



# MATHS COMPOSITE KNOWLEDGE COVERAGE KEY STAGE 4

## Intent:

At Tor View School, we aim to instil in our students a fundamental understanding of how Mathematics links to the wider world. Mathematics equips students with a uniquely powerful set of tools to understand and change the world in which they live. Learning basic principles of maths is essential to functioning independently within the world. In everyday life we are faced with numbers, from getting the right bus, counting money in a shop to employment. Students understand and make connections in different areas of maths so they can apply skills to solve problems in a range of contexts.

**At Tor View School, Maths is delivered using a spiral curriculum model to develop Mastery through revisiting learning to ensure learners have a deep understanding of concepts and their functional uses.**

		WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	TAUGHT THROUGHOUT THE YEAR
Autumn	1	<b>NUMBER – PLACE VALUE</b> <ul style="list-style-type: none"> <li>count in multiples of 6, 7, 9, 25 and 1000</li> <li>find 1000 more or less than a given number</li> <li>count backwards through zero to include negative numbers</li> <li>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li> <li>order and compare numbers beyond 1000</li> <li>identify, represent and estimate numbers using different representations</li> <li>round any number to the nearest 10, 100 or 1000</li> <li>solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>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.</li> </ul>				<b>NUMBER – ADDITION AND SUBTRACTION</b> <ul style="list-style-type: none"> <li>add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>estimate and use inverse operations to check answers to a calculation</li> <li>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>		<b>MEASUREMENT – TIME</b> <ul style="list-style-type: none"> <li>tell...the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> </ul>
	2	<b>NUMBER – ADDITION AND SUBTRACTION</b>	<b>MEASUREMENT – LENGTH, PERIMETER AND AREA</b> <ul style="list-style-type: none"> <li>Convert between different units of measure</li> </ul>		<b>NUMBER – MULTIPLICATION AND DIVISION</b> <ul style="list-style-type: none"> <li>recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> </ul>		<ul style="list-style-type: none"> <li>estimate and read time with increasing accuracy</li> </ul>	

	<ul style="list-style-type: none"> <li>add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>estimate and use inverse operations to check answers to a calculation</li> <li>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>find the area of rectilinear shapes by counting squares</li> <li>estimate, compare and calculate different measures</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>recognise and use factor pairs and commutativity in mental calculations</li> <li>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>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</li> </ul>	<p>to the nearest minute... use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <ul style="list-style-type: none"> <li>know the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>
<p><b>S</b> <b>p</b> <b>r</b> <b>i</b> <b>n</b> <b>g</b></p>	<p><b>1</b></p> <p><b>NUMBER –MULTIPLICATION AND DIVISION</b></p> <ul style="list-style-type: none"> <li>recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <li>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</li> <li>recognise and use factor pairs and commutativity in mental calculations</li> </ul>	<p><b>NUMBER – FRACTIONS</b></p> <ul style="list-style-type: none"> <li>recognise and show, using diagrams, families of common equivalent fractions</li> <li>count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> </ul>		

	<ul style="list-style-type: none"> <li>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>add and subtract fractions with the same denominator</li> <li>recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>recognise and write decimal equivalents to <math>4\frac{1}{10}</math>, <math>2\frac{1}{10}</math>, <math>4\frac{3}{10}</math></li> <li>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</li> <li>round decimals with one decimal place to the nearest whole number</li> <li>compare numbers with the same number of decimal places up to two decimal places</li> <li>solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>	
2	<p><b>NUMBER – FRACTIONS</b></p> <ul style="list-style-type: none"> <li>recognise and show, using diagrams, families of common equivalent fractions</li> <li>count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10</li> <li>solve problems involving increasingly harder fractions to calculate quantities, and fractions to</li> </ul>	<p><b>NUMBER – DECIMALS (For learners working at S21 and above)</b></p> <ul style="list-style-type: none"> <li>round decimals with 1 decimal place to the nearest whole number</li> <li>compare numbers with the same number of decimal places up to 2 decimal places</li> <li>solve simple measure and money problems involving fractions and decimals to 2 decimal places</li> <li></li> </ul> <p><b>MEASUREMENT – TIME (For learners working below S21)</b></p> <ul style="list-style-type: none"> <li>read, write and convert time between analogue and digital 12- and 24-hour clocks</li> </ul>	

	<p>divide quantities, including non-unit fractions where the answer is a whole number</p> <ul style="list-style-type: none"> <li>• add and subtract fractions with the same denominator</li> <li>• recognise and write decimal equivalents of any number of tenths or hundreds</li> </ul> <p>recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days</li> </ul>		
<b>S u m m e r</b>	<p><b>MEASUREMENT – TIME</b></p> <ul style="list-style-type: none"> <li>• read, write and convert time between analogue and digital 12- and 24-hour clocks</li> <li>• solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days</li> </ul>		<p><b>MEASUREMENT – MONEY</b></p> <ul style="list-style-type: none"> <li>• estimate, compare and calculate different measures, including money in pounds and pence</li> <li>•</li> </ul>	
	<ul style="list-style-type: none"> <li>• <b>STATISTICS (S17 and above)</b></li> <li>• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li> </ul>	<p><b>GEOMETRY – PROPERTIES OF SHAPES</b></p> <ul style="list-style-type: none"> <li>• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>• identify acute and obtuse angles and compare and order angles up to 2 right angles by size</li> <li>• identify lines of symmetry in 2-D shapes presented in different orientations</li> </ul>	<p><b>GEOMETRY – POSITION AND DIRECTION</b></p> <ul style="list-style-type: none"> <li>• describe positions on a 2-D grid as coordinate</li> </ul>	

	<ul style="list-style-type: none"> <li>• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</li> </ul> <p><b>GEOMETRY – POSITION AND DIRECTION (S16 and below)</b></p> <ul style="list-style-type: none"> <li>• describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>• describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• plot specified points and draw sides to complete a given polygon</li> </ul>	<ul style="list-style-type: none"> <li>• complete a simple symmetric figure with respect to a specific line of symmetry</li> </ul>	<p>s in the first quadrant</p> <ul style="list-style-type: none"> <li>• describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• plot specified points and draw sides to complete a given polygon</li> </ul>	
--	--	--	---	--