Mathematics Mastery

Reception Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Pattern and shape Recognise, create and describe shapes with mathematical language	**Measure** Talk about, compare, measure and order objects and quantities	**Position and Time** Use everyday language to talk about time; use mathematical language to descibe position	**Shape and pattern** Explore, discuss, recognise, classify and describe in mathematical language.	**Measure** Compare objects and quantities, solve size, weight and capacity problems in everyday language	**Doubling and halving** Solve problems and explore the relationship between doubling and halving
Same and different Estimate and check numbers, recognising if they are same or different.	**Numbers within 10** Count reliably, place in order, recognise numerals, use ordinals, understand zero	**Numbers within 15** Recognise, count and order numbers; estimate and compare groups of objects	**Addition and Subtraction (1)** Add and subtract single-digit numbers by counting on or back; subitise within five	**Grouping and sharing** Solve practical problems involving groups of 2, 5 or 10; explore counting in steps of 2.	**Addition and Subtraction (2)** Compare quantities to solve problems that include doubling, halving and sharing
Numbers within 5 Recognise, count and order numbers; say which numbers are 'more or less'	**Shape and calendar** Explore characteristics of shape, using mathematical language. Use everyday language to discuss time.	**Numbers within 20** Recognise, count and order numbers; estimate and compare groups of objects	**Numbers beyond 20 (1)** Recognise, count and order numbers to 50; estimate and compare groups of objects	**Money** Recognise, compare and order coins and their values using everyday language.	**Numbers beyond 20 (2)** Recognise, count, order and estimate numbers to 100; solve problems including grouping and sharing.

■ Example suggestions for depth:

Order and recognise 'same or different' on numbers reprented by mixtures of numerals and representations.	Place in order incomplete sets of numbers within ten, e.g. 7, 8, 2, 5.	Order/compare groups of up to 20 objects of wildly varying sizes and shapes, arranged in different patterns. e.g. 8 pens, 5 books, 13 balls and 4 chairs.	Give an example of an object/shape from given proporties: e.g. "has flat sides and curved sides" could be a glue stick.	Anne has one 10 p coin. She went to the shop and bought a lollipop. She got two coins in change. What could they be?	Agree a target number. Pupils take it in turns to roll a dice, doubling or halving until target number is reached.

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Year 1 Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Numbers to 10 Count, read, write, identify, represent, double and half, and use comparative language. **Addition and subtraction within 10** Represent and use number bonds; read, write, interpret, represent and solve.	**Shapes and patterns** Recognise common 2-D and 3-D shapes; describe position, direction and movement. **Numbers to 20** Count, read, write, identify, represent, double and half, and use comparative language. **Addition and subtraction within 20** Represent and use number bonds; read, write, interpret and solve one-step problems.	**Time** Tell the time to the hour and half-past the hour; solve practical problems for time. **Exploring calculation strategies within 20** Represent and use number bonds; use concrete and pictorial representation to solve one-step problems **Numbers to 50** Count, read, write, identify, represent in numerals and words; recognise place value.	**Adding and subtracting within 50** Represent and use number bonds; read, write, interpret and solve one-step problems. **Fractions** Recognise, find and name a half and a quarter as one of two or four equal parts respectively. **Measures (1): Length and weight** Compare, describe, measure, record and solve practical problems.	**Numbers 50 to 100 and beyond** Count from a given number in 1s, 2s, 5s and 10s; represent, identify and estimate numbers; recognise place value. **Adding and subtracting within 100** Represent and use number bonds; read, write, interpret and solve one-step problems. **Money** Recognise and value coins and notes; solve one-step addition/subtraction problems.	**Multiplication and division** Solve one-step problems using concrete and pictorial representations and arrays. **Measures (2): Capacity and volume** Compare, describe, measure, record and solve practical problems.

Example suggestions for depth:

I can count forwards and backwards in different contexts. e.g. backwards from 20 pence	What 2D shapes can you see on the surface of these 3D shapes? e.g. cube, tetrahedron, dodecahedron, a football	If a clock could only have one hand, would you choose the minute hand or the hour hand and why?	What animals are about as long as five handspans? Shorter than two handspans?	I have three coins in one hand and one coin in the other. Each hand holds money of equal value. What could the coins be?	Think of a container that will hold about 5 cups of water Investigate!

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Year 2 Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Numbers within 100 Use place value and number facts to solve problems; identify, represent, compare and order numbers. **Add and subtract 2-digit numbers** Build addition/subtraction facts/ methods to 100; understand commutativity. **Addition and subtraction word problems** Solve problems using concrete and pictorial representations to develop mental and written methods; recognise inverse relationships of operations.	**Measures: length** Understand appropriate units of measure (cm, m); compare and order; read scales to 100. **Graphs** Interpret and construct tables, tally charts, pictorgrams and block diagrams; ask/answer questions about totalling and comparing data. **Multiplication and division – 2, 5 and 10** Calculate mathematical statements; iunderstand commutativity; solve problems using concrete, pictorial, written and mental methods.	**Time** Tell and write the time to five minutes; compare and sequence intervals of time. **Exploring calculation strategies** Solve problems involving numbers, quantities and measures; estimate and check calculations. **Money** Recogine units symbols (£, p); explore combinations of money; solve simple problems, including giving change.	**Faces, shapes and patterns; lines and turns** Identify and describe properties of 2-D and 3-D shapes; compare and sort common shapes and objects; descirbe position and movement in mathematical language. **Fractions** Recognise, find, name and write simple fractions of objects and quantities; recognise equivalences between fractions.	**Number within 1000** Use, identify and represent place value and number facts to solve problems; compare, read, write and order numbers. **Add and subtract 2-digit and 3-digit numbers** Add/subtract numbers mentally and using formal written methods. **Measures: capacity and volume** Understand appropriate units of measure; compare and order; read scales to 1000.	**Measures: mass** Understand appropriate units of measure; compare and order; read scales to 1000. **Multiplication and division – 3x and 4x** Recall and use facts for the 3 and 4 times tables; calculate mathematical statements; solve problems using concrete, pictorial, written and mental methods

Example suggestions for depth:

Pupils clearly show which numbers bonds to ten or twenty they use to identify the missing number: 27 + __ = 64 62 - __ = 39	A number is divided by 5 and leaves a remainder of 3. What number might this be?	What is something you could do about one hundred times in an hour?	What are the missing numbers? Can you write another equal fraction? $\dfrac{1}{(\ )} = \dfrac{2}{(\ )} = \dfrac{3}{(\ )} = \dfrac{4}{(\ )}$	Can I pour all the water from a 330 ml bottle and a 750 ml bottle into a 1 litre bottle?	Create a problem for your classmate involving how many people can sit in a room where each table can sit four people.

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Year 3 Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Number sense and reasoning within 100 Solve number and practical problems, including estimation and checking; add and subtract money to give change in £ and p. **Place Value** Identify, represent and estimate numbers in different contexts, recognise and use place value of 3-digit numbers in calculations.	**Graphs** Interpret and present data using charts and tables. Solve one and two-step problems using presented information. **Addition and subtraction with up to 4 digits** Calculate mentally and using formal written methods; solve problems using number facts and place value. **Length and perimeter** Measure, compare, add/subtract lengths; solve probems using appropriate tools and units.	**Multiplication and division word problems** Solve scaling and correspondence problems in which *n* objects are connects to *m* objects. **Using 10s and 100s to multiply and divide large numbers** Calculate mathematical statements including for two-digit numbers by one-digit numbers; progress from mental to formal written methods.	**Time: analogue, digital and finding how long** Tell, record, write and compare the time, including using Roman numerals, 12 and 24-hour clocks, using correct vocabulary; compare durations. **Fractions** Recognise, use, compare, order simple fractions; understand fractions as parts of a whole; add/subtracts fractions of same denominator.	**Angles and shape** Identify right-angles, recognising them as quarters of a turn; identify parallel and perpendicular lines; draw/make and measure 2-D and 3-D shapes. **(Length), weight & volume** Measure, compare, add/subtract and solve problems, using appropriate tools and units.	**6 & 8 times tables** Recall and use multiplication/division facts for 6 & 8 times table; count in multiples of 6 & 8; calculate mathematical statements. **Exploring calculation strategies and place value** Add/subtract numbers mentally; find 10, 100,1000 more than a given number; order and compare beyond 1000; round any number to nearest 10, 100, 1000.

Example suggestions for depth:

What are all the numbers you can make using the digits 3, 5 and 9? How can you be sure you've tried all the possibilities?	Allow pupils to measure the heights of the children in a classroom. Allow them to represent the data using the graph/chart of their choice and explain why they chose it.	How can you calculate 277 x 4 on a calculator if: - the '4' button is broken? - the '2' button is broken?	A film starts at 11:25 am and finishes at 1:15 pm. How long was the film?	Pupils can investigate (e.g on a geoboard) the many shapes they can make using set criteria: e.g. 'has two right angles', 'has at least one angle smaller than a right angle'	How many ways can you calculate the subtraction: 1013 - 876 ? Which way do you prefer? Why?

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Year 4 Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reasoning with 4 digit numbers	**Multiplication and division**	**Securing multiplication facts**	**Decimals**	**Solving measure and money problems**	**Reasoning with patterns and sequences**
Solve number and practical problems with increasingly large numbers; identify, represent and estimate using different representations.	Understand and use distributive law; use place value to calculate mentally; use formal written method to multiply two and three-digits numbers by one-digit numbers.	Recall multiplication facts up to 12 x 12.	Discover decimals; recognise decimal equivalents to tenths, quarters and halves; compare numbers with the same number of decimals places.	Convert betwen units of measure; estimate, compare and solve simple measure and money problems including fractions and decimals.	Read Roman numerals and understand a brief history of the number system; recognise and use square numbers and their notation; understand negative numbers to -100.
Addition and subtraction	**Discrete and continuous data**	**Fractions**	**Area and perimeter**	**Shape and symmetry**	**3-D shape**
Calculate and estimate numbers with up to 4 digits using formal written methods; solve two-step problems, deciding on appropriate methods.	Solve, compare, calculate, interpret and present data using appropriate graphical methods; understand line graphs.	Show families of equivalent fractions; solve problems with increasingly harder fractions; add/subtract fractions totalling more than 1.	Measure and calculate rectilinear shapes; measure, calculate and compare areas of rectangles and composite rectilinear shapes.	Compare and classify geometric shapes and angles; identify lines of symmetry in 2-D shapes.	Identify 3-D shapes from 2-D representations.
		Time		**Position and direction**	
		Solve problems converting between units of measure, analogue and digital 12 and 24-hour clocks.		Describe positions and movements and plot specified points and lines on a 2-D grid.	

Example suggestions for depth:

There are 7430 sweets in a jar. 1221 are eaten by boys, 775 are eaten by girls. How many sweets are left?	I have 54 sweets to share. Can they be shared equally among 4, 5, 6, 7, 8 or 9 people? In each case, if they can't be shared equally, how many more sweets do I need so I can share equally?	What is $\frac{3}{8}$ of 16? Write your own fraction questions that give the same answer	A rectangle has a perimeter of 12 m 32 cm. What lengths could its sides be?	I ordered some of the food from this lunch menu (shown). I paid £10.00 and was given £3.40 change. What might I have ordered?	In Roman numerals, M represents 1000. What do you think 1010, 999 and 1004 are in Roman numerals?

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Year 5 Curriculum Map

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reasoning with large whole numbers Understand, compare and solve number and practical problems to 1 000 000. **Problem solving with integer addition and subtraction** Explore calculation strategies for large number problems, reasoning towards appropriate operations and methods. **Factors and prime numbers** Identify multiples and factors; recognise and use square, cube and prime numbers.	**Multiplication and division** Solve problems using known facts, knowledge of factors, primes, squares and cubes and combinations of operations. **Converting units – weight, length (perimeter) and time** Measure, calculate and convert lengths, weights and time. **Volume and area** Calculate and compare areas of rectangles; estimate areas of rectilinear shapes; estimate volume and capacity.	**Fractions and decimals** Understand and use numbers with up to 3 decimal places; read and write decimals as fractions; solve problems involving measure with all four operators. **Angles** Estimate and compare acute, obtuse and reflex angles; draw given angles, measuring in degrees; identify totals of angles at a point and on a straight line.	**Fractions, decimals and percentages** Understand percentages and convert to fractions/decimals; add/subtracts fractions with different denominators; multiply fractions by whole numbers; solve problems with all of the above. **Line graphs and timetables** Solve comparison, sum and difference problems from graphical information; interpret information in tables.	**Transformations** Identify and describe translations and positions of shapes with appropriate language; deduce missing lengths and angles. **Calculating with whole numbers and decimals** Consolidation and application opportunities. Solve multi-step problems in contexts, using all four operations and deciding on appropriate methods.	**Angles, 2D and 3D shape** Distinguish between regular and irregular polygons; recognise, describe and build 3-D shapes, including making nets; illustrate and name parts of circles. **Calculating with whole numbers and decimals** Solve problems involving calculations of percentages; use common factors to simplify fractions; associate fractions with division operations.

■ Example suggestions for depth:

Pupils should explore different calculation strategies for solving addition and subtraction problems with large numbers. How many strategies can they find to solve one problem? Which is the most efficient?	On squared paper draw different irregular shapes with an area of 12 cm², explaining how the area was calculated.	Looking at a clock, how many minutes of time could make a minute hand turn more than 90° but less than 180°?	Use the digits from 1 to 8 to make four of your own fractions and place them in order. Use correct vocabulary when comparing your fractions out loud.	Explore patterns in textiles, mosaics, etc. Describe elements of the pattern in terms of the shape transformations that create the repeating pattern.	Show pupils nets of simple 3D shapes. Can they work out what shapes the nets will make? Allow them to cut out the nets to explore whether they were right. Can they make their own nets?