

**Autumn 1: Pendarren**

Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency
1	<b>Warm-Up Week</b> <b>Times table revision</b>					
2	<b>Number</b> <b>Place value to 10 million</b>					
	<ul style="list-style-type: none"> <li>read, write, order and compare numbers up to 10,000,000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>Numbers to 10,000</li> <li>Numbers to 100,000</li> <li>Numbers to a million</li> <li>Numbers to 10 million</li> <li>Compare and order any number</li> </ul>	Base-10, place value counters, part-whole model, empty number line	<p><b>Do, then explain</b> Find out the populations in five countries. Order the populations starting with the largest. Explain how you ordered the countries and their populations.</p> <p><b>Do, then explain</b> Show the value of the digit 6 in these numbers? 6787555 95467754 Explain how you know.</p> <p><b>Make up an example</b> Create seven digit numbers where the digit sum is six and the tens of thousands digit is two. Eg 4020000 What is the largest/smallest number?</p>	MyMiniMaths	
3	<ul style="list-style-type: none"> <li>round any whole number to a required degree of accuracy</li> <li>use negative numbers in context, and calculate intervals across 0</li> <li>solve number and practical problems that involve all of the above</li> </ul>	<ul style="list-style-type: none"> <li>Round numbers to 10, 100 and 1000</li> <li>Round any number</li> <li>Negative numbers</li> </ul>	Base-10, place value counters, part-whole model, empty number line	<p><b>True or false?</b> When I count backwards in 50s from 10 I will say -200</p> <p><b>What do you notice?</b> Give an example of a six digit number which rounds to the same number when rounded to the nearest 10000 and 100000.</p> <p><b>Odd one out</b> 4832   6400   8934   10000   14999</p>	MyMiniMaths	

				Your answer must involve rounding!	
4	<b>Number</b> <b>Calculation: Addition and subtraction</b>				
	<ul style="list-style-type: none"> <li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>• solve problems involving addition, subtraction,</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>	<ul style="list-style-type: none"> <li>• Add more than 4 digit numbers</li> <li>• Subtract more than 4 digit numbers</li> <li>• Add and subtract integers</li> <li>• Solve problems involving addition and subtraction</li> </ul>	Place value grid, place value counters, column layout, empty number line, bar model	<b>Hard and easy questions</b> Which questions are easy / hard? $213323 - 70 =$ $512893 + 37 =$ $8193.54 - 5.9 =$ Explain why you think the hard questions are hard? <b>Convince me</b> Three four digit numbers total 12435. What could they be? Convince me. <b>NRICH Always, Sometimes or Never? Number</b>	MyMiniMaths
5	<b>Number</b> <b>Calculation: Multiplication and division</b>				
	<ul style="list-style-type: none"> <li>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>• divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>	<ul style="list-style-type: none"> <li>• Multiply up to a 4-digit number by a 2-digit number</li> <li>• Short division</li> <li>• Division using factors</li> </ul>	Base-10, Numicon	<b>I know... so...</b> $32 \times 13 = 416$ $32 \times 15 =$ $42 \times 12 = 504$ $45 \times 12 =$ $26 \times 24 = 624$ $36 \times 24 =$ <b>Prove it</b> Which numbers cannot be the answer to $314 \times 61$ ? 19154 18214 18926 Explain how you know <b>Approximate</b> For each question, the answer has how many digits? $576 \div 6 =$ ___ digit(s) $5880 \div 7 =$ ___ digit(s) $2076 \div 3 =$ ___ digit(s) $920 \div 8 =$ ___ digit(s) <b>NRICH Dicey Operations</b>	MyMiniMaths
6	<ul style="list-style-type: none"> <li>• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division</li> </ul>	<ul style="list-style-type: none"> <li>• Long division</li> <li>• Solve problems involving addition,</li> </ul>	Base-10, Numicon	<b>Practical</b> 'The 4, 5 and 6 keys on my calculator are broken!' How can I use my calculator to work out:	MyMiniMaths

	<ul style="list-style-type: none"> <li>• solve problems involving addition, subtraction, multiplication and division</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> </ul>	subtraction, multiplication and division		$1350 \div 15 =$ $624 \div 16 =$ <b>Finding possibilities</b> I divide a 4 digit number by 24. The ones digit of the answer is 3. What could my 4-digit number be? Have you found all the possibilities? How do you know?	
7	<ul style="list-style-type: none"> <li>• identify common factors, common multiples and prime numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Common factors</li> <li>• Common multiples</li> <li>• Primes to 100</li> <li>• Square and cubed numbers</li> </ul>	Cuisenaire, 100 square, base-10	<b>Always, sometimes, never?</b> Is it always, sometimes or never true that when you square an even number, the result is divisible by 4? Is it always, sometimes or never true that multiples of 7 are 1 more or 1 less than prime numbers? <b>NRICH Mystery Matrix</b> <b>NRICH Factor Lines</b> <b>NRICH Factor-Multiple Chains</b> <b>NRICH Two Primes Make One Square</b>	MyMiniMaths
8	<ul style="list-style-type: none"> <li>• use knowledge of the order of operations to carry out calculations for the four operations</li> </ul>	<ul style="list-style-type: none"> <li>• Order of operations</li> <li>• Mental calculations</li> <li>• Reason from known facts</li> </ul>	-	<b>Missing symbols</b> Write the missing signs ( + - $\times$ $\div$ ) in this number sentence: $6 \ 12.3 = 61.9 \ 11.9$ <b>What else do you know?</b> If you know this: $86.7 + 13.3 = 100$ what other facts do you know? <b>Which is correct?</b> Which of these number sentences is correct? $3 + 6 \times 2 = 15$ $6 \times 5 - 7 \times 4 = 92$ $8 \times 20 \div 4 \times 3 = 37$ <b>NRICH Four Goodness Sake</b>	MyMiniMaths

## Autumn 2: Our Island History

Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency
1	<b>Number Fractions</b>	<ul style="list-style-type: none"> <li>use common factors to simplify fractions</li> <li>use common multiples to express fractions in the same denomination</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent fractions</li> <li>Simplify fractions</li> <li>Fractions on a number line</li> </ul>	Fraction wall, number line	<p><b>Which is larger...</b> 1 / 3 or 2 / 5? Explain how you know.</p> <p><b>Odd one out.</b> Which is the odd one out in each of these collections of 4 fractions <math>\frac{3}{4}</math> <math>\frac{9}{12}</math> <math>\frac{26}{36}</math> <math>\frac{18}{24}</math> <math>\frac{4}{20}</math> <math>\frac{1}{5}</math> <math>\frac{6}{25}</math> <math>\frac{6}{30}</math> Why?</p> <p><b>Always, sometimes, never</b> true that: 20ths can be simplified to 8ths Halves can't be simplified Tenths can be simplified to fifths Fifteenths can be simplified to quarters? Use examples to prove your answers.</p>	MyMiniMaths
2		<ul style="list-style-type: none"> <li>compare and order fractions, including fractions <math>&gt;1</math></li> <li>add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions</li> </ul>	<ul style="list-style-type: none"> <li>Compare and order denominator</li> <li>Compare and order numerator</li> <li>Add and subtract fractions</li> </ul>	Cuisenaire rods	<p><b>Ordering</b> Sam put these fractions in order starting with the smallest. Are they in the correct order? Thirty-three fifths Twenty-three thirds Forty-five sevenths How do you know?</p> <p><b>Another and another</b> Write down two fractions which have a difference of <math>\frac{1}{2}</math>... and another, ... and another, ... Write down 2 fractions with a total of <math>\frac{3}{4}</math> <math>\frac{4}{5}</math>. ... and another, ... and another, ...</p> <p><b>Odd one out</b> <math>\frac{1}{3} + \frac{1}{8}</math> <math>\frac{1}{2} + \frac{3}{4}</math> <math>\frac{3}{5} + \frac{3}{10}</math> <math>\frac{3}{4} + \frac{5}{12}</math> Explain your answer.</p>	MyMiniMaths

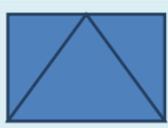
3	<ul style="list-style-type: none"> <li>multiply simple pairs of proper fractions, writing the answer in its simplest form</li> <li>divide proper fractions by whole number</li> </ul>	<ul style="list-style-type: none"> <li>Multiply fractions by integers</li> <li>Multiply fractions by fractions</li> <li>Divide fractions by integers</li> </ul>	-	<p><b>Continue the pattern</b>  <math>1/3 \div 2 = 1/6</math>  <math>1/6 \div 2 = 1/12</math>  <math>1/12 \div 2 = 1/24</math>  What do you notice?  <math>1/2 \times 1/2 =</math>  <math>1/4 \times 1/2 =</math>  <math>1/8 \times 1/2 =</math>  What do you notice?  <b>Explaining</b>  Write a step-by-step guide to multiplying two fractions. Can you write one that covers all possible types of fractions? Now do the same for dividing <u>any</u> fraction by a whole number. Make sure it covers all possibilities.</p>	MyMiniMaths
4	<ul style="list-style-type: none"> <li>add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions</li> <li>multiply simple pairs of proper fractions, writing the answer in its simplest form</li> <li>divide proper fractions by whole number</li> </ul> <p>WALT calculate a fraction of an amount</p>	<ul style="list-style-type: none"> <li>Four rules with fractions</li> <li>Fraction of an amount</li> </ul>	Bar model	<p><b>What do you notice?</b>  <math>8/5</math> of 25 = 40  <math>5/4</math> of 16 = 20  <math>7/6</math> of 36 = 42  Can you write similar statements?  <b>The answer is...</b>  <math>1/8</math>, what is the question (involving fractions / operations)?  <b>Working backwards</b>  I think of a number. When I divide it by <math>3/4</math>, the answer is 12. What was my number?  I think of a number. When I multiply it by <math>4/5</math>, the answer is 20. What was my number?</p>	MyMiniMaths
5	<p><b>Geometry</b>  <b>Position and Direction</b></p>				MyMiniMaths
	<ul style="list-style-type: none"> <li>describe positions on the full coordinate grid (all four quadrants)</li> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>	<ul style="list-style-type: none"> <li>First quadrant</li> <li>Four quadrants</li> <li>Translations</li> <li>Reflections</li> </ul>	Geoboard	<p><b>Working backwards</b>  Two triangles have the following co-ordinates: Triangle A: (3, 5) (7, 5) (4, 7)  Triangle B: (3, 1) (7, 1) (4, 3) Describe the translation of triangle A to B and then from B to A.  <b>NRICH Ten Hidden Squares</b>  <b>NRICH Treasure Hunt</b></p>	

6	<p><b>Number Decimals</b></p> <ul style="list-style-type: none"> <li>• identify the value of each digit in numbers given to three decimal places</li> <li>• multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</li> <li>• multiply one-digit numbers with up to two decimal places by whole numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Three Decimal Places</li> <li>• Multiply 10, 100, 1000</li> <li>• Divide 10, 100, 1000</li> <li>• Multiply decimals by integers</li> </ul>	Base 10, Gattegno chart, place value counters	<p><b>Working backwards</b>          What needs to be added to 6.543 to give 7?          What needs to be added to 3.582 to give 5?          One thousandth of my money is 31p. How much do I have?  <b>What do you notice?</b>          Circle the two decimals which are closest in value to each other. 0.9 0.09 0.99 0.1 0.01          What do you notice?  <b>Undoing</b>          I multiply a number with three decimal places by a multiple of 10. The answer is approximately 3.21. What was my number? What did I multiply by?          When I divide a number by 1000 the resulting number has the digit 6 in the units and tenths and the other digits are 3 and 2 in the tens and hundreds columns. What could my number have been?</p>	MyMiniMaths
7	<ul style="list-style-type: none"> <li>• use written division in cases where the answer has up to two decimal places</li> <li>• solve problems, which require answers to be rounded to specified degrees of accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Divide decimals by integer</li> <li>• Division to solve problems</li> <li>• Decimals as fractions</li> <li>• Fractions to decimals</li> </ul>	Number line, fraction wall	<p><b>Prove it</b>          What goes in the missing box?  <math>18 \underline{\quad} 4 \div 12 = 157</math>  <math>38 \underline{\quad} 5 \div 18 = 212.5</math>  <math>33 \underline{\quad} 2 \div 8 = 421.5</math>  <math>38 \times \underline{\quad}.7 = 178.6</math>          Prove it</p>	MyMiniMaths

## Spring I: The Body in Question

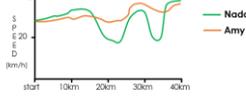
Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency								
1	<b>Number</b> <b>Fractions, decimals and percentages</b>	<ul style="list-style-type: none"> <li>associate a fraction with division and calculate decimal fraction equivalents</li> <li>recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>	<ul style="list-style-type: none"> <li>Fractions to percentages</li> <li>Equivalent FDP</li> <li>Order FDP</li> </ul>	Fraction wall	<p><b>Give an example</b> Of a fraction that is greater than 1.1 and less than 1.5. Now another example that no one will think of. Explain how you know.</p> <p><b>Complete the pattern</b></p> <table border="1" data-bbox="1406 507 1630 619"> <tbody> <tr> <td><math>\frac{1}{8}</math></td> <td><math>\frac{2}{8}</math></td> <td><math>\frac{3}{8}</math></td> <td><math>\frac{4}{8}</math></td> </tr> <tr> <td>0.375</td> <td>???</td> <td>???</td> <td>???</td> </tr> </tbody> </table> <p>Complete the table.</p> <p><b>Another and another</b> Write a unit fraction which has a value of less than 0.5? ... and another, ... and another, ...</p> <p><b>Ordering</b> Starting with the largest: 23%, <math>\frac{5}{8}</math>, <math>\frac{3}{5}</math>, 0.8</p> <p><b>NRICH In the Money</b></p>	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	0.375	???	???	???	MyMiniMaths
$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$											
0.375	???	???	???											
2		<ul style="list-style-type: none"> <li>solve problems involving the calculation of percentages</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of an amount</li> <li>Percentage missing numbers</li> </ul>	Bar model	<p><b>What else do you know?</b> 88% of a sum of money = £242. Make up some other statements. Write real life problems for your number sentences.</p> <p><b>Undoing</b> I think of a number and then reduce it by 15%. The number I end up with is 306. What was my original number? In a sale where everything is reduced by 15% I paid the following prices for three items. £255, £850, £4.25 What was the original selling price?</p> <p><b>NRICH Would You Rather?</b></p>	MyMiniMaths								
3	<b>Algebra</b>													

	<ul style="list-style-type: none"> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> </ul>	<ul style="list-style-type: none"> <li>• Find a Rule – One Step</li> <li>• Find a Rule – Two Step</li> <li>• Forming Expressions</li> <li>• Substitution</li> <li>• Formulae</li> </ul>	<p>Bar model</p>	<p><b>Generalising</b> Write a formula for the 10th, 100th and nth terms of the sequences below. 4, 8, 12, 16 ..... 0.4, 0.8, 1.2, 1.6 .....</p> <p><b>Undoing</b> The diagram below represents two rectangular fields that are next to each other</p> <table border="1" data-bbox="1451 395 1668 507"> <tr> <td>Field A</td> <td>Field B</td> </tr> </table> <p>Field A is twice as long as field B but their widths are the same and are 7.6 metres. If the perimeter of the small field is 23m what is the perimeter of the entire shape containing both fields?</p> <p><b>Working forwards and backwards</b> If y stands for a number complete the table below</p> <table border="1" data-bbox="1400 762 1659 866"> <tr> <td>y</td> <td>3y</td> <td>3y + 1</td> </tr> <tr> <td>25</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>28</td> </tr> </table> <p>What is the largest value of y if the greatest number in the table was 163?</p> <p><b>NRICH Two and Two</b> <b>NRICH Different Deductions</b> <b>NRICH Holes</b></p>	Field A	Field B	y	3y	3y + 1	25					28	<p>MyMiniMaths</p>
Field A	Field B															
y	3y	3y + 1														
25																
		28														
<p>4</p>	<ul style="list-style-type: none"> <li>• find pairs of numbers that satisfy an equation with two unknowns</li> <li>• enumerate possibilities of combination of variables</li> </ul>	<ul style="list-style-type: none"> <li>• Forming equations</li> <li>• Solve simple one-step equations</li> <li>• Solve two-step equations</li> <li>• Find pairs of values</li> </ul>	<p>Bar model</p>	<p><b>Do, then explain</b> p and q each stand for whole numbers. <math>p + q = 1000</math> and p is 150 greater than q. Work out the values of p and q. Explain how you did it. If <math>2a + b = 110</math> and <math>a + 2b = 130</math>, can you find the values of a and b? Explain how you did it. Can you create a similar puzzle for a partner?</p> <p><b>NRICH Price Match</b></p>	<p>MyMiniMaths</p>											

5	<b>Measurement</b> <b>Conversion between units of measure</b>			
<ul style="list-style-type: none"> <li>Solve problems involving calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</li> <li>Convert between miles and kilometres</li> </ul>	<ul style="list-style-type: none"> <li>Metric measures</li> <li>Convert metric measures</li> <li>Calculate with metric measures</li> <li>Miles and kilometres</li> <li>Imperial measures</li> </ul>	Ruler, metre stick, other measuring scales, bar model, number line	<b>Top Tips</b> Put these amounts in order starting with the largest. 100 cm <sup>3</sup> 1000000 mm <sup>3</sup> 1 m <sup>3</sup> Explain your thinking <b>What do you notice?</b> 8 km = 5 miles 16km = miles 4 km = miles Fill in the missing number of miles. Write down some more facts connecting kilometres and miles <b>Would you rather?</b> On a long car journey, of say 200 miles (about 320 kilometres), you keep asking your parent how much further to go. Would you rather they answered in miles or kilometres? Give a reason for your answer.	MyMiniMaths
6	<b>Measurement</b> <b>Area, perimeter and volume (1)</b>			
<ul style="list-style-type: none"> <li>Recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>Recognise when it is possible to use formulae for are and volume of shapes</li> <li>Calculate the area of parallelograms and triangles</li> </ul>	<ul style="list-style-type: none"> <li>Shapes - same area</li> <li>Area and perimeter</li> <li>Area of a triangle (1)</li> <li>Area of a triangle (2)</li> <li>Area of a triangle (3)</li> </ul>	Bar model, ruler	<b>Testing conditions</b> A square has the perimeter of 12 cm. When 4 squares are put together, the perimeter of the new shape can be calculated. For example:  What arrangements will give the maximum perimeter? What would give the minimum? <b>Always, sometimes, never</b> A triangle's area is half the area of the rectangle that encloses it: 	MyMiniMaths

## Spring 2: The Swinging 60s

Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency
1	<b>Measurement</b> <b>Area, perimeter and volume (2)</b>	<ul style="list-style-type: none"> <li>recognise when it is possible to use formulae for area and volume of shapes</li> <li>calculate the area of parallelograms and triangles</li> <li>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres and extending to other units</li> </ul>	<ul style="list-style-type: none"> <li>Area of a parallelogram</li> <li>Volume - counting cubes</li> <li>Volume of a cuboid</li> </ul>	Bar model	<p><b>Visualising</b> Jess has 24 cubes which she builds to make a cuboid. Write the dimensions of cuboids that she could make. List all the possibilities.</p> <p><b>Drawing</b> Draw a net for a cuboid that has a volume of 24 cm<sup>3</sup></p> <p><b>NRICH Cylinder Cutting</b></p>	MyMiniMaths
2	<b>Ratio and proportion</b>	<ul style="list-style-type: none"> <li>solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li> </ul>	<ul style="list-style-type: none"> <li>Use ratio language</li> <li>Ratio and fractions</li> <li>Introducing the ratio symbol</li> <li>Calculating ratio</li> </ul>	Counters, bar model, Cuisenaire	<p><b>True or false</b> Last season, for every 3 goals that Dan scored, Anil scored 2 goals. For each statement, say if it is possible or impossible: In total, Dan and Anil scored 18 goals. Anil scored 10 goals. Dan scored 15 goals and Anil scored 6 goals. In total, Dan and Anil scored 35 goals.</p> <p><b>How Many Ways</b> Ben has 3 times as many conkers as Holly. In total, Ben and Holly have less than 25 conkers. Holly has more than 3 conkers. How many conkers does Ben have? How many possible answers are there?</p> <p><b>NRICH Pumpkin Pie Problem</b> <b>NRICH Orange Drink</b></p>	MyMiniMaths
3		<ul style="list-style-type: none"> <li>solve problems involving similar shapes where the scale factor is known or can be found</li> </ul>	<ul style="list-style-type: none"> <li>Using scale factors</li> <li>Calculating scale factors</li> </ul>	-	<p><b>Unpicking</b> A recipe needs to include three times as much apple than peach. The total weight of apples and peaches in a recipe</p>	MyMiniMaths

		<ul style="list-style-type: none"> <li>Ratio and proportion problems</li> </ul>		<p>is 700 grammes. How much apple do I need?</p> <p><b>NRICH Mixing Lemonade</b> (online)</p> <p><b>NRICH Tray Bake</b></p>	
4	<b>Statistics</b>				
	<ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>illustrate and name parts of circles including radius, diameter and circumference and know that the diameter is twice the radius</li> </ul>	<ul style="list-style-type: none"> <li>Read and interpret line graphs</li> <li>Draw line graphs</li> <li>Use line graphs to solve problems</li> <li>Circles</li> </ul>	-	<p><b>Is this true or false?</b> Convince me. Make up your own 'true/false' statement about a pie chart.</p> <p><b>Drawing conclusions</b></p>  <p>This graph shows the speeds of Nada and Amy in the race. Describe the difference between their races. Which cyclist do you think finished first - Nada or Amy?</p> <p><b>NRICH Graphing Number Patterns</b></p>	MyMiniMaths
5	<ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>calculate and interpret the mean as an average</li> </ul>	<ul style="list-style-type: none"> <li>Read and interpret pie charts</li> <li>Pie charts with percentages</li> <li>Draw pie charts</li> <li>The mean</li> </ul>	-	<p><b>Missing information</b></p> <p>The mean score in six test papers in a spelling test of 20 questions is 15. Five of the scores were 13 12 17 18 16 What was the missing score?</p> <p><b>Create a questions</b> Make up a set of five numbers with a mean of 2.7</p> <p><b>NRICH Birdwatch</b></p> <p><b>NRICH Presenting the Project</b></p>	MyMiniMaths
6	<b>Geometry</b>				
	<b>Properties of shape (I)</b>				
	<ul style="list-style-type: none"> <li>find unknown angles in any triangles, quadrilaterals and regular polygons</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> <li>find unknown angles in any triangles, quadrilaterals and regular polygons</li> </ul>	<ul style="list-style-type: none"> <li>Measure with a protractor</li> <li>Introduce angles</li> <li>Calculate angles</li> <li>Vertically opposite angles</li> <li>Angles in a triangle</li> </ul>	-	<p><b>Possibilities</b></p> <p>One angle at the point where the diagonals of a rectangle meet is 36 degrees. What could the other angles be? Convince me.</p>  <p><b>NRICH Olympic Turns</b></p> <p><b>NRICH Triangles in Circles</b> (easy, then hard!)</p>	MyMiniMaths

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|--|--|--|--|--|--|
|  | <ul style="list-style-type: none"><li>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li></ul> |  |  |  |  |
|--|--|--|--|--|--|

## Summer I: The First Emperor of China

Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency
1	<b>Geometry</b> <b>Properties of shape (2)</b>	<ul style="list-style-type: none"> <li>find unknown angles in any triangles, quadrilaterals and regular polygons</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> <li>find unknown angles in any triangles, quadrilaterals and regular polygons</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> </ul>	<ul style="list-style-type: none"> <li>Angles in a triangle – special cases</li> <li>Angles in a triangle – missing angles</li> <li>Angles in a special quadrilaterals</li> <li>Angles in a regular polygons</li> </ul>	Part-whole model, bar model	<p><b>Other possibilities</b> If one angle of an isosceles triangle is 36 degrees, what could the triangle look like? Draw it. Are there other possibilities? <b>Prove it</b> How many angles do you need to know to work out the missing ones in: A square? A parallelogram? A trapezium? An equilateral triangle? An isosceles triangle? A scalene triangle? Any regular polygon? Any irregular polygon? <b>NRICH Round a Hexagon</b></p>	MyMiniMaths
2		<ul style="list-style-type: none"> <li>recognise, describe and build simple 3D shapes, including making nets</li> </ul>	<ul style="list-style-type: none"> <li>Draw shapes accurately</li> <li>Draw nets of 3-D shapes</li> </ul>	-	<p><b>What's the same, what's different?</b> The nets of a triangular prism and a square based pyramid. <b>Visualising</b> Jess has 24 cubes which she builds to make a cuboid. Write the dimensions of cuboids that she could make. List all the possibilities. <b>Always, sometimes, never</b> Is it always, sometimes or never true that, in a polyhedron, the number of vertices plus the number of faces equals the number of edges? <b>NRICH Making Cuboids</b> <b>NRICH Cut Nets</b> <b>NRICH Shape Draw</b> <b>NRICH Quadrilaterals</b> <b>NRICH Where Are They?</b></p>	MyMiniMaths

				<b>NRICH Always, Sometimes or Never? Shape</b>	
3	<b>Consolidation Revising identified areas of need</b>				MyMiniMaths
4	<b>SATs Week Assessments</b>				MyMiniMaths
5	<b>Investigating... Pentominoes</b>			<b>NRICH World of Tan 25 – Pentominoes NRICH Penta Play NRICH Penta Place</b>	MyMiniMaths
6	<b>Investigating... Tessellations</b>			<b>NRICH Tessellating Transformations NRICH Semi-regular Tessellations</b>	MyMiniMaths

## Summer 2: What a Performance

Week	Unit	National Curriculum objectives Possible lesson objectives	White Rose Maths (WRM) 'small steps'	Models and images representing number Key vocabulary	Reasoning (in addition to WRM questions)	Fluency
1	<b>Investigating... Probability</b>					
	WALT understand the language of probability WALT describe probabilities using fractions, decimals and percentages	-	-	<b>NRICH What do you Know about Probability (2)</b> <b>NRICH The Hair Colour Game</b> <b>NRICH Strange Dice</b> <b>NRICH Journey to School</b>	MyMiniMaths	
2	WALT conduct simple probability experiments	-	-	<b>NRICH Interactive Spinners</b> <b>NRICH Which Spinners?</b> <b>NRICH Stop or Dare?</b>	MyMiniMaths	
3	<b>Investigating... WRM Tours</b>					
		<ul style="list-style-type: none"> <li>Distance conversion graph</li> <li>Calculating costs</li> </ul>	Cuisenaire, 100 square, Base-10, column layout		MyMiniMaths	
4		<ul style="list-style-type: none"> <li>Converting money</li> <li>Timetables</li> </ul>	Cuisenaire, 100 square, Base-10, column layout		MyMiniMaths	
5	<b>Investigating... WRM Futures</b>					
		<ul style="list-style-type: none"> <li>Calculating with money</li> </ul>	Cuisenaire, 100 square, Base-10, column layout		MyMiniMaths	
6		<ul style="list-style-type: none"> <li>Calculating with money</li> <li>Area and perimeter</li> </ul>	Cuisenaire, 100 square, Base-10, column layout		MyMiniMaths	