



NRICH <http://nrich.maths.org> problems linked to

the primary national curriculum for mathematics in EYFS, Year 1 and Year 2

The stars indicate the level of confidence and competence needed to begin the activity. One star problems will be suitable for the whole class, two stars for the majority and three stars for those who like a serious challenge.

N.B. This is work in progress – we would really appreciate your comments. Please email emp1001@cam.ac.uk

EYFS (40-60+ months)	Year 1	Year 2
Strand 1 - Number		
<p>Recognises:</p> <ul style="list-style-type: none"> some numerals of personal significance numerals 1 to 5 	<p>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p>	<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</p> <p>NRICH: Buzzy Bee *</p>
<p>Counts:</p> <ul style="list-style-type: none"> up to three or four objects by saying a number name for each item actions or objects which cannot be moved objects to 10, and beginning to count beyond 10 out up to six objects from a larger group an irregular arrangement of up to ten objects 	<p>Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p> <p>NRICH: Writing Digits *</p> <p>NRICH: Shut the Box *</p> <p>NRICH: Biscuit Decorations *</p> <p>NRICH: Grouping Goodies ***</p>	<p>Recognise the place value of each digit in a two-digit number (tens, ones)</p> <p>NRICH: Snail One Hundred *</p>
<p>Selects the correct numeral to represent 1 to 5, then 1 to 10 objects</p> <p>NRICH EYFS: Tidying</p> <p>NRICH EYFS: Incey Wincey Spider</p> <p>NRICH EYFS: Dice</p> <p>NRICH EYFS: Washing Line</p>	<p>Given a number, identify one more and one less</p> <p>Number and Place Value</p>	<p>Identity, represent and estimate numbers using representations, including the number line</p> <p>NRICH: How We'd Count *</p> <p>NRICH: Tug of War *</p>

<p>Uses the language of 'more' and 'fewer' to compare two sets of objects</p> <p>NRICH EYFS: Packing</p>	<p>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</p> <p>NRICH: Making Sticks **</p> <p>NRICH: Robot Monsters *</p> <p>NRICH: Dotty Six *</p> <p>NRICH: All Change *</p>	<p>Compare and order numbers from 0 up to 100; use <, > and = signs</p> <p>NRICH: Sort Them Out (1) *</p> <p>NRICH: Domino Sequences *</p> <p>NRICH: Domino Number Patterns **</p> <p>NRICH: Next Domino *</p> <p>NRICH: 100 Square Jigsaw *</p> <p>NRICH: That Number Square! *</p>
<p>Estimates how many objects they can see and checks by counting them</p>	<p>Read and write numbers from 1 to 20 in numerals and words</p> <p>NRICH: What's in a Name? **</p> <p>NRICH: Count the Digits *</p>	<p>Read and write numbers to at least 100 in numerals and in words</p>
<p>Says the number that is one more than a given number</p>		<p>Use place value and number facts to solve problems</p> <p>NRICH: I Like ... *</p> <p>NRICH: Light the Lights ***</p> <p>NRICH: Largest Even *</p>
<p>Finds one more or one less from a group of up to five objects, then ten objects</p>		
<p>ELG Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.</p>		
<p>Finds the total number of items in two groups by counting all of them</p>	<p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</p> <p>NRICH: 2,4,6,8 ***</p> <p>NRICH: How Do You See it? *</p> <p>Addition and Subtraction</p>	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods <p>NRICH: Getting the Balance ***</p> <p>NRICH: Noah **</p> <p>NRICH: Eggs in Baskets **</p> <p>NRICH: The Brown Family ***</p> <p>NRICH: Birthday Cakes **</p> <p>NRICH: Sitting Round the Party Tables *</p> <p>NRICH: Cuisenaire Counting ***</p>

<p>In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting</p> <p>NRICH EYFS: Number Rhymes</p>	<p>Represent and use number bonds and related subtraction facts within 20</p> <p>NRICH: Domino Sorting *</p> <p>NRICH: One Big Triangle *</p> <p>NRICH: Ladybirds in the Garden **</p> <p>NRICH: Number Lines *</p> <p>NRICH: Pairs of Numbers *</p> <p>NRICH: Weighted Numbers *</p> <p>NRICH: Butterfly Flowers *</p>	<p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>NRICH: Number Round Up ***</p> <p>NRICH: 4 Dom ***</p> <p>NRICH: Strike it Out *</p>
<p>ELG Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.</p> <p>NRICH EYFS: Maths Story Time</p>	<p>Add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>NRICH: Two Dice *</p> <p>NRICH: Find the Difference **</p> <p>NRICH: Sort Them Out (1) *</p>	<p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers <p>NRICH: Cuisenaire Environment *</p> <p>NRICH: Jumping Squares **</p> <p>NRICH: Number Balance **</p>
	<p>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$</p>	<p>Show that addition of two numbers can be done in any order (commutative), and subtraction of one number from another cannot</p>
		<p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems</p> <p>NRICH: The Add and Take-away Path *</p> <p>NRICH: Secret Number **</p> <p>NRICH: How Many? *</p> <p>NRICH: What Was in the Box? *</p> <p>NRICH: Doing and Undoing *</p>

	<p>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</p> <p>NRICH: Lots of Biscuits! *</p> <p>NRICH: Share Bears *</p> <p>Multiplication and Division</p>	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p> <p>NRICH: Odd Times Even ***</p> <p>NRICH: Two Numbers Under the Microscope **</p> <p>NRICH: Even and Odd *</p> <p>NRICH: Ring a Ring of Numbers *</p> <p>NRICH: More Numbers in the Ring ***</p> <p>NRICH: How Odd **</p> <p>NRICH: Doing and Undoing *</p> <p>NRICH: Clapping Times *</p>
		<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p> <p>NRICH: Ordering Cards *</p> <p>NRICH: Which Symbol? *</p> <p>NRICH: I'm Eight *</p>
		<p>Show that multiplication of two numbers can be done in any order (commutative), and division of one number by another cannot</p>
		<p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>NRICH: Our Numbers *</p> <p>NRICH: Are You Well Balanced? ***</p> <p>NRICH: Magic Plant **</p> <p>NRICH: The Amazing Splitting Plant ***</p> <p>NRICH: The Tomato and the Bean ***</p> <p>NRICH: Lots of Lollies ***</p> <p>NRICH: Ip Dip *</p>
	<p>Recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>NRICH: Halving **</p> <p>NRICH: Happy Halving ***</p> <p>Fractions</p>	<p>Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity</p> <p>NRICH: Making Longer, Making Shorter **</p>

	Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$
EYFS (40-60+ months)	Year 1	Year 2
Strand 2 – Measurement		
Orders two or three items by length or height	<p>Compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] mass or weight [for example, heavy/light, heavier than, lighter than] capacity/volume [for example, full/empty, more than, less than, half, half full, quarter] time [for example, quicker, slower, earlier, later] <p>NRICH: Wallpaper **</p> <p>NRICH: Sizing Them Up *</p> <p>NRICH: The Animals' Sports Day *</p> <p>NRICH: Different Sizes *</p>	<p>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</p> <p>NRICH: Discuss and Choose *</p> <p>NRICH: Little Man *</p>
<p>Orders two items by weight or capacity</p> <p>NRICH EYFS: Making Caterpillars</p> <p>NRICH EYFS: Presents</p>	<p>Measure and begin to record the following:</p> <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) <p>NRICH: How Tall? *</p> <p>NRICH: Can You Do it Too? **</p>	<p>Compare and order lengths, mass, volume/capacity and record the results using >, < and =</p> <p>NRICH: Order, Order! *</p>
Uses everyday language related to time	Recognise and know the value of different denominations of coins and notes	<p>Recognise and use the symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>NRICH: Five Coins **</p>
Orders and sequences familiar events	<p>Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)</p> <p>NRICH: The Games' Medals **</p> <p>NRICH: Times of Day *</p>	<p>Find different combinations of coins that equal the same amounts of money</p> <p>NRICH: Money Bags **</p>

Measures short periods of time in simple ways	Recognise and use language relating to dates, including days of the week, weeks, months and years	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change NRICH: The Puzzling Sweet Shop **
ELG Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. NRICH EYFS: Timing NRICH EYFS: Shopping	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	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 NRICH: What's the Time? * NRICH: Stop the Clock ***
		Know the number of minutes in an hour and the number of hours in a day
EYFS (40-60+ months)	Year 1	Year 2
Strand 3 - Geometry		
Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes	Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> 2-D shapes (for example, rectangles (including squares), circles and triangles) 3-D shapes (for example, cuboids (including cubes), pyramids and spheres) NRICH: Shaping It * NRICH: What's Happening? * Properties of Shapes	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line NRICH: Shapely Lines * NRICH: Chain of Changes ** NRICH: Colouring Triangles ** NRICH: Exploded Squares * NRICH: Complete the Square *** NRICH: Let's Investigate Triangles * NRICH: Poly Plug Rectangles * NRICH: Square It * NRICH: Inside Triangles ***

Selects a particular named shape		<p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>NRICH: Building with Solid Shapes *</p> <p>NRICH: Skeleton Shapes **</p> <p>NRICH: Rolling That Cube *</p>
Uses familiar objects and common shapes to create and recreate patterns and build models		<p>Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>NRICH: Cubes *</p> <p>NRICH: Shadow Play ***</p>
<p>ELG They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.</p> <p>NRICH EYFS: Making Footprints</p> <p>NRICH EYFS: Paths</p> <p>NRICH EYFS: Building Towers</p> <p>NRICH EYFS: Exploring 2D Shape</p> <p>NRICH EYFS: Wrapping Parcels</p>		<p>Compare and sort common 2-D and 3-D shapes and everyday objects</p> <p>NRICH: Matching Triangles *</p> <p>NRICH: Data Shapes *</p>
<p>Can describe their relative position such as 'behind' or 'next to'</p> <p>NRICH EYFS: Queuing</p> <p>Position and Direction</p>	<p>Describe position, direction and movement, including whole, half, quarter and three-quarter turns</p> <p>NRICH: Tangram Tangle ***</p> <p>NRICH: Olympic Rings **</p> <p>NRICH: 2 Rings *</p> <p>NRICH: Turning *</p>	<p>Order and arrange combinations of mathematical objects in patterns and sequences</p> <p>NRICH: Poly Plug Pattern *</p> <p>NRICH: Triple Cubes *</p> <p>NRICH: A City of Towers **</p> <p>NRICH: Caterpillars **</p>
		<p>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)</p> <p>NRICH: Turning Man *</p> <p>NRICH: Walking Round a Triangle *</p>

EYFS (40-60+ months)	Year 1	Year 2
Strand 4 - Statistics		
		<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p> <p>NRICH: Sticky Data *</p> <p>NRICH: If the World Were a Village *</p> <p>NRICH: Plants **</p> <p>NRICH: Plants **</p> <p>NRICH: What Shape and Colour? *</p> <p>NRICH: Carroll Diagrams *</p> <p>NRICH: Ladybird Count *</p>
		<p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</p> <p>NRICH: The Hair Colour Game **</p> <p>NRICH: Mixed-up Socks **</p> <p>NRICH: Sort the Street *</p> <p>NRICH: Button-up *</p> <p>NRICH: Beads and Bags *</p>
		<p>Ask and answer questions about totalling and comparing categorical data</p> <p>NRICH: In the Playground *</p>