

Maths LTP Whole School Scheme of Work

Cycle 1 and 2



Intent

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

We aim to ensure that our children have access to a high quality mathematics curriculum that is both challenging and enjoyable. We want to develop our children into confident mathematicians who are not afraid to take risks. Children need opportunities to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. It is vital for the children to be able to see how mathematics is relevant to their world, and applicable to everyday life. We also aim to instil an understanding of how mathematics is something that the children will need as they move through their school life and into the world of employment.

Implementation

Lessons are planned and sequenced so that new knowledge and skills build on what has been taught before. Teachers ensure that that all objectives are taught by referring to our Progression Sheets and access materials from Abacus and the White Rose Hub to aid in the delivery of lessons. We are developing techniques that ensure after a topic has been taught it is continuously revisited as the year progresses, allowing the knowledge to become embedded, developed and giving the children the chance to deepen their understanding. There are opportunities for the children to demonstrate mastery at all points in the year. All year groups start with number work, as this underpins all mathematical understanding, before moving on to calculation techniques. Staff refer to the Calculation Policy when teaching formal methods, ensuring consistency and progression across school. Reasoning is also taught alongside calculation methods at all times.

We aim to ensure that our children have time to make and model their understanding in mathematics so that they develop strong visualisation skills. The children have access to a number of concrete stimuli in the classroom that can be used to aid this. This is particularly prevalent in our Foundation Stage, KS1 and Lower KS2, however Upper KS2 children still have access to concrete and pictorial resources when necessary. Durham Lane Investigations (known as DLIs) are regularly planned by teachers to provide children with the opportunity to work collaboratively, verbalise mathematical thinking, develop resilience and make deeper connections between different areas of maths.

Practising the rapid recall of numbers facts is vital throughout school. This happens regularly in our Foundation Stage and Key Stage 1 in the form of singing, chanting and games. As well as these techniques, in Key Stage 2, a weekly number based 'Rapid Recall' is planned to give children the opportunity to practise and improve their recall of number facts. Also, in Key Stage 2, all children have access to their own personal account of 'Times Tables Rockstar' where they can compete against other pupils and classes in school.

Impact

In order for this to happen, everyone in our school takes responsibility for the standards achieved by the children. The Mathematics Leader and the Senior Leadership Team take responsibility for the monitoring of the mathematics curriculum. The Mathematics Leader monitors for appropriate pitch and progression at least once every half term. This monitoring takes the form of lesson observations and feedback; learning walks and pupil voice conversations; book scrutinies and moderation with our Partnership Schools. Assessments are carried out termly and all teachers contribute to a termly Pupil Progress Meeting where the data is analysed and targets are made by highlighting 'stuck' pupils and focusing on next steps.

These factors ensure that we are able to maintain high standards and that our children become confident, resilient mathematicians who enjoy the subject and value its importance in everyday life.

Key Stage One

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage Two

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage Two

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Reception

	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
Autumn	Getting to know you			Just like me!			It's me 1,2,3			Light and dark			Consolidation
Spring	Alive in 5!			Growing 6, 7, 8			Building 9 and 10			Consolidation			
Summer	To 20 and beyond			First then now			Find my pattern			On the move			

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year One

	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 (within 10)		Number: Addition and Subtraction (within 10)		Geometry: Shape		Number: Place Value (within 20)		Number: Addition and Subtraction (within 20)			Consolidation
Spring	Number: Addition and Subtraction (within 20)	Number: Place Value (within 50) (Multiples of 2,5 and 10 to be included)		Measurement: Length and Height		Measurement: Weight and Volume		Number: Multiplication and Division (Reinforce multiples of 2,5 and 10 to be included)			Geometry: Position and Direction	Consolidation
Summer	Number: Fractions			Number and Place Value: (within 100)		Measurement: Money		Time		Time spent gathering assessment evidence and revisiting blocks – addressing misconceptions from previous teaching and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.		

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year Two

	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				Measurement: money	Multiplication and Division				Statistics
Spring	Measurement: height and length		Geometry: Properties of shape		Measurement: Time		Fractions		Measurement: mass, capacity and temperature		Position and Direction	
Summer	SATS preparation – revision, consolidation and past papers				SATS	Time spent revisiting blocks – addressing misconceptions from SATs papers and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.						
						Multiplication and division	Place Value	Addition and Subtraction	Fractions	Properties of Shape	End of year problem solving activities	

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year Three

	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			Number: Multiplication and Division	
Spring												
Summer	Measurement: Mass and Capacity			Measurement: Time			Geometry: Properties of shapes			Statistics	Time spent gathering assessment evidence and revisiting blocks – addressing misconceptions from previous teaching and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.	

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year Four

	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				Measurement: Length and Perimeter	Number: Multiplication and Division			Consolidation
Spring												
Summer	Measurement: Money		Measurement: Time		Geometry - Position and Direction	Geometry: Properties of Shape	Statistics	Time spent revisiting blocks – addressing misconceptions and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.		Time spent revisiting blocks – addressing misconceptio ns from previous teaching and general areas of difficulty. Applying problem solving and reasoning skills in these areas.		

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year Five

	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			Statistics	Number: Multiplication and Division					Consolidation
	Measurement: Perimeter and Area		Number: Fractions				Number: Decimals		Number: Percentages	Consolidation		
Spring	Geometry: Properties of Shape		Geometry: Position and Direction	Measurement: Converting Units		Measurement: Volume		Time spent revisiting blocks – addressing misconceptions from SATs papers and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.				Consolidation
	Place Value			Multiplication and Division		Fractions		Decimals		Consolidation		
Summer	Geometry: Properties of Shape		Geometry: Position and Direction	Measurement: Converting Units		Measurement: Volume		Time spent revisiting blocks – addressing misconceptions from SATs papers and general areas of difficulty. Applying problem solving and reasoning skills in these areas. This will alter year on year.				Consolidation
	Place Value			Multiplication and Division		Fractions		Decimals		Consolidation		

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.

Year Six

	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, Subtraction, Multiplication and Division				Number: Fractions				Geometry: Position and Direction	Consolidation
Spring	Number: Decimals		Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Consolidation
Summer	Geometry: Properties of shape		Statistics		Problem Solving			Investigations				Consolidation

Please note, these mathematical concepts may be taught in a different sequence in order to meet the needs of our children.