

UNIT	Maths topic	Objectives/success criteria	NC programmes of study (2014)
1	<p>Number and place value (1)</p>	<ul style="list-style-type: none"> • Recognise the place value of each digit in a four-digit number • Compare, order and round four-digit whole numbers • Count forwards and backwards in tens, hundreds and thousands and other multiples • Multiply and divide numbers to 1000 by 10 and then 100 (whole-number answers), understanding the effect • Use positive and negative numbers in context and position them on a number line • Read Roman numerals to 20 (I to XX) <p><i>I can read, write and put in order four-digit numbers</i></p> <p><i>I can use the < and > signs with positive and negative numbers</i></p> <p><i>I can read Roman numerals to XX</i></p>	<ul style="list-style-type: none"> • 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

<p>2</p>	<p>Addition and subtraction (1)</p>	<ul style="list-style-type: none"> • Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100 or 1000 • Add or subtract mentally pairs of two-digit whole numbers • Use efficient written methods to add and subtract three-digit whole numbers and £.p <p><i>I can work out sums and differences of multiples of 10 or 100</i></p> <p><i>I can add and subtract two-digit numbers in my head</i></p> <p><i>I can add and subtract three-digit numbers using a written method</i></p>	<ul style="list-style-type: none"> • 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 • estimate, compare and calculate different measures, including money in pounds and pence
<p>3</p>	<p>Shape and symmetry (1)</p>	<ul style="list-style-type: none"> • Compare and draw polygons and classify them by identifying their properties • Visualise 3-D objects from 2-D drawings and make 3-D models using construction kits • Identify lines of symmetry in 2-D shapes • Complete symmetrical patterns drawn on 	<ul style="list-style-type: none"> • 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

		<p>squared paper</p> <ul style="list-style-type: none"> Identify right angles in 2-D shapes <p><i>I can group triangles into equilateral triangles, isosceles triangles and other triangles</i></p> <p><i>I can pick out triangles that have a right angle from other triangles</i></p> <p><i>I can recognise symmetrical polygons, including those with more than one line of symmetry</i></p> <p><i>I can complete a symmetrical pattern drawn on squared paper</i></p> <p><i>If I see a drawing of a cube I can imagine the solid shape</i></p>	<ul style="list-style-type: none"> complete a simple symmetric figure with respect to a specific line of symmetry
<p>4</p>	<p>Measures (1)</p>	<ul style="list-style-type: none"> Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, mass and capacity Interpret intervals and divisions on partially numbered scales and record readings accurately Read time to the nearest minute; use a.m., 	<ul style="list-style-type: none"> convert between different units of measure 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

		<p>p.m. and 12-hour clock notation</p> <ul style="list-style-type: none"> Choose units of time to measure time intervals and calculate time intervals from clocks and timetables <p><i>I can estimate and measure lengths to the nearest half centimetre, weights in grams and kilograms, and times in seconds</i></p> <p><i>I can use kitchen scales or a bathroom scale to measure a weight</i></p> <p><i>I can read a weight in kilograms and grams from a scale marked in kg</i></p> <p><i>I can read the time to the nearest minute</i></p>	
<p>5</p>	<p>Multiplication and division (1)</p>	<ul style="list-style-type: none"> Recall multiplication facts up to 12×12 and derive the corresponding division facts 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 Use written methods to record and explain multiplication of two-digit numbers by a one-digit number Use written methods to record and explain 	<ul style="list-style-type: none"> 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

		<p>division of three-digit numbers by a one-digit number, with whole number answers</p> <p><i>I know almost all my tables to 12 x 12</i></p> <p><i>I can use the multiplication facts I know to work out division facts</i></p> <p><i>I can use a written method to multiply a two-digit number by a one-digit number</i></p> <p><i>I can estimate and check the result of a calculation</i></p>	<ul style="list-style-type: none"> • 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
<p>6</p>	<p>Fractions and decimals (1)</p>	<ul style="list-style-type: none"> • Count in tenths and recognise the equivalence between decimal and fraction forms of tenths • Use diagrams to identify equivalent fractions • Identify pairs of fractions that total 1 • Find fractions of numbers, quantities or shapes <p><i>I can count backwards and forwards in tenths</i></p> <p><i>I can find a fraction of a shape drawn on squared paper</i></p> <p><i>I can find a fraction of a number of cubes by sharing them in equal groups</i></p>	<ul style="list-style-type: none"> • 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 a 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 1/4; 1/2; 3/4

		<p><i>I can use a diagram to help me find fractions that are equivalent to 1/4</i></p> <p><i>Using diagrams, I can find pairs of fractions that make 1 whole</i></p>	
<p>7</p>	<p>Position, movement and angle (1)</p>	<ul style="list-style-type: none"> • Recognise horizontal, vertical, perpendicular and parallel lines in relation to other lines • Identify acute, obtuse and right angles • Know that angles are measured in degrees and that one whole turn is 360° • Use the eight compass points to describe direction • Describe and identify positions and plot points on a grid of squares <p><i>I know that parallel lines never meet each other</i></p> <p><i>I can use letters and numbers to describe the position of a point on a grid of squares</i></p> <p><i>I know that angles are measured in degrees</i></p> <p><i>I know that a whole turn is 360 degrees or four right angles</i></p>	<ul style="list-style-type: none"> • identify acute and obtuse angles and compare and order angles up to two right angles by size • 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

<p style="text-align: center; font-size: 24px; font-weight: bold;">8</p>	<p>Shape and symmetry (2)</p>	<ul style="list-style-type: none"> • Compare and draw polygons and classify them by identifying their properties • Visualise 3-D objects from 2-D drawings and make 3-D models using construction kits • Identify lines of symmetry in 2-D shapes and patterns • Identify right angles in 2-D shapes • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres <p><i>I can pick out 2-D shapes that have more than one line of symmetry</i></p> <p><i>If I see a drawing of a cube or a pyramid I can visualise the solid shapes</i></p> <p><i>I can draw different quadrilaterals on squared paper and tell you their mathematical names</i></p> <p><i>I can draw a rectangle and work out its perimeter</i></p>	<ul style="list-style-type: none"> • 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 • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
<p style="text-align: center; font-size: 24px; font-weight: bold;">9</p>	<p>Fractions and decimals (2)</p>	<ul style="list-style-type: none"> • Count in tenths and hundredths and recognise the equivalence between decimal and fraction forms of tenths and hundredths 	<ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions

		<ul style="list-style-type: none"> • Compare, order and round decimal numbers with one decimal place • Use diagrams to identify equivalent fractions • Find fractions of numbers, quantities or shapes • Use diagrams to add and subtract pairs of fractions with the same denominator <p><i>I can use a diagram to help me find fractions that are equivalent to $\frac{3}{4}$</i></p> <p><i>I can change a fraction such as $\frac{7}{10}$ to a decimal</i></p> <p><i>I can find the fraction of an amount, such as $\frac{2}{5}$ of £10</i></p> <p><i>I can use a diagram to show how to add and subtract fractions with the same denominator</i></p>	<ul style="list-style-type: none"> • count up and down in hundredths; recognise that hundredths arise when dividing an object by a 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 $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$
<p>10</p>	<p>Measures (2)</p>	<ul style="list-style-type: none"> • Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, mass and capacity • Interpret intervals and divisions on partially numbered scales and record readings 	<ul style="list-style-type: none"> • convert between different units of measure • 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

		<p>accurately, where appropriate to the nearest tenth of a unit</p> <ul style="list-style-type: none"> • Use decimal notation for tenths and relate the notation to measurement • Read time to the nearest minute; use a.m., p.m. and 12-hour clock notation • Choose units of time to measure time intervals and calculate time intervals from clocks and timetables <p><i>I can write a mass in kilograms using a decimal point</i></p> <p><i>I can measure carefully lengths to the nearest half centimetre so that my measurement is accurate</i></p> <p><i>I can use different kinds of rulers and measuring tapes to measure lengths accurately</i></p> <p><i>I can solve time problems where I have to work out start and finish times</i></p>	<ul style="list-style-type: none"> • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
<p>11</p>	<p>Multiplication and division (2)</p>	<ul style="list-style-type: none"> • Recall multiplication facts up to 12×12 and derive the corresponding division facts • Use place value, known and derived facts to 	<ul style="list-style-type: none"> • 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

		<p>multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <ul style="list-style-type: none"> • Use written methods to record and explain multiplication of two-digit numbers by a one-digit number • Use written methods to record and explain division of three-digit numbers by a one-digit number, with whole number answers • Use knowledge of rounding, number operations and inverses to estimate and check calculations <p><i>I know all my tables to 12 × 12</i></p> <p><i>I can use the multiplication facts I know to work out division facts</i></p> <p><i>I can use a written method to multiply and divide a two-digit number by a one-digit number</i></p> <p><i>I can estimate and check the result of a calculation</i></p>	<p>by 1; multiplying together three numbers</p> <ul style="list-style-type: none"> • 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
<p>12</p>	<p>Number and place value (2)</p>	<ul style="list-style-type: none"> • Compare and order decimals with two decimal places 	<ul style="list-style-type: none"> • 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 units, tenths and hundredths

		<ul style="list-style-type: none"> • Round decimals with one decimal place to the nearest whole number • Use decimal notation for money and measures and position decimals on a number line • Multiply and divide numbers to 1000 by 10 and 100, including decimal answers • Use positive and negative numbers in context and position them on a number line • Recognise and continue number sequences formed by counting on or back in steps of constant size • Read Roman numerals to 100 (I to C) <p><i>I can put a set of decimal numbers in order</i></p> <p><i>I can round decimals to the nearest whole number</i></p> <p><i>I can multiply and divide numbers by 10 or 100 and describe what happens to the digits</i></p> <p><i>I can count on and back, using negative numbers</i></p> <p><i>I can use decimals when I work with money and measurement</i></p>	<ul style="list-style-type: none"> • 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 • count in multiples of 6, 7, 9, 25 and 1000 • count backwards through zero to include negative numbers • identify, represent and estimate numbers using different representations • 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
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<p>13</p>	<p>Addition and subtraction (2)</p>	<ul style="list-style-type: none"> • Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100 or 1000 • Add or subtract mentally pairs of two-digit whole numbers • Use efficient written methods to add and subtract four-digit whole numbers and £.p • Use knowledge of rounding, number operations and inverses to estimate and check calculations <p><i>I can work out sums and differences of multiples of 100 or 1000</i></p> <p><i>I can add and subtract two-digit numbers in my head</i></p> <p><i>I can add and subtract four-digit numbers using a written method</i></p>	<ul style="list-style-type: none"> • 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 • estimate, compare and calculate different measures, including money in pounds and pence

14	<p>Shape and symmetry (3)</p>	<ul style="list-style-type: none"> • Compare and draw polygons and classify them by identifying their properties, including their line symmetry • Visualise 3-D objects from 2-D drawings and make 3-D models using construction kits • Make nets of common solids • Identify lines of symmetry in 2-D shapes and patterns • Identify right angles, acute angles and obtuse angles in 2-D shapes • Find the area of rectilinear shapes by counting squares <p><i>I can use what I know about polygons to group them into regular and irregular polygons</i></p> <p><i>I know facts about regular polygons such as the number of sides and number of angles</i></p> <p><i>I can pick out irregular polygons that have at least one right angle</i></p> <p><i>I can make a net for an open cube and fold it to check that it is correct</i></p>	<ul style="list-style-type: none"> • 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 • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares
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		<p><i>I can draw symmetrical patterns and shapes</i></p> <p><i>I can find the area of shapes by counting squares</i></p>	
<p>15</p>	<p>Measures (3)</p>	<ul style="list-style-type: none"> • Use decimal notation for tenths and hundredths and relate the notation to money and measurement • Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, mass 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) • Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit • Read, write and convert time between analogue and digital 12 and 24-hour clocks • Choose units of time to measure time intervals and calculate time intervals from clocks and timetables 	<ul style="list-style-type: none"> • convert between different units of measure • 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 • solve simple measure and money problems involving fractions and decimals to two decimal places

		<p><i>I can estimate and measure using units of length, mass or capacity</i></p> <p><i>I know the relationships between units of measure: metres and centimetres, kilograms and grams, litres and millilitres</i></p> <p><i>I can write different measures using a decimal point</i></p> <p><i>I can read the scale on a measuring cylinder or measuring jug</i></p> <p><i>I can solve problems using timetables</i></p>	
<p>16</p>	<p>Multiplication and division (3)</p>	<ul style="list-style-type: none"> Recall multiplication and division facts 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 Use written methods to record and explain multiplication and division of three-digit numbers by a one-digit number, including division with remainders <p><i>I know all multiplication and division facts up to 12</i></p>	<ul style="list-style-type: none"> 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

		<p><i>× 12, even when they are not in the right order</i></p> <p><i>I can use a written method to multiply a three-digit number by a one-digit number</i></p> <p><i>I can use a written method to divide a three-digit number by a one-digit number and find the remainder</i></p>	<p>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</p>
<p>17</p>	<p>Fractions and decimals (3)</p>	<ul style="list-style-type: none"> • Recognise the equivalence between decimal and fraction forms of one half, quarters, tenths and hundredths • Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths • Interpret mixed numbers and position them on a number line • Find fractions of numbers, quantities or shapes • Add and subtract fractions with the same denominator <p><i>I know that 1/2 can also be written as 0.5, 1/4 as 0.25 and 3/4 as 0.75</i></p> <p><i>I know that one-tenth can be written as 1/10 or as 0.1 and that one-hundredth can be written as</i></p>	<ul style="list-style-type: none"> • 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 a 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 1/4; 1/2; 3/4

		<p><i>1/100 or 0.01</i></p> <p><i>I can change a fraction such as 35/100 to a decimal</i></p> <p><i>I can find fractions that are equivalent to 3/5</i></p> <p><i>I can order mixed numbers and put them on a number line</i></p> <p><i>I can find the fraction of an amount, such as 2/5 of £15</i></p> <p><i>I can subtract fractions, such as 4/5 – 1/5</i></p>	
<p>18</p>	<p>Position, movement and angle (2)</p>	<ul style="list-style-type: none"> • Recognise horizontal, vertical, perpendicular and parallel lines in relation to other lines • Identify acute and obtuse angles and compare and order angles less than 180° • Use the eight compass points to describe direction • Describe and identify positions and plot points on a grid of squares as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right 	<ul style="list-style-type: none"> • identify acute and obtuse angles and compare and order angles up to two right angles by size • 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

		<p>and up/down</p> <p><i>I can draw perpendicular lines and identify the right angles</i></p> <p><i>I can plot points using coordinates on a grid of squares</i></p> <p><i>I can put a set of angles in order, from smallest to largest</i></p> <p><i>I can estimate in degrees the size of an angle less than a right angle</i></p> <p><i>I can describe the translation of a shape</i></p>	
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