NRICH http://nrich.maths.org problems linked to the Framework for teaching mathematics in Years 3, 4, 5 and 6

A list of recent updates can be found at the end of this document. 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

Year 3	Year 4	Year 5	Year 6	Year 6-7
Strand 1 - Using and Applying				
Solve one-step and two-step problems involving numbers, money or measures, including time**,** choosing and carrying out appropriate calculations **NRICH: A Square of Numbers** * **NRICH: How Do You See it?** * **Thinking Mathematically**	Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate **NRICH: The Puzzling Sweet Shop** **	Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use **NRICH: Money Bags** ** **NRICH: Amy's Dominoes** **	Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use **NRICH: Two Primes Make One Square** ** **NRICH: Escape from the Castle** **	Solve problems by breaking down complex calculations into simpler steps; choose and use operations and calculation strategies appropriate to the numbers and context; try alternative approaches to overcome difficulties; present, interpret and compare solutions
Represent the information in a puzzle or problem using numbers, images or diagrams; use these to find a solution and present it in context, where appropriate using £.p notation or units of measure	Represent a puzzle or problem using number sentences, statements or diagrams; use these to solve the problem; present and interpret the solution in the context of the problem **NRICH: Buying a Balloon** * **NRICH: Take Three Numbers** * **NRICH: Three Neighbours** ** **NRICH: Fifteen Cards** *	Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem **NRICH: Sealed Solution** ** **NRICH: Prison Cells** ** **NRICH: Spot Thirteen** *	Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy **NRICH: Counting Cards** *** **NRICH: This Pied Piper of Hamelin** ** **NRICH: Junior Frogs** ** **NRICH: Inky Cube** ***	Represent information or unknown numbers in a problem, for example in a table, formula or equation; explain solutions in the context of the problem **NRICH: Square Subtraction** ***

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Follow a line of enquiry by deciding what information is important; make and use lists, tables and graphs to organise and interpret the information
NRICH: Sweets in a Box *
NRICH: Going for Gold *
NRICH: The Domesday Project *
NRICH: Birdwatch *

Suggest a line of enquiry and the strategy needed to follow it; collect, organise and interpret selected information to find answers
NRICH: How Tall? *
NRICH: Eye View *
NRICH: In Order *

Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry
NRICH: Planning a School Trip *

Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions

Develop and evaluate lines of enquiry; identify, collect, organise and analyse relevant information; decide how best to represent conclusions and what further questions to ask

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Describe patterns and relationships involving numbers or shapes, and use these to solve problems
NRICH: Ip Dip *
NRICH: Cuisenaire Spirals *
NRICH: That Number Square! *
NRICH: Unlocking the Case *
NRICH: It's a Scrabble *
NRICH: Carrying Cards *

Patterns and Sequences

Identify and use patterns, relationships and properties of numbers or shapes; investigate a statement involving numbers and test it with examples
NRICH: Break It Up *
NRICH: Count the Digits *

Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false
NRICH: Up and Down Staircases *
NRICH: Magic Vs **
NRICH: Number Differences *
NRICH: Exploring Wild & Wonderful Number Patterns *
NRICH: Exploring Number Patterns You Make **
NRICH: Become Maths Detectives *
NRICH: The Numbers Give the Design *
NRICH: Button-up Some More **
NRICH: Sitting Round the Party Tables *
NRICH: Follow the Numbers *

Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is 15c pence)
NRICH: Sticky Triangles ***
NRICH: Light the Lights Again *

Generate sequences and describe the general term; use letters and symbols to represent unknown numbers or variables; represent simple relationships as graphs

Describe and explain methods, choices and solutions to puzzles and problems, orally and in writing, using pictures and diagrams **NRICH: Dotty Six** *	Report solutions to puzzles and problems, giving explanations and reasoning orally and in writing, using diagrams and symbols	Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols **NRICH: Beads and Bags** *	Explain reasoning and conclusions, using words, symbols or diagrams as appropriate **NRICH: Make 37** ** **NRICH: GOT IT** **	Explain and justify reasoning and conclusions, using notation, symbols and diagrams; find a counter-example to disprove a conjecture; use step-by-step deductions to solve problems involving shapes

Thinking Mathematically

Year 3	Year 4	Year 5	Year 6	Year 6-7
Strand 2 - Counting and Understanding Number				
Read, write and order whole numbers to at least 1000 and position them on a number line; count on from and back to zero in single-digit steps or multiples of 10	Recognise and continue number sequences formed by counting on or back in steps of constant size **NRICH: Number Tracks** *	Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line **NRICH: Swimming Pool*** **NRICH: Tug Harder!** * **NRICH: First Connect Three** *	Find the difference between a positive and a negative integer, or two negative integers, in context **NRICH: Consecutive Numbers** ** **NRICH: Sea Level** *	Compare and order integers and decimals in different contexts
Partition three-digit numbers into multiples of 100, 10 and 1 in different ways	Partition, round and order four-digit whole numbers; use positive and negative numbers in context and position them on a number line; state inequalities using the symbols less than and greater than (e.g. -3 greater than -5, -1 less than plus1) **NRICH: Some Games That May Be Nice or Nasty** *	Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line	Order a set of fractions by converting them to decimals

Counting and Ordering — appears in the Year 4/Year 3 row area

Addition and Subtraction — appears in the Year 6 row area

Place Value — appears in the Year 3 bottom row area

Round two-digit or three-digit numbers to the nearest 10 or 100 and give estimates for their sums and differences	Use decimal notation for tenths and hundredths and partition decimals; relate the notation to money and measurement; position one-place and two-place decimals on a number line	Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is five eighths); find equivalent fractions (e.g. seven tenths equals fourteen twentieths, or nineteen tenths equals 1nine tenths); relate fractions to their decimal representations **NRICH: Fractions in a Box** **	Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents eight fifths or 1three fifths pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator **NRICH: Chocolate** **	Recognise approximate proportions of a whole and use fractions and percentages to describe and compare them, for example when interpreting pie charts
			Fractions, Decimals and Percentages	
Read and write proper fractions (e.g. three sevenths, nine tenths), interpreting the denominator as the parts of a whole and the numerator as the number of parts; identify and estimate fractions of shapes; use diagrams to compare fractions and establish equivalents **NRICH: Matching Fractions** *	Recognise the equivalence between decimal and fraction forms of one half, quarters, tenths and hundredths	Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages	Express one quantity as a percentage of another (e.g. express pound400 as a percentage of pound1000); find equivalent percentages, decimals and fractions	Use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio; solve simple problems involving ratio and direct proportion (e.g. identify the quantities needed to make a fruit drink by mixing water and juice in a given ratio)
	Use diagrams to identify equivalent fractions (e.g. six eighths and three quarters, or seventy hundredths and seven tenths); interpret mixed numbers and position them on a number line (e.g. 3 one half)	Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people) **NRICH: Blackcurrantiest** ***	Solve simple problems involving direct proportion by scaling quantities up or down **NRICH: Orange Drink** ** **NRICH: Pumpkin Pie Problem** ** **Ratio and Proportion**	
	Use the vocabulary of ratio and proportion to describe the relationship between two quantities (e.g. 'There are 2 red beads to every 3 blue beads, or 2 beads in every 5 beads are red'); estimate a proportion (e.g. 'About one quarter of the apples in the box are green')			

Year 3	Year 4	Year 5	Year 6	Year 6-7
Strand 3 - Knowing and Using Number Facts				
Derive and recall all addition and subtraction facts for each number to 20, sums and differences of multiples of 10 and number pairs that total 100 **Addition and Subtraction**	Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100 or 1000 **NRICH: Which Is Quicker? ***	Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 plus over minus 2.7, half of 5.6, double 0.34)	Use knowledge of place value and multiplication facts to 10 multiplied by 10 to derive related multiplication and division facts involving decimals (e.g. 0.8 multiplied by 7, 4.8 divided by 6)	Consolidate rapid recall of number facts, including multiplication facts to 10 multiplied by 10 and the associated division facts
Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times-tables and the corresponding division facts; recognise multiples of 2, 5 or 10 up to 1000 **NRICH: Growing Garlic *** **NRICH: Ordering Cards ***	Identify the doubles of two-digit numbers; use these to calculate doubles of multiples of 10 and 100 and derive the corresponding halves **Multiplication and Division**	Recall quickly multiplication facts up to 10 multiplied by 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	Use knowledge of multiplication facts to derive quickly squares of numbers to 12multiplied by12 and the corresponding squares of multiples of 10 **NRICH: One Wasn't Square ** ** **NRICH: Cycling Squares ** **	Recognise the square roots of perfect squares to 12 multiplied by 12
Use knowledge of number operations and corresponding inverses, including doubling and halving, to estimate and check calculations	Derive and recall multiplication facts up to 10 multiplied by 10, the corresponding division facts and multiples of numbers to 10 up to the tenth multiple **NRICH: Multiplication Square Jigsaw *** **NRICH: Shape Times Shape *** **NRICH: What do you Need? *** **NRICH: Table Patterns Go Wild! ** ** **NRICH: Let's Divide Up! ***	Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9) **NRICH: Multiples Grid *** **NRICH: Music to My Ears *** **NRICH: Multiplication Squares *** **NRICH: Flashing Lights *** **NRICH: Mystery Matrix ** ** **NRICH: Factor Lines ** ** **NRICH: Zios and Zepts *** **NRICH: Abundant Numbers *** **NRICH: Factor Track ** **	Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers **NRICH: Factors and Multiples Game *** **Factors and Multiples**	Recognise and use multiples, factors, divisors, common factors, highest common factors and lowest common multiples in simple cases **NRICH: What's in the Box? *** **NRICH: Factor-multiple Chains ** ** **NRICH: The Moons of Vuvv *** **NRICH: Round and Round the Circle ** ** **NRICH: Counting Cogs ** **

	Use knowledge of rounding, number operations and inverses to estimate and check calculations **NRICH: Make 100 ****	Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations **NRICH: Four Go ***	Use approximations, inverse operations and tests of divisibility to estimate and check results **NRICH: Curious Number *****	Make and justify estimates and approximations to calculations

Rounding, Approximating and Estimating

	Identify pairs of fractions that total 1			

Year 3	Year 4	Year 5	Year 6	Year 6-7

Strand 4 - Calculating

Year 3	Year 4	Year 5	Year 6	Year 6-7
Add or subtract mentally combinations of one-digit and two-digit numbers **NRICH: Super Shapes * NRICH: Roll These Dice ** NRICH: Strike it Out ***	Add or subtract mentally pairs of two-digit whole numbers (e.g. 47 plus 58, 91 - 35) **NRICH: Twenty Divided Into Six ****	Extend mental-methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 multiplied by 9), to multiply by 25 (e.g. 16 multiplied by 25), to subtract one near-multiple of 1000 from another (e.g. 6070 - 4097)	Calculate mentally with integers and decimals: U.t plus over minus U.t, TU multiplied by U, TU divided by U, U.t multiplied by U, U.t divided by U **NRICH: How Do You Do It? * NRICH: Route Product****	Understand how the commutative, associative and distributive laws, and the relationships between operations, including inverse operations, can be used to calculate more efficiently; use the order of operations, including brackets

Addition and Subtraction **Multiplication and Division**

Year 3	Year 4	Year 5	Year 6	Year 6-7
Develop and use written methods to record, support or explain addition and subtraction of two-digit and three-digit numbers	Refine and use efficient written methods to add and subtract two-digit and three-digit whole numbers and pound.p	Use efficient written methods to add and subtract whole numbers and decimals with up to two places **NRICH: Reach 100 ****	Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer	Consolidate and extend mental methods of calculation to include decimals, fractions and percentages

Year 3	Year 4	Year 5	Year 6	Year 6-7
Multiply one-digit and two-digit numbers by 10 or 100, and describe the effect **Place Value**	Multiply and divide numbers to 1000 by 10 and then 100 (whole-number answers), understanding the effect; relate to scaling up or down **NRICH:** **The Deca Tree** *	Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	Relate fractions to multiplication and division (e.g. 6 divided by 2 equals one half of 6 equals 6 multiplied by one half); express a quotient as a fraction or decimal (e.g. 67 divided by 5 equals 13.4 or 13two fifths); find fractions and percentages of whole-number quantities **NRICH:** **Andy's Marbles** ** **NRICH:** **Would you Rather?** * **NRICH:** **Forgot the Numbers** ** **NRICH:** **Jumping** *	Use standard column procedures to add and subtract integers and decimals, and to multiply two-digit and three-digit integers by a one-digit or two-digit integer; extend division to dividing three-digit integers by a two-digit integer **NRICH:** **Two and Two** *** **NRICH:** **Trebling** * **NRICH:** **All the Digits** **
Use practical and informal written methods to multiply and divide two-digit numbers (e.g. 13 multiplied by 3, 50 divided by 4); round remainders up or down, depending on the context	Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g. 15 multiplied by 9, 98 divided by 6)	Refine and use efficient written methods to multiply and divide HTU multiplied by U, TU multiplied by TU, U.t multiplied by U and HTU divided by U	Use a calculator to solve problems involving multi-step calculations	Calculate percentage increases or decreases and fractions of quantities and measurements (integer answers)
Understand that division is the inverse of multiplication and vice versa; use this to derive and record related multiplication and division number sentences **NRICH:** **Secret Number** ** **NRICH:** **Journeys in Numberland** *	Find fractions of numbers, quantities or shapes (e.g. one fifth of 30 plums, three eighths of a 6 by 4 rectangle) **NRICH:** **A Bowl of Fruit** *** **NRICH:** **Fractional Triangles** * **NRICH:** **Bryony's Triangle** *	Find fractions using division (e.g. one hundredth of 5 kg), and percentages of numbers and quantities (e.g. 10percent, 5percent and 15percent of pound80) **Fractions, Decimals and Percentages**		Use bracket keys and the memory of a calculator to carry out calculations with more than one step; use the square root key **Using a Calculator**
Find unit fractions of numbers and quantities (e.g. one half, one third, one quarter and one sixth of 12 litres) **NRICH:** **Fair Feast** *	Use a calculator to carry out one-step and two-step calculations involving all four operations; recognise negative numbers in the display, correct mistaken entries and interpret the display correctly in the context of money	Use a calculator to solve problems, including those involving decimals or fractions (e.g. find three quarters of 150 g); interpret the display correctly in the context of measurement		
Year 3	**Year 4**	**Year 5**	**Year 6**	**Year 6-7**

		Strand 5 - Understanding Shape		
Relate 2-D shapes and 3-D solids to drawings of them; describe, visualise, classify, draw and make the shapes **NRICH: Building Blocks** * **NRICH: The Third Dimension** *** **NRICH: Cubes** * **NRICH: Rolling That Cube** * **NRICH: Triple Cubes** *	Draw polygons and classify them by identifying their properties, including their line symmetry **NRICH: Let's Reflect** * **NRICH: National Flags** *	Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes, and to identify and draw nets of 3-D shapes **NRICH: Square It** * **NRICH: Cut Nets** ** **NRICH: Egyptian Rope** **	Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids **NRICH: Where Are They?** * **NRICH: Sponge Sections** ** **Properties of Shape**	Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes
Draw and complete shapes with reflective symmetry; draw the reflection of a shape in a mirror line along one side	Visualise 3-D objects from 2-D drawings; make nets of common solids **NRICH: A Puzzling Cube** *	Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides **NRICH: Cops and Robbers** *	Make and draw shapes with increasing accuracy and apply knowledge of their properties **NRICH: Stringy Quads** ** **NRICH: Making Cuboids** ** **NRICH: Making Spirals** ***	Extend knowledge of properties of triangles and quadrilaterals and use these to visualise and solve problems, explaining reasoning with diagrams **NRICH: Nine-pin Triangles** *** **NRICH: Transformations on a Pegboard** * **NRICH: Cut it Out** *** **NRICH: Quadrilaterals** ***
Read and record the vocabulary of position, direction and movement, using the four compass directions to describe movement about a grid	Recognise horizontal and vertical lines; use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares **NRICH: Square Corners** **	Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation **Movement and Position**	Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through 90degrees or 180degrees about its centre or one of its vertices	Know the sum of angles on a straight line, in a triangle and at a point, and recognise vertically opposite angles

Use a set-square to draw right angles and to identify right angles in 2-D shapes; compare angles with a right angle; recognise that a straight line is equivalent to two right angles	Know that angles are measured in degrees and that one whole turn is 360degrees; compare and order angles less than 180degrees	Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line **NRICH: Six Places to Visit** *	Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties **NRICH: A Cartesian Puzzle** * **NRICH: Eight Hidden Squares** **	Use all four quadrants to find coordinates of points determined by geometric information **NRICH: Coordinate Tan** ** **NRICH: Ten Hidden Squares** ***
			Estimate angles, and use a protractor to measure and draw them, on their own and in shapes; calculate angles in a triangle or around a point **NRICH: How Safe Are You?** * **NRICH: Olympic Turns** *** **NRICH: Round a Hexagon** *	Identify all the symmetries of 2-D shapes; transform images using ICT **NRICH: Symmetry Challenge** *** **NRICH: Coordinate Challenge** *
				Construct a triangle given two sides and the included angle
Year 3	**Year 4**	**Year 5**	**Year 6**	**Year 6-7**
Strand 6 - Measuring				
Know the relationships between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres; choose and use appropriate units to estimate, measure and record measurements **NRICH: Olympic Starters** * **Units and Scales**	Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.3 m or 0.6 kg)	Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g) **NRICH: Discuss and Choose** *	Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa)	Convert between related metric units using decimals to three places (e.g. convert 1375 mm to 1.375 m, or vice versa)

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Read, to the nearest division and half-division, scales that are numbered or partially numbered; use the information to measure and draw to a suitable degree of accuracy	Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit	Interpret a reading that lies between two unnumbered divisions on a scale	Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments	Solve problems by measuring, estimating and calculating; measure and calculate using imperial units still in everyday use; know their approximate metric values
Read the time on a 12-hour digital clock and to the nearest 5 minutes on an analogue clock; calculate time intervals and find start or end times for a given time interval **NRICH: Two Clocks** ** **Time**	Draw rectangles and measure and calculate their perimeters; find the area of rectilinear shapes drawn on a square grid by counting squares **NRICH: Torn Shapes** * **Area and Perimeter**	Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area **NRICH: Fitted** ***	Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares **NRICH: Numerically Equal** ** **NRICH: Area and Perimeter** * **NRICH: Shaping It** *	Calculate the area of right-angled triangles given the lengths of the two perpendicular sides, and the volume and surface area of cubes and cuboids **NRICH: Brush Loads** * **NRICH: More Transformations on a Pegboard** ** **NRICH: Making Boxes** ** **NRICH: Next Size Up** **
	Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables **NRICH: Wonky Watches** ** **NRICH: Clocks** * **NRICH: Watch the Clock** ***	Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals **NRICH: How Many Times?** * **NRICH: 5 on the Clock** *** **NRICH: The Time Is …** **		
Year 3	**Year 4**	**Year 5**	**Year 6**	**Year 6-7**

Strand 7 - Handling Data

Answer a question by collecting, organising and interpreting data; use tally charts, frequency tables, pictograms and bar charts to represent results and illustrate observations; use ICT to create a simple bar chart **NRICH: Our Sports** * **NRICH: Class 5's Names** * **Data**	Answer a question by identifying what data to collect; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts, using ICT where appropriate **NRICH: The Car That Passes** * **NRICH: The Olympic Flame: Are You in the 95%?** *	Describe the occurrence of familiar events using the language of chance or likelihood **NRICH: Probably …** * **Probability**	Describe and predict outcomes from data using the language of likelihood **NRICH: Domino Pick** * **NRICH: Odds or Sixes?** * **NRICH: The Twelve Pointed Star Game** ** **NRICH: Same or Different?** ** **NRICH: Tricky Track** ** **NRICH: Winning the Lottery** ** **NRICH: Now and Then** ** **NRICH: A Bit of a Dicey Problem** **	Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts
Use Venn diagrams or Carroll diagrams to sort data and objects using more than one criterion **NRICH: Venn Diagrams** * **NRICH: More Carroll Diagrams** * **NRICH: Plants** **	Compare the impact of representations where scales have intervals of differing step size	Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask **NRICH: Real Statistics** *** **NRICH: If the World Were a Village** *	Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask **NRICH: It's a Tie** **	Explore hypotheses by planning surveys or experiments to collect small sets of discrete or continuous data; select, process, present and interpret the data, using ICT where appropriate; identify ways to extend the survey or experiment
		Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time	Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts **NRICH: Match the Matches** **	Construct, interpret and compare graphs and diagrams that represent data, for example compare proportions in two pie charts that represent different totals
		Find and interpret the mode of a set of data	Describe and interpret results and solutions to problems using the mode, range, median and mean	Write a short report of a statistical enquiry and illustrate with appropriate diagram

Updates in January 2011:   The Car That Passes, Probably, Winning the Lottery

Updates in May 2011:   Journeys in Numberland, Area and Perimeter, Discuss and Choose, The Time Is …

Updates in September 2011: Four Go, Sponge Sections, Plants

Updates in February 2013:   How Do You See it?, Escape from the Castle, Take Three Numbers, Three Neighbours, Fifteen Cards, Spot Thirteen, This Pied Piper of Hamelin, Junior Frogs, Inky Cube, Square Subtraction, Going for Gold, The Domesday Project, Birdwatch, How Tall?, Eye View, In Order, Cuisenaire Spirals, That Number Square!, Unlocking the Case, It's a Scrabble, Carrying Cards, Count the Digits, Number Differences, Exploring Wild & Wonderful Number Patterns, Exploring Number Patterns You Make, Become Maths Detectives, The Numbers Give the Design, Button-up Some More, Sitting Round the Party Tables, Follow the Numbers, Dotty Six, Beads and Bags, Some Games That May Be Nice or Nasty, Matching Fractions, Which is Quicker?, Ordering Cards, Let's Divide Up!, Zios and Zepts, Abundant Numbers, Factor Track, Curious Number, Roll These Dice, A Bit of a Dicey Problem, Strike it Out, Jumping, Bryony's Triangle, Cubes, Rolling That Cube, Triple Cubes, National Flags, Making Spirals, Olympic Turns, Round a Hexagon, Olympic Starters, Shaping It, Our Sports, Class 5's Names, The Olympic Flame: Are You in the 95%?, Now and Then, If the World Were a Village.