



Mathematics scheme of work

“In mathematics, the art of proposing a question must be held of higher value than solving it.” - George Cantor

Christian values underpinning learning: To develop a life of faith in God and **respect** for the dignity of all human beings; to nurture **resilient** thinkers rather than mere reflectors of others' thoughts; to promote **compassion, co-operation** and **happiness** through loving service rather than selfish ambition; to ensure maximum development of each individual's potential; and to embrace all that is true, good, and beautiful.

Intent

The National Curriculum (2014) forms the basis for all subject teaching ensuring continuity and progression in an age-related curriculum. In addition, teachers make sure the content is relevant and stimulating. We believe that all children are entitled to receive a high-quality of education regardless of their needs or disabilities. Teachers will ensure that all pupils needs are identified and reviewed regularly, and that appropriate support is put in place. We work in collaboration with the children’s parents, external agencies and other professionals to ensure that there is a collaborative approach to supporting our pupils with SEND. Teachers will provide a learning environment that is tailored to the needs of all pupils including those with additional needs. It is our intention that our children will be equipped with the skills needed to become independent learners, both inside and outside of the classroom. All pupils should expect to receive an education that enables them to achieve the best possible outcomes, and become confident, able to communicate their own views and ready to make a successful transition into secondary school and then adulthood.

At Fletewood School, we believe that:

Mathematics is an essential life skill used by everyone, every day.

- All pupils should leave our care as keen, curious learners of Mathematics with a positive ‘can do’ attitude.
- All pupils should experience a Mathematics environment which is motivational, inspiring and number-rich.
- As pupils continue through their school journey, they should develop the confidence and skills to calculate fluently, reason confidently and solve problems efficiently. They will be encouraged to work both independently and interdependently, following lines of enquiry,

justifying their arguments and conjectures using the correct mathematical language. They will develop persistence in their pursuit of answers when problem solving and will be taught to approach problems systematically, creatively and with curiosity.

- Pupils should learn to be self-reflective and understand that making mistakes/ errors is an essential part of the learning process.
- Our youngest pupils should begin their mathematical journey by developing early number sense, giving them the foundational skills needed to confidently reason and solve mathematical problems.
- Most pupils should move through the Programmes of Study at broadly the same pace. Pupils who grasp concepts quickly will be provided with high quality, sophisticated problems to solve to thoroughly embed their understanding. Those pupils who are less secure will be given time to consolidate through additional practice where needed.

Implementation

All pupils including those with SEND will be provided with high quality teaching and resources adapted to meet their individual needs. Where appropriate, pupils may be supported 1:1 or in a small group to enable them to access the curriculum.

- Our Mathematics curriculum at Fletewood School is delivered with the support of the Hamilton Trust Mathematics scheme of work for mixed aged classes. We also use the web-based learning programmes TT Rockstars and IXL that integrate home and school learning via the internet. The Hamilton Trust scheme of work supports teachers to deliver carefully sequenced, and exciting mathematical opportunities that enable our children to learn, revisit and progressively develop their skills in Mathematics at an age-appropriate level through frequent practice and application.
 - Teachers and other adults working in EYFS are fully trained in supporting early mathematical development and helping our youngest learners to acquire early number sense. This is achieved through practical and engaging activities, which children can access, alongside adults or independently with peers, to practise their maths skills.
 - In key stages one and two, maths lessons are planned to follow the small-step mastery approach to acquiring maths skills as set out in the Hamilton plans. Through the scheme of work, teachers are supported to plan and deliver lessons which teach pupils essential skills, give them time to develop their fluency and apply their knowledge to practise mathematical reasoning and solve problems. Teachers promote and encourage pupils to work collaboratively, as well as independently, and provide excellent modelling of all mathematical processes and concepts using concrete and pictorial aids before moving onto the abstract as part of everyday teaching.
 - Explicit links will be made with other curriculum subjects such as Science, Design Technology, Computing and History.
-
- The school has a systematic approach to the teaching of times tables as summarised below:

Subject overview:

Year A/B

	Autumn Term		Spring Term		Summer Term	
	1 st half	2 nd half	1 st half	2 nd half	1 st half	2 nd half
Year 1	Experience of counting in 1s, 2s, 5, 10s; Doubling and halving to 20; repeated addition and skip counting;					
Year 2	Doubling and halving to 20 (revision); doubling and halving up to 100; repeated addition and skip counting;					
	1x	(1x) 2x	10 x	(10 x) 5x	0 x plus revision	revision
Year 3	(2x) 4 x	4 x (8x)	3 x	(3x) 6 x	(6 x) 12 x	revision
Year 4	X 9	X 7	X 11	squares	revision	revision
Year 5	Revision for those children who still are not secure in their times tables knowledge.					
Year 6	Move onto understanding of prime, square and cubed numbers, fractions, decimals and percentages.					

Class	Autumn Term		Spring Term		Summer Term	
Nursery	Take part in finger rhymes with numbers.	Combine objects like stacking cups and blocks. Put objects	Count in everyday contexts.	Develop counting like behaviour, such as making sounds, pointing or saying	Compare sizes, weights etc, using gesture and language 'bigger/little/smaller',	Notice patterns and arrange things in patterns.

	Take part in finger rhymes with numbers.	inside others and take them out again. Build with a range of resources.	Complete inset puzzles.	some number names in sequence. Compare amounts saying 'lots', 'more', or 'same'.	'high, low', 'tall/heavy'. React to changes of amount in a group of up to three.	Count in everyday contexts, sometimes skipping numbers - '1,2,3,5'.
Reception	Discuss routines and locations using words like in front of and behind. Link the number symbol (numeral) with its cardinal number value.	Subitise. Compare numbers.	Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. Understand the 'one more than/one less than' relationship between consecutive numbers.	Continue, copy and create repeating patterns. Automatically recall number bonds for numbers 0-5 and some to 10.	Begin to describe a sequence of events, real or fictional using words such as 'first' and 'then'. Continue, copy and create repeating patterns.	Compare length, weight and capacity. Compare length, weight and capacity.
Class 2 (Mixed Y1/2)	Place value <ul style="list-style-type: none"> Counting and estimation Teens and place value of 2 digit numbers Count to 100 1 more/less Ordinals Addition and subtraction <ul style="list-style-type: none"> Partition numbers Learn, reinforce and consolidate number bonds Add by counting in 1s and 10s Counting back Understanding + and - Use number facts to add and subtract Add and subtract 10s and 1s Use different strategies for addition Coin recognition 		Place value <ul style="list-style-type: none"> 2-digit place value Numbers and quantities Addition and subtraction <ul style="list-style-type: none"> Mental addition and subtraction Adding and subtracting money Addition subtraction Measures and data <ul style="list-style-type: none"> Compare and measure weight Measure and represent capacity Money and Time <ul style="list-style-type: none"> Add and subtract 2-digit numbers (money) Tell the time Units of time Fractions <ul style="list-style-type: none"> Fractions Multiplication		Revision of key skills Addition and Subtraction <ul style="list-style-type: none"> Addition Subtraction Position and time <ul style="list-style-type: none"> Position Time Place value, addition and subtraction <ul style="list-style-type: none"> Place value in 2-digit numbers Add/subtract 1 digit numbers using patterns Bonds to 10 Complements to 10s numbers Adding three numbers- number games Place value and Fractions <ul style="list-style-type: none"> Place value Fractions Multiplication and division	

	<ul style="list-style-type: none"> Find amounts of money and change <p>Measures</p> <ul style="list-style-type: none"> Comparing and measuring lengths <p>Time</p> <ul style="list-style-type: none"> Tell time to half and quarter hours Understand units of time <p>Fractions and multiplication</p> <ul style="list-style-type: none"> Understanding halves and quarters Doubling and halving Odd and even numbers Counting in steps of 5 and 10 	<ul style="list-style-type: none"> Clever counting multiplication Relating multiplication and division <p>Shape</p> <ul style="list-style-type: none"> 2-D shapes Symmetry 3-D shapes 	<ul style="list-style-type: none"> Multiplication and division Doubling and halving <p>Subtraction and using money</p> <ul style="list-style-type: none"> Bridging 10 and counting up subtraction Finding totals Finding change <p>Shape, time and data</p> <ul style="list-style-type: none"> Exploring shape properties Telling the time Units of time Data handling
Class 3 (Mixed Y3/4)	<p>Place value and money</p> <ul style="list-style-type: none"> Numbers on a line Compare and order Place value in $\frac{3}{4}$ digit numbers Amounts of money +/- 1,10,100, 1000 and multiples of <p>Addition and subtraction</p> <ul style="list-style-type: none"> Strategies for adding and subtracting Number bonds to 100 Subtract by counting up +/- near multiples of 10,100,1000 Partitioning Column addition Formal addition and subtraction <p>Fractions</p> <ul style="list-style-type: none"> Doubling, halving and the concept of a half Conceptualising fractions Finding fractions of amounts <p>Multiplication and division</p> <ul style="list-style-type: none"> Rehearsing and understanding times tables Partitioning in multiplication and division <p>Shape</p> <ul style="list-style-type: none"> Symmetry and 2-D shapes Understanding 3-D shapes 	<p>Place value and fractions</p> <ul style="list-style-type: none"> Negative numbers Fractions Equivalent fractions +/- fractions <p>Addition and subtraction</p> <ul style="list-style-type: none"> Mental addition and subtraction 3-digit +/- 1-digit Column addition Finding the difference Decomposition <p>Measures</p> <ul style="list-style-type: none"> Length and data Weight and data <p>Decimals and money</p> <ul style="list-style-type: none"> Multiply and divide with money and 1-place decimals <p>Multiplication and Division</p> <ul style="list-style-type: none"> Times tables and factors Partitioning in multiplication Division <p>Time</p> <ul style="list-style-type: none"> Telling the time Time and data 	<p>Revision of key skills</p> <p>Number and place value</p> <ul style="list-style-type: none"> Number and place value Sequences and Roman numerals <p>Addition and subtraction</p> <ul style="list-style-type: none"> Written algorithms Finding a difference-whole numbers Money – finding change and differences Written addition and subtraction <p>Multiplication and division</p> <ul style="list-style-type: none"> Times tables, factors and multiples Division Partitioning to double, halve and multiply Scaling problems and mental strategies <p>Decimals</p> <ul style="list-style-type: none"> Decimals and money Decimals and measures <p>Measures and data</p> <ul style="list-style-type: none"> Area and perimeter Time Line graphs and bar charts <p>Shape</p> <ul style="list-style-type: none"> Exploring shape properties Co-ordinates and 3-D shapes <p>Fractions</p>

	<ul style="list-style-type: none"> • Co-ordinates in the first quadrant 		<ul style="list-style-type: none"> • Fractions
Class 4 (Mixed Y5/6)	<p>Place value</p> <ul style="list-style-type: none"> • PV and +/- in 5 and 6-digit numbers • Numbers on a line • Round to powers of 10 <p>Addition and subtraction</p> <ul style="list-style-type: none"> • Column addition with whole numbers • Column addition; decimals and money • Whole number column subtraction • Finding the difference <p>Decimals</p> <ul style="list-style-type: none"> • PV in 2/3-place decimals • Count/add/subtract 0.1, 0.01, 0.001 • Place value in decimals • Rounding and adding decimals <p>Multiplication and division</p> <ul style="list-style-type: none"> • Properties of numbers including primes • Written multiplication strategies • Mental division strategies • Mental multiplication/division • Problem solving • Written division strategies <p>Fractions</p> <ul style="list-style-type: none"> • Order fractions • Fractions of amounts • Decimal/fraction equivalents • Add/subtraction fractions using equivalence <p>Shape</p> <ul style="list-style-type: none"> • Quadrilaterals, other polygons and circles • Finding missing angles • Drawing 2-D shapes • Sort 3-D shapes; nets and 3-D shapes • Co-ordinates, polygons and transformations 	<p>Place value, addition and subtraction</p> <ul style="list-style-type: none"> • Place value • Negative numbers <p>Calculation strategies</p> <ul style="list-style-type: none"> • Use of brackets in calculation • Addition and subtraction <p>Decimals and fractions</p> <ul style="list-style-type: none"> • Difference with decimals • Explore fractions, decimals, and percentages • Multiply and divide fractions <p>Multiplication and division</p> <ul style="list-style-type: none"> • Multiples factors and mental strategies • Multiplication • Division • 4-digit multiplication and division <p>Measures</p> <ul style="list-style-type: none"> • Units of measurement • Area, perimeter and scaled shapes • Finding volumes <p>Time and Data</p> <ul style="list-style-type: none"> • Time and timetables • Line graphs and pie charts <p>Algebra and ratio</p> <ul style="list-style-type: none"> • Algebra • Ratio 	<p>Revision of key skills</p> <ul style="list-style-type: none"> • Numbers and place value • Addition and subtraction • Decimals, multiplication and division • Fractions, ratios and percentages • Charts, graphs and algebra • Area, perimeter and angles • Factors, multiples, primes and squares • Multiplication and division • Fraction/ decimals and percentage equivalence • Data, Pie charts and mean • Transformations and co-ordinates • Volume <p>Decimals, addition and subtraction</p> <ul style="list-style-type: none"> • Exploring decimals • Smashing subtraction • Accomplished addition <p>Number properties and Multiplication</p> <ul style="list-style-type: none"> • Number properties • Exploring multiplication <p>Division, Fractions and percentages</p> <ul style="list-style-type: none"> • Division done • Calculating with fractions • Mastering percentages <p>Measures, shape and data</p> <ul style="list-style-type: none"> • It's time! • Line graphs • Understanding angles

Impact

As a result of the provision above, all pupils including those with SEND will develop confidence and resilience in the classroom and will demonstrate high levels of engagement. All pupils will make progress from their starting points. They will develop both as independent and interdependent learners.

Through the teaching and learning of Mathematics, long term:

- Pupils will understand the relevance and importance of Mathematics in the real world.
- Pupils will become confident, resilient problem-solvers.
- Pupils will be capable of rationalizing, thinking critically, and effectively communicating their ideas in Mathematics.
- Pupils will be able to apply these skills to other areas of the curriculum.
- Pupils will foster a lifelong positive attitude towards the learning and use of Mathematics.

Assessment in Mathematics:

- Teachers use Assessment for Learning strategies to identify and address any misconceptions immediately.
- Pupils in year 1-6 are assessed using Year group appropriate termly Headstart summative assessments in the Autumn and Spring Terms and externally marked GL Assessments in the Summer Term to monitor attainment and progress in Mathematics across the school.

Role of the co-ordinator:

- To ensure coherence and consistency across the school.
- To organise /lead INSET in Mathematics.
- To facilitate relevant CPD.
- To support other staff members in their teaching of Mathematics.
- To work closely with all stakeholders to monitor the impact of Mathematics teaching at Fletewood School.