Mathematics

"Anyone who has never made a mistake, has never tried anything new…
…If you can't explain it simply, you don't know it well enough." Albert Einstein

Our Mathematics curriculum is inspiring, challenging, deep and broad, nurturing talent and enabling social mobility so that all pupils:

- develop transformational knowledge and skills that take them beyond their experience.
- strengthen their academic knowledge and cultural capital through the acquisition of a broad and deep vocabulary.
- shape their character and scholarship to prepare them for life so that they can make a positive contribution to society and live safely and independently.

INTENT

Pupils at Blackawton will:

- Be able to calculate accurately and confidently using the four operations.
- Have quick recall of times tables facts and key age-related facts to enable fluency in Mathematics.
- Be able to derive answers from knowledge held in their long-term memory.
- Be able to reason in Mathematics, using a range of precise mathematical vocabulary, including well-structured stem sentences.
- Be able to represent their thinking through the use of models, images and concrete apparatus.
- Be able to problem solve, using a range of strategies, including bar modelling, always choosing the most efficient methods.
- Show resilience when tackling a difficult problem and be able to describe the small steps to achieve a solution.
- Be confident in the topics taught within the National Curriculum showing age appropriate fluency, knowledge and skills to reason and problem solve in a variety of contexts.

IMPLEMENTATION

At Blackawton we have adopted a Mastery approach in Mathematics, following extensive and ongoing CPD for staff. We have shared expertise and good practice with other schools, through our local Maths hub. The 'Power Maths Schemes of Learning' provide the small steps planning we follow. These are supplemented by resources from a range of sources including: The White Rose Maths Hub, NCETM, Nrich and Number Sense. Teachers plan and sequence small steps for the needs of their class, following formative assessment daily. The Mathematics leader is responsible for keeping apace with developments in Mastery resources and theories. Teachers share good practice and knowledge of high quality resources with each other and teachers in other settings.

IMPACT

Our Mathematics curriculum facilitates sequential learning and long-term progression of knowledge and skills. Teaching and learning methods provide regular opportunities to recap acquired knowledge through high quality questioning, discussion, modelling and explaining, to aid retrieval at the beginning and end of a lesson or unit. This will enable all children to alter their long-term memory and know more, remember more and be able to do more as mathematicians.

Mastering Number: Overview of content – Reception

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison
1 **Children will:**	• perceptually subitise within 3 • identify sub-groups in larger arrangements • create their own patterns for numbers within 4 • practise using their fingers to represent quantities which they can subitise • experience subitising in a range of contexts, including temporal patterns made by sounds.	• relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set • have a wide range of opportunities to develop their knowledge of the counting sequence, including through rhyme and song • have a wide range of opportunities to develop 1:1 correspondence, including by coordinating movement and counting • have opportunities to develop an understanding that anything can be counted, including actions and sounds • explore a range of strategies which support accurate counting.	• see that all numbers can be made of 1s • compose their own collections within 4.	• understand that sets can be compared according to a range of attributes, including by their numerosity • use the language of comparison, including 'more than' and 'fewer than' • compare sets 'just by looking'.
2 **Children will:**	• continue from first half-term • subitise within 5, perceptually and conceptually, depending on the arrangements.	• continue to develop their counting skills • explore the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand • begin to count beyond 5 • begin to recognise numerals, relating these to quantities they can subitise and count.	• explore the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot • explore the composition of numbers within 5.	• compare sets using a variety of strategies, including 'just by looking', by subitising and by matching • compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts.
3 **Children will:**	• increase confidence in subitising by continuing to explore patterns within 5, including structured and random arrangements • explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part • experience patterns which show a small group and '1 more' • continue to match arrangements to finger patterns.	• continue to develop verbal counting to 20 and beyond • continue to develop object counting skills, using a range of strategies to develop accuracy • continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10 • order numbers, linking cardinal and ordinal representations of number.	• continue to explore the composition of 5 and practise recalling 'missing' or 'hidden' parts for 5 • explore the composition of 6, linking this to familiar patterns, including symmetrical patterns • begin to see that numbers within 10 can be composed of '5 and a bit'.	• continue to compare sets using the language of comparison, and play games which involve comparing sets • continue to compare sets by matching, identifying when sets are equal • explore ways of making unequal sets equal.

4 **Children will:**	• explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'.	• continue to consolidate their understanding of cardinality, working with larger numbers within 10 • become more familiar with the counting pattern beyond 20.	• explore the composition of odd and even numbers, looking at the 'shape' of these numbers • begin to link even numbers to doubles • begin to explore the composition of numbers within 10.	• compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.
5 **Children will:**	• continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns • use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number • subitise structured and unstructured patterns, including those which show numbers within 10, in relation to 5 and 10 • be encouraged to identify when it is appropriate to count and when groups can be subitised.	• continue to develop verbal counting to 20 and beyond, including counting from different starting numbers • continue to develop confidence and accuracy in both verbal and object counting.	• explore the composition of 10.	• order sets of objects, linking this to their understanding of the ordinal number system.
6	In this half-term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts and with different numbers.			

Reception pupils will also have weekly Power Maths sessions and EYFS Continuous Provision

Year 1 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Numbers to 10 (12 lessons)			Part-whole within 10 (5 lessons)	Addition and subtraction within 10 (1) (6 lessons)	Addition and subtraction within 10 (2) (12 lessons)			2D and 3D shapes (5 lessons)	Numbers to 20 (7 lessons)	Consolidation			
Spring	Addition within 20 (6 lessons)		Subtraction within 20 (8 lessons)			Numbers to 50 (11 lessons)		Introducing length and height (5 lessons)	Introducing weight and volume (7 lessons)	Consolidation				
Summer	Multiplication (6 days)		Division (5 lessons)	Halves and quarters (5 lessons)	Position and direction (3 lessons)	Numbers to 100 (9 lessons)		Time (7 lessons)	Money (3 days)	Consolidation				

Year 2 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Numbers to 100 (10 lessons)			Addition and subtraction (12 lessons)		Addition and subtraction (9 lessons)		Money (9 lessons)		Multiplication and division (9 lessons)		Consolidation		
Spring	Multiplication and division (9 days)		Statistics (7 lessons)		Length and height (5 lessons)	Properties of shapes (12 lessons)			Fractions (14 lessons)			Consolidation		
Summer	Position and direction (4 lessons)	Problem solving and efficient methods (12 lessons)			Time (9 lessons)		Weight, volume and temperature (10 lessons)			Consolidation				

Year 3 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Place value within 1000 (11 lessons)		Addition and subtraction (10 lessons)		Addition and subtraction (9 lessons)		Multiplication and division (15 lessons)			Consolidation				
Spring	Multiplication and division (14 days)			Money (5 lessons)	Statistics (5 lessons)	Length (11 lessons)			Fractions (11 lessons)		Consolidation			
Summer	Fractions (9 lessons)		Time (11 lessons)			Angles and properties of shapes (9 lessons)		Mass (6 lessons)	Capacity (6 lessons)	Consolidation				

Year 4 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Place value – 4 digit numbers (9 lessons)		Place value – 4 digit numbers (9 lessons)		Addition and subtraction (15 lessons)			Perimeter (5 lessons)	Multiplication and division (11 lessons)		Consolidation			
Spring	Multiplication and division (15 lessons)			Area (5 lessons)	Fractions (7 lessons)	Fractions (8 lessons)		Decimals (10 lessons)		Consolidation				
Summer	Decimals (7 lessons)		Money (9 lessons)		Time (5 lessons)	Statistics (5 lessons)	Geometry – angles and 2D shapes (10 lessons)		Geometry – position and direction (6 lessons)	Consolidation				

Year 5 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Place value within 100,000 (8 lessons)		Place value within 1,000,000 (8 lessons)		Addition and subtraction (10 lessons)		Graphs and tables (5 lessons)	Multiplication and division (10 lessons)		Measure – area and perimeter (7 lessons)		Consolidation		
Spring	Multiplication and division (11 lessons)			Fractions (8 lessons)	Fractions (12 lessons)			Fractions (7 lessons)		Decimals and percentages (12 lessons)		Consolidation		
Summer	Decimals (15 lessons)					Geometry – properties of shapes (7 lessons)	Geometry – properties of shapes (5 lessons)	Geometry – position and direction (4 lessons)	Measure – converting units (10 lessons)		Measure – volume and capacity (4 lessons)	Consolidation		

Year 6 – Mathematics Curriculum Map

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Place value within 10,000,000 (7 lessons)		Four operations (10 lessons)		Four operations (9 lessons)		Fractions (11 lessons)		Fractions (9 lessons)		Geometry – position and direction (4 lessons)	Consolidation		
Spring	Decimals (9 lessons)		Percentages (9 lessons)		Algebra (11 lessons)			Measure – imperial and metric measures (5 lessons)	Measure – perimeter, area and volume (11 lessons)		Ration and proportion (9 lessons)	Consolidation		
Summer	Geometry – properties of shape (12 lessons)			Problem solving (14 lessons)			Statistics (10 lessons)		Consolidation					