

Maths/ Thinking and Problem Solving - Curriculum Mapping

Vision: To prepare students well for everyday life. Our mathematics curriculum will give students the opportunity to think mathematically, enabling them to reason, solve problems in a range of contexts

Skill	Branch 1	Branch 2	Branch 3	Branch 4	Branch 5	Branch 6	Branch 7	Branch 8	Branch 9	Branch 10
Routes for Learning	<p>Notices Stimuli</p> <p>Responds to very obvious stimulus</p> <p>Demonstrates familiarity with recently presented stimulus</p> <p>Responds to range of stimuli</p> <p>Responds consistently to one stimulus</p> <p>Responds differently to different stimuli</p> <p>Briefly follows moving stimulus</p>	<p>Anticipates repetitively presented stimulus</p> <p>With support explores immediate environment</p> <p>Accidental actions cause effect</p> <p>Redirects attention to second object</p> <p>Looks briefly after object disappearing from their field of vision</p> <p>In a reactive environment repeats action which obtains sensory feedback</p> <p>Responds to cause and effect</p> <p>In an everyday environment repeats action which obtains sensory feedback</p> <p>Looks backwards and forwards between two objects (knows two objects are present)</p>	<p>Shows understanding that their action causes a specific effect</p> <p>Begins to explore immediate environment with intent</p> <p>Repeats action when first attempt unsuccessful</p> <p>Attracts attention</p> <p>Modifies action when repeating action does not work</p> <p>Selects from two or more items</p> <p>Early problem solving – tries new strategy when old one fails</p> <p>Initiates strategies to achieve desired results in a variety of contexts (exercises autonomy)</p>	<p>Joint attention</p> <p>Object permanence</p> <p>Does two different actions in sequence to get a reward</p>	N/A					
Number	N/A			Shows an interest in number rhymes and songs.	Understand the concept of 'one'	<p>Recites some number names in sequence</p> <p>Selects from a group when asked: "please give me one", "please give me lots"</p> <p>Knows that numbers identify how many objects are in a set</p> <p>Shows an understanding of one to one correspondence by distributing up to 6 items accurately</p>	<p>Uses some number names and number language spontaneously in context</p> <p>Recites numbers in order to 10</p> <p>Realises not only objects, but anything can be counted, including steps, claps or jumps</p> <p>Recognise some numerals of personal significance</p> <p>Counts up to five objects accurately by saying one number name for each item</p> <p>Understands concept of 'more', e.g. knows that more cups are required so that all children have one</p>	<p>Finds the total number of items in two groups by counting all of them</p> <p>Matches numeral and quantity correctly up to 5</p> <p>Begins to represent numbers using fingers, marks on paper or pictures</p> <p>Knows that two groups of 3 or less objects are the same or different</p> <p>Recognises numerals 1 - 5</p>	<p>Counts to 10 accurately, matching numerals and beginning to count beyond 10</p> <p>Counts out up to six objects from a larger group</p> <p>Counts an irregular arrangement of up to ten objects</p> <p>Can add two groups by counting on from first group total</p> <p>Can share up to ten items in practical situations</p> <p>Uses the language of 'more' and 'less' to compare two sets of objects</p> <p>Can count and order numbers, starting from a number other than 1</p> <p>Knows that number of objects remains the same when they are rearranged with nothing taken away</p>	<p>Estimates how many objects they can see and checks by counting them for up to 10 objects</p> <p>Can count to at least 20, forwards and backwards</p> <p>Can identify, read and write numbers up to 20</p> <p>Knows the number that is one more or one less than a given number up to 20</p> <p>Understands the concepts of 'add', 'take away' and 'equals' up to 10</p> <p>Counts in twos up to 20</p> <p>Shows an understanding of ordinal numbers (first, second, third)</p> <p>Can double and half up to 10 items in practical situations</p>

Shape. Space Measures	N/A	Reaches out for, touches and begins to hold objects Explores objects with mouth, often picking up an object and holding it to the mouth Holds an object in each hand and brings them together in the middle, e.g. Holds two blocks and bangs them together	Passes toys from one hand to another	Explores filling and emptying containers Matches identical objects Makes lines and towers with blocks in play situations Combine two construction items	Attempts, sometimes successfully, to fit shapes into spaces Beginning to understand the concepts of 'now' and 'next' Matches objects to a 2 dimensional representation Selects tools for purpose in play situations	Sorts objects by colour Follows a visual timetable to anticipate familiar activities Begins to show an understanding of the concepts big and small Uses construction materials to create their own simple structures and arrangements	Copies simple patterns and makes arrangements with shapes Begins to sort objects according to properties such as shape, size or type for identical objects Selects a particular named 2D shape Can identify biggest and smallest items/objects	Uses positional language (e.g. in, out, on, off, over, under) Sustained interest in construction activities and talks about shapes or arrangements (short or tall) Organise and categorise non-identical objects, e.g. putting all the teddy bears together or teddies and cars in separate piles Can name a particular 2D shape Recognises and uses the language 'full' and 'empty'	Can describe their relative position such as 'behind' 'in front of' or 'next to' Orders three or more items by length or height Uses familiar objects and common shapes to create, recreate and continue patterns and build objects Recognises and uses the language of 'heavy' and 'light' Can compare two volumes or weights Begins to use every day language related to money – 'pay', 'change', 'cost', 'money' 'pennies' Uses everyday language related to time (e.g. 'before', 'later', 'after', 'soon')	Orders three items by weight or capacity Recognise and know the value of coins to 10p Solve simple problems relating to: addition and subtraction, doubling, halving, sharing, money (all to 10), and measurement using direct comparison Beginning to use mathematical names for 'solid' 3D shapes Tell the time to the nearest hour Recognise 'half' as one of two equal parts of an object
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Skill	NC Y1	NC Y2	NC Y3	NC Y4	14+ Moving on Numeracy	MOZ	Accreditation
Number and Place Value	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; count in multiples of twos, fives and tens 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 (fewer), most, least read and write numbers from 1 to 20 in numerals and words.	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward recognise the place value of each digit in a two-digit number (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 read and write numbers to at least 100 in numerals and in words use place value and number facts to solve problems.	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words solve number problems and practical problems involving these ideas.	count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number count backwards through zero to include negative numbers recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) order and compare numbers beyond 1000 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1000 solve number and practical problems that involve all of the above and with increasingly large positive numbers read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	Maths for the Future Enterprise The student will learn about and experience enterprise. Work The student will learn about and experience work. Financial Responsibility The student will learn about and experience financial responsibility.	- Discuss costs and budgets - Decide pricing - Loyalty cards - Use till - Take monies - Give change - Sell items on chosen platform - investigate possibility of selling at a craft fair. <u>We Can Sell</u> Autumn: Check stock Select the best pieces to Ebay Photograph the pieces Make packaging	Accreditations - Open Awards Entry Level Award in Hospitality and Catering Skills (Entry 1 and 2) & Introduction to Barista Skills Open Awards Entry Level Award in Enterprise Skills (Entry 1) Open Awards Maths
Number Addition and Subtraction	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs represent and use number bonds and related subtraction facts within 20 solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9.	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 recall and use addition and subtraction facts to 20 fluently, and derive 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 addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot recognise and use the inverse relationship between addition and	add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction estimate the answer to a calculation and use inverse operations to check answers solve problems, including missing number problems, using number facts, place value, and more complex addition and	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate estimate and use inverse operations to check answers to a calculation solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Maths for the Future Enterprise The student will learn about and experience enterprise. Work The student will learn about and experience work. Financial Responsibility The student will learn about and experience financial responsibility.	Respond to customer queries Take unwanted stock to charity shops - as will be running 1 day rather than 2. Visits to charity shops for more stock if needed. Develop Planet Apple to include selling our upcycling and t-shirt/bag printing items. Consider costings and prices. Students start to learn about different retail jobs online and in person retail. Students start learn about good customer service	

		subtraction and use this to check calculations and solve missing number problems.	subtraction.			Spring: Develop selling in person - at craft fairs, pop up shop etc Students visit different retail environments Get visitors to come in and tell us about their retail job. Students practice good customer service in person. Students become increasingly independent in Planet Apple tasks. Summer: Students consolidate all their learning and skills Students reflect on what retail skills they have Profits reviewed.
Number Multiplication and Division	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.	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising 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 (=) signs show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	recall multiplication and division facts for multiplication tables up to 12 × 12 use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations multiply two-digit and three-digit numbers by a one-digit number using formal written layout solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	Maths for the Future Enterprise The student will learn about and experience enterprise. Work The student will learn about and experience work. Financial Responsibility The student will learn about and experience financial responsibility.	
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.	recognise, find, name and write fractions 3 1, 4 1, 4 2 and 4 3 of a length, shape, set of objects or quantity write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1.	count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise and show, using diagrams, equivalent fractions with small denominators add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6] compare and order unit fractions, and fractions with the same denominators solve problems that involve all of the above.	recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number add and subtract fractions with the same denominator recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to solve simple measure and money problems involving fractions and decimals to two decimal places. 4 1, 2 1, 4 3 find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places	Maths for the Future Enterprise The student will learn about and experience enterprise. Work The student will learn about and experience work. Financial Responsibility The student will learn about and experience financial responsibility.	
Measurement	compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] 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] time [for example, quicker, slower, earlier, later] measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. recognise and know the value of different denominations of coins and notes 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	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 = 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 compare and sequence intervals of 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.	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) measure the perimeter of simple 2-D shapes add and subtract amounts of money to give change, using both £ and p in practical contexts tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events [for example to calculate the time taken by particular events or tasks].	Convert between different units of measure [for example, kilometre to metre; hour to minute] measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares estimate, compare and calculate different measures, including money in pounds and pence read, write and convert time between analogue and digital 12- and 24-hour clocks solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Maths in Everyday Life Measurement and Volume The student will learn about and experience measurement and volume. Weighing and Cooking The student will learn about and experience weighing and cooking. Time The student will learn about and experience time. Maths for life Shopping The student will learn about and experience shopping. Domestic Appliances The student will learn about and experience domestic appliances. Telephone and Communication The student will learn about and experience telephone and communication.	To be able to handle money To be able to record amounts of money & add them up with a calculator. To be able to record dates on the calendar / diary

	relating to dates, including days of the week, weeks, months and years																		
Geometry Properties of Shape	recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	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.	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them recognise angles as a property of shape or a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes identify acute and obtuse angles and compare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presented in different orientations complete a simple symmetric figure with respect to a specific line of symmetry	Maths for Design Repeating Patterns The student will learn about and experience repeating patterns. Shape, Colour and Space The student will learn about and experience shape, colour and space. Design The student will learn about and experience design.														
Geometry Position and Direction	describe position, direction and movement, including whole, half, quarter and three quarter turns.	order and arrange combinations of mathematical objects in patterns and sequences 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 anticlockwise).	N/A	describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon.	Maths for the Community Maps, Travel and Timetables The student will learn about and experience maps, travel and timetables. Using Leisure Facilities The student will learn about and experience using leisure facilities. Money The student will learn about and experience money.														
Statistics	N/A	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 totalling and comparing categorical data.	interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Maths for the Community Maps, Travel and Timetables The student will learn about and experience maps, travel and timetables. Using Leisure Facilities The student will learn about and experience using leisure facilities. Money The student will learn about and experience money.	<table border="1"> <tr><td>Give examples of different jobs in retail</td></tr> <tr><td>State the skills needed for one of the jobs in retail</td></tr> <tr><td>List own retail skills</td></tr> <tr><td>Identify a role (paid/voluntary) that matches your skills in retail</td></tr> <tr><td>Give an example of a task they participated in when working in retail</td></tr> <tr><td>Give an example of something they learned while working in retail</td></tr> <tr><td>Identify something they did well</td></tr> <tr><td>Identify one thing they might do better</td></tr> <tr><td>Identify one thing they enjoyed about working in retail</td></tr> <tr><td>Give a reason for keeping a retail environment clean and tidy</td></tr> <tr><td>Follow instructions to clean the work area</td></tr> <tr><td>Identify who to ask for help in case of an accident or emergency</td></tr> </table>	Give examples of different jobs in retail	State the skills needed for one of the jobs in retail	List own retail skills	Identify a role (paid/voluntary) that matches your skills in retail	Give an example of a task they participated in when working in retail	Give an example of something they learned while working in retail	Identify something they did well	Identify one thing they might do better	Identify one thing they enjoyed about working in retail	Give a reason for keeping a retail environment clean and tidy	Follow instructions to clean the work area	Identify who to ask for help in case of an accident or emergency	<p>Accreditation</p> <p>Open Awards Entry Level Award in Enterprise Skills (Entry 1)</p> <p>Open Awards Entry Level Award in Retail Skills</p>
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