rectangles,	Understand position through words alone – for example, "The bag is	Talk about and identify the patterns around them. For example, stripes on clothes,

		triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'. Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.	under the table," – with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'.	designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.

EYFS: Reception

In Reception, teachers make use of the NumberSenseMaths materials to structure their direct teaching on number, as outlined above. This programme is rich in mathematical talk and focuses on the structure of number, with plenty of opportunities to practice and revisit concepts.

Pattern, Shape, Space and Measure are taught drawing on development Matters, the ECMG spatial reasoning toolkit, Learning trajectories (Clements and Sarama) and the NCETM progression documents.

During Number weeks the provision maintains a rich non -number focus, based on the previous unit, as well as supporting the development of the number focus.

All adults are clear about the Maths focus and intended outcomes mathematically in each area of the provision, teaching through children's play.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Settling, Baseline, All About Me			Non-Number		Number: Subitising quantities to 3	
				Spatial reasoning *Construction and 3D shapes*	Spatial reasoning *Construction and 3D shapes*	Book1: Subitising 1-2	Book 2: Subitising 1-3
				Continue spatial reasoning for rest of term through provocations in continuous provision			
				Numberblocks Series 1, episodes 1 -15 (focus One to Five)			
Autumn 2	Non-Number		Number: Subitising quantities to 5				
	Spatial reasoning *2D shapes and shape puzzles*	Spatial reasoning *2D shapes and shape puzzles*	Book 3: Subitising 1 - 4	Book 3: Subitising 1 - 4	Book 4: Subitising 1 - 5	Book 4: Subitising 1 - 5	
	Continue spatial reasoning for rest of term through provocations in continuous provision						
	Numberblocks – watch again Series 1, episodes 1 -15 (focus One to Five) this embeds a deep understanding of numbers to 5						

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Spring 1	Non-Number		Number: Enumerating between 6 and 10 items			
	Pattern	Pattern	Book 5: Subitising 6-10	Book 5: Subitising 6-10	Counting out up to 10 items from a collection (not covered by NSM)	
	Continue pattern all term through provocations in continuous provision					
	Numberblocks Series 2, episodes 1 -15 (focus Six to Ten)					
Spring 2	Non-Number	Partitioning 2, 3, 4, 5 and 10 and 'number bonds' for these numbers				
	Spatial reasoning *Symmetry (incl. shape puzzles & construction)*	Books 6 & 7: Partitioning 2 and 3	Book 8: Partitioning 4	Book 9: Partitioning 5	Book 10: Partitioning 10	Book 10: Partitioning 10
	Continue spatial reasoning all of term through provocations in continuous provision					
	Numberblocks – watch again Series 3, episodes 1 -15 (more about One to Ten)					

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Summer 1	Non-Number		Number: Composition of 6 – 9 and comparison of numbers to 10			
	Measures	Measures	Book 11: Composition of 6-9	Book 11: Composition of 6-9	Book 12: Comparing numbers to 10	Book 12: Comparing numbers to 10
	Continue measures all term through provocations in continuous provision					
	Numberblocks Series 3, episodes 16 -30 (focus Eleven to Fifteen) supports counting up to and through 20. Further deepens numbers One to Ten					
Summer 2	Number: Patterns in numbers to 10			Non-number		
	Book 13: Patterns in odd and even numbers	Book 13: Patterns in doubles	Book 13: Equal distribution	Pattern	Spatial reasoning *Maps and Plans*	Measure
	Continue spatial reasoning for rest of term through provocations in continuous provision					
	Numberblocks Series 4, episodes 1 -15 (focus Sixteen to Twenty) supports counting up to and through 20. Further deepens numbers One to Ten					

ALL SAINTS' THURLESTONE
CHURCH OF ENGLAND ACADEMY

CHARLETON
CHURCH OF ENGLAND ACADEMY

WEST ALVINGTON
CHURCH OF ENGLAND ACADEMY

Year 1

	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 term	Number **Place value** (within 10) FREE TRIAL VIEW					Number **Addition and subtraction** (within 10) VIEW					Geometry **Shape** VIEW	Consolidation
Spring term	Number **Place value** (within 20) VIEW		Number **Addition and subtraction** (within 20) VIEW			Number **Place value** (within 50) VIEW		Measurement **Length and height** VIEW		Measurement **Mass and volume** VIEW		
Summer term	Number **Multiplication and division** VIEW		Number **Fractions** VIEW		Geometry **Position and direction** VIEW	Number **Place value** (within 100) VIEW		Measurement **Money** VIEW	Measurement **Time** VIEW			Consolidation

ALL SAINTS' THURLESTONE
CHURCH OF ENGLAND ACADEMY

CHARLETON
CHURCH OF ENGLAND ACADEMY

WEST ALVINGTON
CHURCH OF ENGLAND ACADEMY

Year 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 term

Number
Place value
FREE TRIAL
VIEW

Number
Addition and subtraction
VIEW

Geometry
Shape
VIEW

Spring term

Measurement
Money
VIEW

Number
Multiplication and division
VIEW

Measurement
Length and height
VIEW

Measurement
Mass, capacity and temperature
VIEW

Summer term

Number
Fractions
VIEW

Measurement
Time
VIEW

Statistics
VIEW

Geometry
Position and direction
VIEW

Consolidation

ALL SAINTS' THURLESTONE
CHURCH OF ENGLAND ACADEMY

CHARLETON
CHURCH OF ENGLAND ACADEMY

WEST ALVINGTON
CHURCH OF ENGLAND ACADEMY

Year 3

	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 term	Number **Place value** FREE TRIAL VIEW			Number **Addition and subtraction** VIEW					Number **Multiplication and division A** VIEW			
Spring term	Number **Multiplication and division B** VIEW			Measurement **Length and perimeter** VIEW			Number **Fractions A** VIEW			Measurement **Mass and capacity** VIEW		
Summer term	Number **Fractions B** VIEW		Measurement **Money** VIEW	Measurement **Time** VIEW			Geometry **Shape** VIEW		**Statistics** VIEW		Consolidation	

Year 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 term

Number
Place value
FREE TRIAL
VIEW

Number
Addition and subtraction
VIEW

Measurement
Area
VIEW

Number
Multiplication and division A
VIEW

Consolidation

Spring term

Number
Multiplication and division B
VIEW

Measurement
Length and perimeter
VIEW

Number
Fractions
VIEW

Number
Decimals A
VIEW

Summer term

Number
Decimals B
VIEW

Measurement
Money
VIEW

Measurement
Time
VIEW

Consolidation

Geometry
Shape
VIEW

Statistics
VIEW

Geometry
Position and direction
VIEW

Year 5

	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 term	Number **Place value** FREE TRIAL VIEW			Number **Addition and subtraction** VIEW		Number **Multiplication and division A** VIEW			Number **Fractions A** VIEW			
Spring term	Number **Multiplication and division B** VIEW			Number **Fractions B** VIEW		Number **Decimals and percentages** VIEW			Measurement **Perimeter and area** VIEW		**Statistics** VIEW	
Summer term	Geometry **Shape** VIEW			Geometry **Position and direction** VIEW		Number **Decimals** VIEW			Number **Negative numbers** VIEW	Measurement **Converting units** VIEW		Measurement **Volume** VIEW

ALL SAINTS'
THURLESTONE
CHURCH OF ENGLAND ACADEMY

CHARLETON
CHURCH OF ENGLAND ACADEMY

WEST ALVINGTON
CHURCH OF ENGLAND ACADEMY

Year 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 term

Number
Place value
FREE TRIAL
VIEW

Number
Addition, subtraction, multiplication and division
VIEW

Number
Fractions A
VIEW

Number
Fractions B
VIEW

Measurement
Converting units
VIEW

Spring term

Number
Ratio
VIEW

Number
Algebra
VIEW

Number
Decimals
VIEW

Number
Fractions decimals and percentages
VIEW

Measurement
Area, perimeter and volume
VIEW

Statistics
VIEW

Summer term

Geometry
Shape
VIEW

Geometry
Position and direction
VIEW

Themed projects, consolidation and problem solving
VIEW

Mixed Years 1 & 2

	Weeks		
Autumn term	Number — Place value (within 10) [VIEW]	Number — Addition and subtraction (within 10) [VIEW]	Geometry Shape [VIEW] / Consolidation
Autumn term	Number — Place value [VIEW]	Number — Addition and subtraction [VIEW]	Geometry — Shape [VIEW]
Spring term	Number — Place value (within 20) [VIEW] / Number — Addition and subtraction (within 20) [VIEW]	Number — Place value (within 50) [VIEW] / Measurement — Length and height [VIEW]	Measurement — Mass and volume [VIEW]
Spring term	Measurement — Money [VIEW] / Number — Multiplication and division [VIEW]	Measurement — Length and height [VIEW]	Measurement — Mass, capacity and temperature [VIEW]
Summer term	Number — Multiplication and division [VIEW] / Number — Fractions [VIEW] / Geometry Position and direction [VIEW]	Number — Place value (within 100) [VIEW] / Measurement Money [VIEW]	Measurement — Time [VIEW] / Consolidation
Summer term	Number — Fractions [VIEW]	Measurement — Time [VIEW]	Statistics [VIEW] / Geometry — Position and direction [VIEW] / Problem solving

Mixed Years 3 & 4

	Weeks		
Autumn term	Number — Place value [VIEW]	Number — Addition and subtraction [VIEW]	Number — Multiplication and division A [VIEW]
Autumn term	Number — Place value [VIEW]	Number — Addition and subtraction [VIEW] / Measurement Area [VIEW]	Number — Multiplication and division A [VIEW] / Consolidation
Spring term	Number — Multiplication and division B [VIEW]	Measurement — Length and perimeter [VIEW]	Number — Fractions [VIEW]	Measurement — Mass and capacity [VIEW]
Spring term	Number — Multiplication and division B [VIEW]	Measurement — Length and perimeter [VIEW]	Number — Fractions [VIEW]	Number — Decimals [VIEW]
Summer term	Number — Fractions [VIEW]	Measurement — Money [VIEW]	Measurement — Time [VIEW]	Geometry — Shape [VIEW]	Statistics [VIEW]
Summer term	Number — Decimals [VIEW]	Measurement — Money [VIEW]	Measurement — Time [VIEW] / Consolidation	Geometry — Shape [VIEW] / Statistics	Geometry — Position and direction [VIEW]

Mixed Years 4 & 5

	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 term	Year 4 – Number: Place value VIEW			Year 4 – Number: Addition & subtraction VIEW			Year 4 – Number: Multiplication & division VIEW			Year 4 – Measurement: Length, perimeter & area VIEW		
Autumn term	Year 5 – Number: Place value VIEW			Year 5 – Number: Addition & subtraction VIEW			Year 5 – Number: Multiplication & division VIEW			Year 5 – Measurement: Length, perimeter & area VIEW		
Spring term	Year 4 – Number: Multiplication & division VIEW			Year 4 – Number: Fractions VIEW					Year 4 – Number: Decimals VIEW			
Spring term	Year 5 – Number: Multiplication & division VIEW			Year 5 – Number: Fractions VIEW					Year 5 – Number: Percentages VIEW			
Summer term	Year 4 – Number: Decimals VIEW		Y4 – Measurement: Time VIEW	Statistics VIEW		Year 4 – Geometry: Properties of shape VIEW			Y4 – Geometry: Position & direction VIEW	Consolidation		
Summer term	Year 5 – Number: Money VIEW		Y5 – Measurement: Time VIEW	Statistics VIEW		Year 5 – Geometry: Properties of shape VIEW			Y5 – Geometry: Position & direction VIEW	Year 5 – Measurement: Converting units & volume VIEW		Consolidation

Mixed Years 5 & 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 term	Number: Place value VIEW			Number: Addition and subtraction VIEW			Number: Multiplication and division A VIEW			Number: Fractions A VIEW		
Autumn term	Number: Place value VIEW		Number: Four operations VIEW						Number: Fractions A VIEW		Number: Fractions B VIEW	Measurement: Converting units VIEW
Spring term	Number: Multiplication and division B VIEW			Number: Fractions B VIEW			Number: Decimals and percentages VIEW			Measurement: Perimeter and area VIEW		Statistics VIEW
Spring term	Number: Ratio VIEW		Number: Algebra VIEW		Number: Decimals VIEW		Number: Fractions, decimals and percentages VIEW		Measurement: Area, perimeter and volume VIEW			Statistics VIEW
Summer term	Geometry: Shape VIEW			Geometry: Position and direction VIEW			Number: Decimals VIEW			Number: Negative numbers VIEW	Measurement: Converting units VIEW	Measurement: Volume
Summer term	Geometry: Shape VIEW			Geometry: Position and direction VIEW	Themed projects, consolidation and problem solving							

ALL SAINTS' THURLESTONE — CHURCH OF ENGLAND ACADEMY

CHARLETON — CHURCH OF ENGLAND ACADEMY

WEST ALVINGTON — CHURCH OF ENGLAND ACADEMY