Year 6

Assessment criteria for mathematics

Learning Objective		Key milestone indicator(s)	Introduction	Independence	Application/Mastery
To know and use numbers	Counting	I can read numbers up to 10,000,000	With the support of a teacher, I can read numbers up to 1,000,000	With reminders, I can read numbers up to 10,000,000	I can independently read numbers up to 10,000,000
		I can use negative numbers in context and calculate intervals across zero	With the support of a teacher and with concrete objects if necessary, I can calculate intervals across zero	Generally, I can use negative numbers in context and calculate intervals across zero	I can use negative numbers in context and calculate intervals across zero independently
	Representing	I can write numbers up to 10,000,000	With the support of a teacher, I can write numbers up to 1,000,000	With reminders, I can write numbers up to 10,000,000	I can independently write numbers up to 10,000,000
	Comparing	I can order and compare numbers up to 10,000,000	With the support of a teacher, I can order numbers up to 1,000,000 using the first 3 digits I can compare numbers up to 1,000,000 using the first 3 digits	With reminders, I can order numbers up to 10,000,000 using all digits Generally, I can compare numbers up to 10,000,000 using all digits	I can quickly and independently order numbers up to 10,000,000 and beyond I can explain how I did this
	Place value	I can round any whole number to a required degree of accuracy	With support, I can round any whole number to the nearest 10, 100, 1,000, 10,000 and 1,000,000	Generally, I can round any whole number to any degree of accuracy	I can round any whole number to a required degree of accuracy I can use rounding to check, explain and justify answers to calculations
		I can determine the value of each digit in any number	With support, I can identify the value of each digit in a six-digit whole number With the support of a teacher and pictorial representations, I can identify the value of each number in larger whole numbers	Generally, I can identify the value of each digit in any whole number six-digit whole number When remainders are given, I can identify the value of each digit in a number with up to three decimal places	I can independently identify the value of each digit in any whole number I can independently identify the value of each digit in any number up to four decimal places
	Solving problems	I can solve number and practical problems	With the support of a teacher, I can solve a variety of practical problems and number problems involving all four operations With the support of a teacher or when prompts are given, I can describe and articulate a problem and choose	Generally, I can solve a variety of practical problems and number problems involving all four operations I can identify information that is important for solving a problem	I can independently solve a wide variety of practical problems and number problems involving all four operations I can break down several-step problems into simpler steps

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			equipment to solve the problem

When prompts or guidance is given, I can identify patterns in results

With reminders, I can check my answers and make corrections | I can independently ask and answer questions about a problem

I can review my approach to problem solving and suggest improvements to make next time

Generally, I can check my answers and make corrections | I can use efficient methods, based on previous problems

I can check results to ensure that they are reasonable and, as a result of this, I can find and correct any errors

My work from start to finish is organised in a systematic way

I can explain and justify my answers |
| To add and subtract | Complexity | I can solve multi-step addition and subtraction problems in context, deciding which methods to use and why | With the support of a teacher, I can break down multi-step addition and subtraction problems into steps to be solved | Generally, I can break down multi-step addition and subtraction problems and solve them

Mistakes may still occur when independently solving multi-step problems due to confusing which operation to use | I can independently solve a variety of multi-step addition and subtraction problems and find the correct answer

The context of the problem does not confuse and problems in context are answered correctly, e.g. multi-step problems involving measures, missing numbers, etc. |
| | Using number facts | I can add and subtract negative integers | With the support of a teacher and the use of practical contexts, such as number temperature, I can add and subtract negative numbers

With the support of a teacher, I can count through zero | I can add and subtract negative integers

Reminders or practical contexts may be necessary to support understanding | I understand that when adding or subtracting negative integers:
• Two unlike signs become a negative sign, e.g.
8 – (+2) = 8 – 2 = 6
7 + (-2) = 7 – 2 = 5
• Two like signs become a positive sign, e.g.
6 – (-3) = 6 + 3 = 9 |
| To multiple and divide | Complexity | I can solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign | With support, I can undertake problems involving all four operations

I understand that the equals sign means 'the same as' | Generally, I can independently solve problems involving all four operations accurately

I have a secure understanding of the meaning of the equals sign | I can independently and accurately solve multi-step problems involving all four operations |
| | | I can use my knowledge of the order of operations to carry out calculations involving the four operations | With support, I can use written methods for all four operations

With the support of a teacher, I can | Generally, I can answer multi-step problems using my knowledge of the order of operations to carry out calculations | I can independently solve multi-step problems using my knowledge of the order of operations to carry out calculations |

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			answer multi-step problems using the order of operations to carry out calculations		I can explain how the answer will differ if the order of operations is not done correctly I am beginning to understand the BIDMAS rule
	Methods	I can multiple multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method for multiplication	With support, I can multiple numbers up to 4 digits by a two-digit whole number using the formal written method for multiplication	Generally, I can multiple numbers up to 4 digits by a two-digit whole number using the formal written method for multiplication With reminders, I can identify and correct my mistakes	I can independently multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method for multiplication Mistakes are uncommon, but I can independently identify and correct any mistakes I might make
		I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole numbers, fractions, or by rounding, as appropriate for the context	With support, I can undertake long division With support, I can explain remainders in terms of the context	Generally, I understand and can correctly use long division Generally, I can accurately interpret remainders	I fully understand long division: • I can choose when it is appropriate to use it • I can use it accurately • I understand remainders according to the context
		I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division, where appropriate, and can interpret remainders according to the context	With support, I can undertake short division With support, I can explain remainders in terms of the context	Generally, I understand and can correctly use short division Generally, I can accurately interpret remainders	I fully understand short division: • I can choose when it is appropriate to use it • I can use it accurately • I understand remainders according to the context
		I can perform mental calculations, including with mixed operations and large numbers	I am developing mental strategies in order to answer mental calculations, including with mixed operations e.g. 5 x 3 + 6 = 21	I can apply strategies to solve mental calculations, including with mixed operations and large numbers; and my answers are generally correct I can answer multiplication ad divisions questions involving multiples of 10, 100, 1,000, etc. by using times table facts, e.g. 6 x 6 = 36 so, 60 x 6 = 360	I can answer multiplication ad divisions questions involving multiples of 10, 100, 1,000, 10,000, etc. by using times table facts, e.g. 6 x 6 = 36 so, 60 x 6 = 360 I can recall multiplication ad divisions facts for multiplication tables up to 12 x 12 I can confidently utilise mental

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				I can multiply simple decimals by one-digit numbers	strategies to solve complex calculations in context

I can mentally multiply or divide decimals by one-digit numbers |
| | **Checking** | I can estimate and use inverse operations and rounding to check answers to a calculation | With the support of a teacher, I can estimate and use the inverse relationship between multiplication and division to check answers to a calculation | Generally, I can use the inverse relationship between multiplication and division to check answers

When prompts are provided, I can use estimation and rounding to check answers to a calculation | I can use the inverse relationship between multiplication and division to check answers to a calculation

Independently, I can confidently use estimation and rounding as a strategy to check answers to a calculation |
To use fractions	**Recognising fractions**	I can compare and order fractions, including fractions > 1	With support, I can order fractions > 1	Generally, I can order fractions > 1	I can independently order fractions > 1 at speed
		I can identify the value of each digit in numbers given to three decimal places	With support, I can identify the value of each digit in numbers given to three decimal places	Generally, I can identify the value of each digit in numbers given to three decimal places	I can independently identify the value of each digit in numbers given to three decimal places
	Equivalence	I can use common factors to simplify fractions; I can use common multiples to express fractions in the same denomination	With support, I can simplify fractions to express fractions in the same denomination	Generally, I can reduce fractions to their simplest form by cancelling common factors and to express fractions in the same denomination	I can independently reduce fractions to their simplest form by cancelling common factors and to express fractions in the same denomination
		I can associate a fraction with division and calculate decimal fraction equivalents	With support, I can divide numerators by denominators to provide decimal fraction equivalents	Generally, I can divide numerators by denominators to provide decimal fraction equivalents	I can independently divide numerators by denominators to provide decimal fraction equivalents in a range of contexts
	Solving problems	I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	With support, I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	When prompts are provided, I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	I can independently order fractions with different denominators and decimals that have a mixture of one, two or three decimal places

I can independently add and subtract fractions with different denominators and mixed numbers |
		I can multiply simple pairs of proper fractions, writing the answer in its simplest form	With support, I can multiply simple pairs of proper fractions and write the answer in its simplest form	Generally, I can multiply simple pairs of proper fractions and write the answer in its simplest form	I can independently multiply simple pairs of proper fractions, writing the answer in its simplest form
		I can divide proper fractions by whole numbers	With support, I can divide proper fractions by whole numbers	Generally, I can divide proper fractions by whole numbers	Independently, I can divide proper fractions by whole numbers
		I can multiply and divide numbers	With support, I can multiply numbers	Generally, I can multiply numbers	I can multiply numbers by 10, 100 and

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		by 10, 100 and 1,000 giving answers up to three decimal places	by 10, 100 and 1,000 With support, I can divide numbers by 10, 100 and 1,000 giving answers up to three decimal places	by 10, 100 and 1,000 Generally, I can divide numbers by 10, 100 and 1,000 giving answers up to three decimal places	1,000 I can divide numbers by 10, 100 and 1,000 giving answers up to three decimal places
		I can solve problems involving the calculation of percentages and the use of percentages for comparison	With support, I can answer problems involving the calculation of percentages and can compare percentages	Generally, I can solve problems involving the calculation of percentages Generally, I can solve problems that involve calculating and comparing percentages	I can independently and accurately solve problems involving the calculation of percentages I independently identify and solve problems that involve calculating and comparing percentages
		I can solve problems involving unequal sharing and grouping using my knowledge of fractions and multiples	With the support of a teacher or practical apparatus, I can solve problems involving unequal sharing and grouping	I can solve problems involving unequal sharing and grouping using my knowledge of fractions and multiples	I can independently solve problems that involve the calculation of percentages and unequal sharing and grouping of fractions and multiples
To understand the properties of shape		I can draw 2D shapes using given dimensions and angles	With the support of a teacher, I can draw common 2D shapes, such as rectangles, using given dimensions and angles	Generally, I can draw 2D shapes using given dimensions and angles	I can independently draw 2D shapes using given dimensions and angles
		I can recognise, describe and build simple 3D shapes, including making nets	When prompts are given, I can recognise and build nets for cubes and cuboids	When reminders are given, I can recognise, describe and build nets for simple 3D shapes	Without support, I can recognise, describe and build nets for a variety of 3D shapes I can visualise 3D shapes from their nets and match vertices that will be joined I can visualise patterns that will occur on a net for a 3D shape
		I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons	I can compare and classify simpler geometric 2D and 3D shapes	Generally, I can compare and classify geometric shapes based on their properties and sizes, and can find unknown angles in any triangles, quadrilaterals and regular polygons	I can independently compare and classify geometric shapes based on their properties and sizes, and can find unknown angles in any triangles, quadrilaterals and regular polygons
		I can illustrate and name parts of a circle, including radius, diameter and circumference, and I know that	I have an emerging understanding of the terminology radius, diameter and circumference	With prompting, I can illustrate and name parts of a circle, using the terminology radius, diameter and	I can illustrate and name parts of a circle using the terminology radius, diameter and circumference

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		the diameter is twice the radius	*However this vocabulary is not independently used*	circumference Generally, I understand the terms parallel and perpendicular	I understand that the diameter is twice the radius
		I can recognise angles where they meet at a point, are on a straight line or are vertically opposite, and find missing angles	I have an emerging awareness of the terminology parallel and perpendicular	Generally, I can calculate angles on a straight line and missing angles I can classify different types of triangles (isosceles, right-angled, scalene and equilateral) using properties such as length of sides and angles	I can accurately use the terms parallel and perpendicular when identifying properties of shapes
To describe position, direction and movement		I can describe positions on the full coordinate grid (all four quadrants)	I can describe positions on a coordinate grid with two quadrants	With prompts, I can recognise and describe positions on the full coordinate grid (all four quadrants)	I can recognise and describe positions on the full coordinate grid (all four quadrants) without support
		I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes	I can draw 2D shapes in different positions on a grid	I can draw and then translate simple shapes on a coordinate plane	I can draw and then translate more complicated shapes on a coordinate plane
To use measures		I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	With support, I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	Generally, I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	Independently, I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
		I can 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	With support, I can convert measurements between standard units of length, mass, volume and time (from a smaller unit of measure to a larger unit and vice versa) and I can use, read and write decimal notation to up to three decimal places	When reminders are given, I can convert measurements between standard units of length, mass, volume and time (from a smaller unit of measure to a larger unit and vice versa) and I can use, read and write decimal notation to up to three decimal places	I can independently convert measurements between standard units of length, mass, volume and time (from a smaller unit of measure to a larger unit and vice versa) and use, read and write decimal notation to up to three decimal places
		I can convert between miles and kilometres	With support, I can convert between miles and kilometres	Generally, I can convert between miles and kilometres	With speed, I can independently convert between miles and kilometres
		I recognise that shapes with the same area can have different perimeters and vice versa	With support, I recognise that shapes with the same area can have different perimeters and vice versa	I understand that shapes with the same area can have different perimeters and vice versa	I can provide explanations and examples to show that shapes with the same area can have different perimeters and vice versa
		I recognise when it is possible to	With support, I can use formulae for	During problem-solving activities, I	I recognise when it is possible to use

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		use formulae for area and volume of shapes	calculating the area and volume of shapes	recognise when it is possible to use formulae for area of shapes	formulae for area and volume of shapes and can use this appropriately and accurately
		I can calculate the area of parallelograms and triangles	With support, I can use the formulae A=1/2(b*h), where A=area of triangle, b=length of base of triangle and h=length of height of triangle, to calculate the area of a triangle With support, I recognise that triangles are part of a parallelogram	Generally, I can use the formulae A=1/2(b*h), where A=area of triangle, b=length of base of triangle and h=length of height of triangle, to calculate the area of a triangle Generally, I can identify triangles within parallelograms and use these t calculate the area of a parallelogram	I can use the formulae A=1/2(b*h), where A=area of triangle, b=length of base of triangle and h=length of height of triangle, to calculate the area of a triangle I can identify triangles within parallelograms and use these t calculate the area of a parallelogram
		I can calculate, estimate and compare the volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3) and extending to other units	I have an emerging awareness of the formula for the volume of cubes and cuboids (length x width x depth) and I can calculate this using standard units and record this using cm^3 and m^3	Generally, I can use the formula for the volume of cubes and cuboids (length x width x depth) to estimate and compare the volume of cubes and cuboids, and I can calculate this using standard units and record this using cm^3 and m^3	I can correctly and accurately calculate, estimate and compare the volume of cubes and cuboids using standard units and record this using cm^3 and m^3
To use statistics		I can interpret and construct pie charts and line graphs and use these to solve problems	With the support of a teacher, I can choose an appropriate scale when constructing charts and graphs When prompts are given, I can construct and interpret simple pie charts When prompts are given, I can interpret the scale on bar graphs and line graphs Generally, I can respond to questions posed about a set of data	Generally, I can choose appropriate scales for graphs I can independently use frequency tables to record discrete data I can construct and interpret pie charts; I can interpret the scale on bar graphs and line graphs; I can use the information gathered to solve problems Generally, I can recognise the difference between discrete and continuous data When prompts are given, I can describe and make predictions on	I can independently choose appropriate scales for graphs I can read, interpret and complete information in tables (including timetables) I can interpret pie charts and the scale on bar graphs and line graphs; I can use the information gathered from this interpretation to independently solve problems I can interpret and compare pie charts independently, where it is not necessary to measure angles I can recognise the difference

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				the outcomes from data using the language of chance and likelihood	between discrete and continuous data I can recognise when data is presented in a misleading way I can independently describe and make predictions on the outcomes from data using the language of chance and likelihood
		I can calculate and interpret the mean as an average	With support, I can understand the mode and range and use this to describe a set of data With support, I can calculate the mean With support, I can describe and compare two sets of data using the range, mode and median	Generally, I can understand and use the mode and range to describe a set of data and I can calculate the mean and interpret it as an average Generally, I can describe and compare two sets of data using the range, mode and median	I can independently understand and use the mode and range to describe a set of data and I can calculate the mean and interpret it as an average I can use and understand the probability scale from 0 to 1 and I can use methods based equally likely outcomes to find and justify probabilities I can independently describe and compare two sets of data using the range, mode and median
To use algebra		I can use simple formulae	I have an emerging understanding of how to solve balancing equations, such as: 20 + ___ = 40 - 10	I can use simple formulae, with reminders if necessary	I can use simple formulae when solving problems
		I can generate and describe linear number sequences	With support, I can generate and describe linear number sequences	With reminders, I can generate and describe linear number sequences	I can generate and describe complex linear number sequences
		I can express missing number problems algebraically	With support, I can express missing number problems algebraically	Generally, I can express missing number problems algebraically	I can express missing number problems algebraically
		I can find pairs of numbers that satisfy an equation with two unknowns	With support, I can find pairs of numbers that satisfy an equation with two unknowns	With prompts, I can find pairs of numbers that satisfy an equation with two unknowns	I can find pairs of numbers that satisfy an equation with two unknowns
		I can enumerate possibilities of combinations of two variables	With support, I can enumerate possibilities of combinations of two variables	Generally I can enumerate possibilities of combinations of two variables	I can enumerate possibilities of combinations of two variables