MATHS

Jordans School Curriculum 2016

Purpose of study

The National Curriculum has high expectations of pupils and requires learning for mastery. Therefore at Jordans School we teach Maths in the Early Years Foundation Stage and Key Stage One using Maths Mastery as our approach. Teaching maths for mastery involves employing approaches that help pupils to develop a deep and secure knowledge and understanding of mathematics at each stage of their learning, so that by the end of every school year or Key Stage, pupils will have acquired mastery of the mathematical facts and concepts they've been exposed to, equipping them to move on confidently and securely to more advanced material. Acquiring mastery of mathematics is something for all pupils. Teaching for mastery approaches can enable all pupils to succeed in maths.

Aims

The Mastery approach of teaching mathematics develops pupils' mathematical ability and confidence without having to resort to memorising procedures to pass tests - making mathematics more engaging and interesting. It promotes rich, purposeful mathematical discussion, helping to embed core mathematical skills on a day to day basis. As a school this is an approach we value. One of the key learning principles behind this approach to learning maths is the concrete pictorial abstract approach (CPA).

<u>Concrete representation</u>
A child is first introduced to an idea or a skill by acting it out with real objects. In division, for example, this might be done by separating apples into groups of red ones and green ones or by sharing 12 biscuits amongst 6 children. This is a 'hands on' component using real objects and it is the foundation for conceptual understanding.
<u>Pictorial representation</u>
A child has sufficiently understood the hands-on experiences performed and can now relate these to representations, such as a diagram or picture of the problem. In the case of a division exercise this could be the action of circling objects.
<u>Abstract</u>
A child is now capable of representing problems by using mathematical notation, for example: 12 ÷ 2 = 6.

In Early Years we employ a Mastery approach and follow the EYFS Early Adopter Framework. KS1 continues developing the learnt skills through a

mixture of continuous provision, small focus group teaching and learning, as well as whole class maths lessons. As a school, maths topics are taught in 'units of work'. The children explore a particular topic and develop their breadth of knowledge within the parameters of the National Curriculum expectations. The children are constantly challenged through bespoke questioning techniques throughout every lesson, as well as being encouraged to go 'wider and deeper' in their understanding of the teaching points. Lessons involve a lot of mathematical discussion supported by concrete and visual representations. There is also guided practice where pupils work collaboratively to solve problems. Pupils are encouraged to use concrete apparatus and share ideas as they work in groups. Individual practice is also fundamental to develop fluency and build confidence.

Attainment Targets

By the end of the key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the programmes of study set out in the National Curriculum

Maths Progression

The following long-term plan for each year group gives an overview of the units of work and the recommended length of time to spend on each unit for each year group. The 'timetable' is only an example of when each unit of work can be taught and is up to the individual class teachers to decide on the specific order they wish to teach the units in, according to the needs of their children.

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	Week 14
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				

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	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)					Geometry: Shape	Number: Place Value (within 20)	
Spring	Consolidation	Number: Addition and Subtraction (within 20)			Number: Place Value (within 50)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Consolidation	Number: Multiplication and Division			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time	

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	Number: Place Value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division	Consolidation
Spring	Number: Multiplication and Division				Statistics		Geometry: Properties of Shape		Number: Fractions			
Summer	Measurement: Length and Height		Geometry: Position and Direction		Consolidation and problem solving		Measurement: Time		Measurement: Mass, Capacity and Temperature			Consolidation

Jordans School Maths Progression - 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	Week 14
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				

EYFS Early Adopter Framework Outcome Statements:

ELG: Number Children at the expected level of development will:

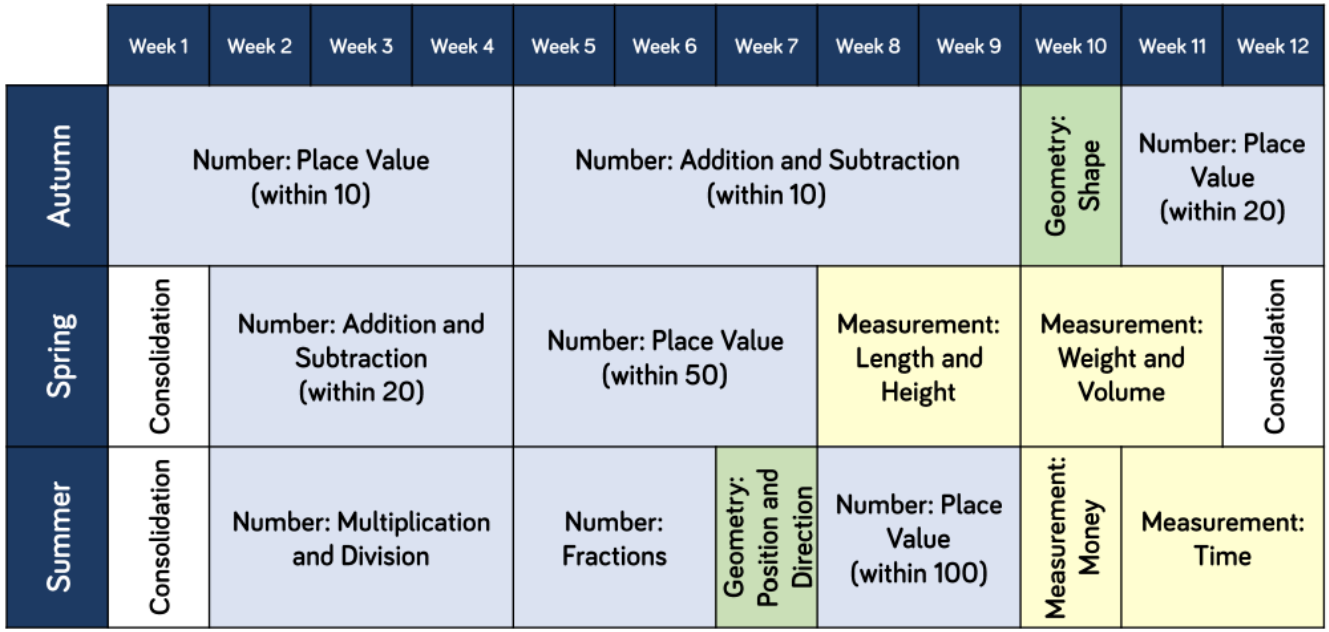
- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

	Autumn	Spring	Summer
Number	• Match, sort and compare amounts • Representing 1, 2, & 3 • Comparing 1, 2 & 3 • Composition of 1, 2 & 3 • Representing numbers to 5 • One more and less	• Introducing zero • Comparing numbers to 5 • Composition of 4 & 5 • Comparing numbers to 8 • Composition of 6, 7 & 8 • Combining 2 groups • Composition of 9 & 10 • Comparing numbers to 10 • Number bonds to 10	• Building numbers beyond 10 • Counting patterns beyond 10 • Adding more • Taking away • Doubling • Sharing & grouping • Even & odd • Deepening of understanding • Patterns & relationships
Measure, Space & Spatial Thinking	• Compare size, mass and capacity • Exploring pattern • Circles & triangles • Positional language • Shapes with 4 sides • Time	• Compare mass • Compare capacity • Length & height • Time • 3D shape • Pattern	• Spatial reasoning • Match, rotate, manipulate • Compose & decompose • Visualise & build • Mapping

Jordans School Maths Progression - Year 1

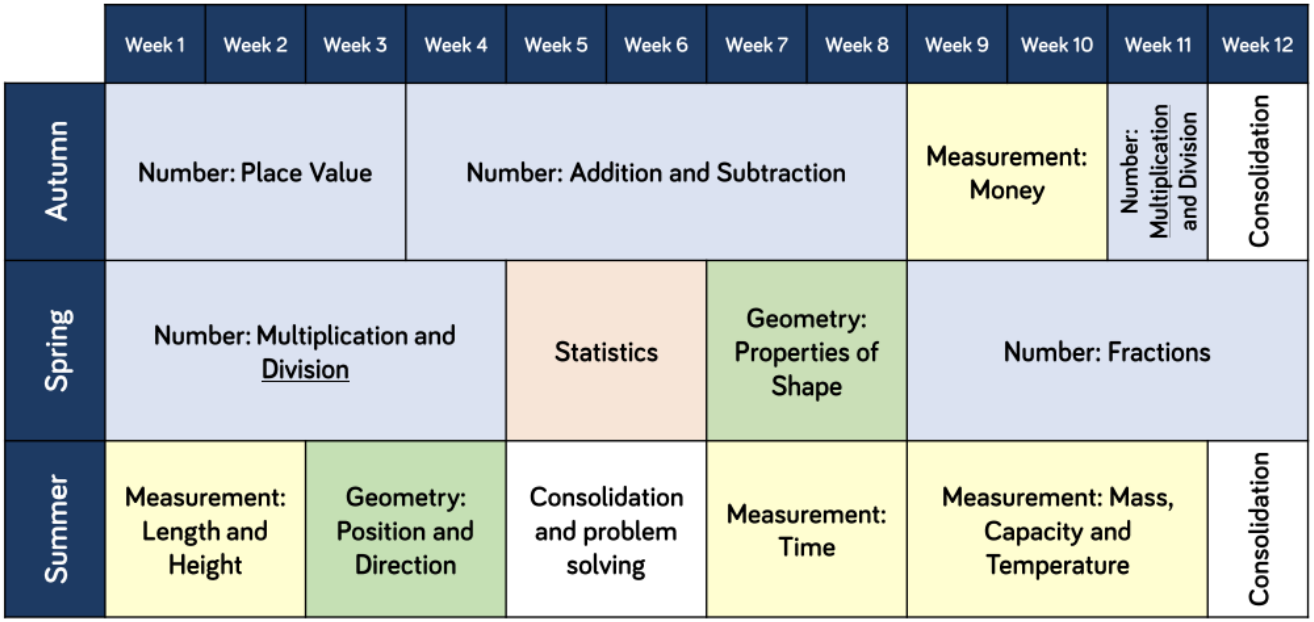


	Autumn	Spring	Summer
Number : Place Value	• Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number. • Count, read and write numbers to 10 in numerals and words. • Given a number, identify one more or one less. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • Count, read and write numbers to 20 in	• Count to 50 forwards and backwards, beginning with 0 or 1, or from any number. • Count, read and write numbers to 50 in numerals. • Given a number, identify one more or one less. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • Count in multiples of twos, fives and tens	• Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Count, read and write numbers to 100 in numerals. • Given a number, identify one more and one less. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than, most, least.

	numerals and words.		
Number : Addition & Subtraction	• Represent and use number bonds and related subtraction facts within 10. • Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. • Add and subtract one digit numbers to 10, including zero. • Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems	• Represent and use number bonds and related subtraction facts within 20 • Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. • Add and subtract one-digit and two-digit numbers to 20, including zero. • Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= □ –9.	
Number : Multiplication & Division			• Count in multiples of twos, fives and tens. • Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
Number : Fractions			• Recognise, find and name a half as one of two equal parts of an object, shape or quantity. • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. • Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) • Compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].
Measurement : Length & Height	•	• Measurement: Length and Height Measure and begin to record lengths and heights. • Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half).	•

Measurement : Weight & Volume		• Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume. • Compare, describe and solve practical problems for mass/weight:[for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].	•
Measurement : Money			• Recognise and know the value of different denominations of coins and notes.
Measurement : Time			• Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. • Recognise and use language relating to dates, including days of the week, weeks, months and years. • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. • Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]. • Measure and begin to record time (hours, minutes, seconds).
Geometry : Shape	• Recognise and name common 2-D shapes, including: (e.g. rectangles (including squares), circles and triangles). • Recognise and name common 3-D shapes, including: (e.g. cuboids (including cubes), pyramids and spheres).		
Geometry : Position & Direction			• Describe position, direction and movement, including whole, half, quarter and three quarter turns

Jordans School Maths Progression - Year 2



	Autumn	Spring	Summer
Number : Place Value	• Read and write numbers to at least 100 in numerals and in words. • Recognise the place value of each digit in a two digitnumber (tens, ones) Identify, represent and estimate numbers using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. • Use place value and number facts to solve problems. • Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.		

	•		
Number : Addition & Subtraction	• Recall and use addition and subtraction facts to 20 fluently, andderive and use related facts up to 100. • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. • Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. •		
Number : Multiplication	• Recall and use multiplication and division facts for the 2, 5 and 10 timestables, including recognising	• Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even	

& Division	odd and even numbers. • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. • Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	numbers. • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. • Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	
Number : Fractions		• Recognise, find, name and write fractions 13, 14, 24and 34of a length, shape, set of objects or quantity. • Write simple fractions for example, 12of 6 = 3 and recognise the equivalence of24and 12.	
Measurement : Length & Height		• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using>, < and =.	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using>, < and =.
Measurement : Mass, Capacity &			• Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity

Temperature			(litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. •
Measurement : Money	• Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.		
Measurement : Time			• Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. • Know the number of minutes in an hour and the number of hours in a day. • Compare and sequence intervals of time.
Geometry : Shape		• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].	

		• Compare and sort common 2-D and 3-D shapes and everyday objects.	
Geometry : Position & Direction			• Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). • Order and arrange combinations of mathematical objects in patterns and sequences.
Statistics		• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. • Ask and answer questions about totaling and comparing categorical data.	