Year 5

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 1,000,000	With the support of a teacher, I can read numbers up to 10,000	With reminders, I can read numbers up to 1,000,000	I can independently read numbers up to 1,000,000
		I can interpret negative numbers in context, I can count forward and backwards with positive and negative whole numbers, including through zero	With the support of a teacher and with concrete objects if necessary, I can count forwards and backwards through zero	Generally, I can count forwards and backwards through zero	I can independently count forwards and backwards through zero
	Representing	I can write numbers up to 100,000	With the support of a teacher, I can write numbers up to 1,000,000	With reminders, I can write numbers up to 1,000,000	I can independently write numbers up to 1,000,000
		I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	With reminders, I can read and write Roman numerals to 100 (1 to C) With the support of a teacher, I can recognise Roman numerals to 1,000 (M)	Generally, I can read Roman numerals to 1,000 (M) With support, I am beginning to decipher years written in Roman numeral format	I can read Roman numerals beyond 1,000 (M) I can decipher years written in Roman numeral format I can explain how I interpret years in Roman numeral format
	Comparing	I can order and compare numbers up to 1,000,000	With the support of a teacher, I can order numbers up to 100,000 using the first 3 digits I can compare numbers up to 100,000 using the first 3 digits	With reminders, I can order numbers up to 1,000,000 using all digits Generally, I can compare numbers up to 1,000,000 using all digits	I can quickly and independently order numbers up to 1,000,000 and beyond I can explain how I did this
	Place value	I can round 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000	With support, I can round any whole number to the nearest 10, 100, 1,000, and 10,000	Generally, I can round any whole number to the nearest 10, 100, 1,000, 10,000 and 100,000	I can round any whole number to the nearest 10, 100, 1,000, 10,000 and 100,000 I can use rounding to check, explain and justify answers to calculations
		I can determine the value of each digit in any number up to 1,000,000	With support, I can identify the value of each digit in a six-digit whole number	Generally, I can identify the value of each digit in a six-digit whole number When remainders are given, I can identify the value of each digit in a	I can independently identify the value of each digit in a six-digit whole number When remainders are given, I can independently identify the value of

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				number with up to 2 decimal places	each digit in a number with up to 3 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	Generally, I can solve a variety of practical problems and number problems involving all four operations	I can independently 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 equipment to solve the problem	I can identify information that is important for solving a problem	I can break down several-step problems into simpler steps
				I can independently ask and answer questions about a problem	I can use efficient methods, based on previous problems
			When prompts or guidance is given, I can identify patterns in results.	I can review my approach to problem solving and suggest improvements to make next time	I can check results to ensure that they are reasonable and, as a result of this, I can find and correct any errors
			With reminders, I can check my answers and make corrections	Generally, I can check my answers and make corrections	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	I can independently solve a variety of multi-step addition and subtraction problems and find the correct answer
				Mistakes may still occur when independently solving multi-step problems due to confusing which operation to use	*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.*
	Methods	I can add and subtract whole numbers with more than four digits, including using formal written methods (column addition and subtraction)	With the support of a teacher, I can add and subtract four-digit whole numbers using formal written methods	with the exception of occasional mistakes, I can add and subtract four-digit whole numbers using formal written methods	I can independently add and subtract whole numbers with more than four-digits using formal written methods correctly
		I can mentally add and subtract numbers, with increasingly large numbers	I am developing mental strategies to mentally calculate simpler addition and subtraction problems	I am developing mental strategies to increase speed during adding and subtracting mentally for problems involving two whole numbers with three-digits, e.g.	I am developing mental strategies to answer calculations, involving adding and subtracting two whole numbers with more than three-digits

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				323+356=679	
	Checking	I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	When modelling is provided, I can round to check calculations and determine the level of accuracy	Generally, I can round to check calculations and determine the levels of accuracy, in the context of a problem	I can independently round to check calculations and determine the levels of accuracy, in the context of a problem
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 solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | With support from a teacher, I can solve problems involving all four operations

With support, I can undertake scaling by simple fractions | Generally, I can identify and solve problems involving all four operations

Generally, I understand scaling by simple fractions, although I may need some reminders | I can independently identify and solve problems involving all four operations

Scaling by fractions is fluent and accurate

I can explain and justify my answers |
| | Methods | I can multiple multi-digit numbers up to 4 digits by a one-digit whole number using the formal written method for multiplication | With support, I can multiple numbers up to 4 digits by a one-digit whole number using the formal written method for multiplication | Generally, I can multiple numbers up to 4 digits by a one-digit whole number using the formal written method for multiplication

With reminders, I can identify and correct my mistakes | I can independently multiple multi-digit numbers up to 4 digits by a one-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 one-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 understand short division: I can choose when it is appropriate to use it and can use it accurately

I understand remainders according to the context |
| | Using multiplication and division facts | I can identify common factors, common multiples and prime numbers | With support, I can use my knowledge of the multiplication tables to identify common factors and multiples.

There is an awareness of the terminology prime number and its | Generally, I can identify common factors and multiples.

Generally, I understand and can identify prime numbers | I can independently identify common factors and multiples.

I understand that the number 2 is the only even prime number |

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			meaning as whole numbers greater than 1 that have no positive divisors other than 1 and itself		
		I can establish whether a number up to 100 is prime and can recall prime numbers up to 19	With support, I can recall prime numbers 2, 3, 5, 7, 11, 13, 17 and 19 With support, I can identify prime numbers up to 100	Generally, I can recall prime numbers up to 19 at an increasing speed Generally, I can recognise prime numbers up to 100	I can recall prime numbers up to 19 at speed I can recognise prime numbers up to 100
		I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000	Generally I can independently multiply and divide whole numbers by 10 or 100 With the support of a teacher and apparatus, such as a place value grid, I can multiply and divide numbers with one decimal place by 10 or 100	With reminders, I can correctly answer multiplication and division questions involving multiples of 10, 100 and 1,000 Generally, I can multiply and divide decimal numbers by 10, 100 and 1,000	I can correctly answer multiplication and division questions involving multiples of 10, 100, 1,000, 10,000 and 100,000 at speed I can independently multiply and divide decimal numbers by 10, 100, 1,000 and 10,000
		I can recognise and use square numbers and cube numbers and the notation for squared (^{2}) and cubed (^{3})	I have an emerging understanding of square numbers and cube numbers and the notation for both of these (^{2} and ^{3})	Generally, I have a secure understanding that a square number is an integer multiplied by itself and the notation for this is ^{2} I have an emerging understanding of cubed numbers being an integer multiplied by itself twice and that the notation for this is ^{3}	I have a secure understanding of square numbers and cube numbers and the notation for both (^{2} and ^{3})
To use fractions	Recognising fractions	I can compare and order fractions whose denominators are all multiples of the same number	With support, I can order fractions with the same denominators With support, pictorial representations and concrete objects, I can order fractions whose denominators are all multiples of the same number	Generally, I can order and compare fractions whose denominators are all multiples of the same number	I can order fractions whose denominators are all multiples of the same number independently and at speed
		I can recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a	With support, I can compare and order fractions, including mixed fractions, e.g. $1^{1/2}$, $3^{3/4}$, etc.	Generally, I can compare and order fractions, including mixed fractions, e.g. $1^{1/2}$, $3^{3/4}$, etc.	I can independently convert numbers between mixed numbers and improper fractions

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		mixed number	With support, I can convert numbers between mixed numbers and improper fractions	I can convert numbers between mixed numbers and improper fractions, with prompts or reminders if necessary	
		I can round decimals with two decimal places to the nearest whole number and to one decimal place	With prompts, I can round decimals with one decimal place to the nearest whole number	Generally, I can round decimals with two decimal places to the nearest whole number Generally, I can round decimals with two decimal places to one decimal place	I can round decimals with up to three decimal places to the nearest whole number I can round decimals with up to three decimal places to one decimal place
		I can read, write, order and compare numbers with up to three decimal places	With the support of a teacher, I can solve problems involving numbers up to three decimal places	With reminders, I can read, write and order numbers with up to three decimal places	I can read, write, order and compare numbers with up to three decimal places
		I can solve problems involving numbers up to three decimal places	With support, I can undertake problems involving numbers up to three decimal places	When reminders are given, I can solve problems involving numbers up to three decimal places	I can independently solve problems involving numbers up to three decimal places
		I can recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal	I have an emerging understanding that the term percent relates to 'number of parts per hundred' With the support of a teacher, I can write percentages as a fraction with denominator 100 and as a decimal	I understand the percent symbol (%) and understand that percent relates to 'number of parts per hundred' I can write percentages as a fraction with denominator 100 and as a decimal, e.g. 30/100 = 30% = 0.30	I can write percentages as a fraction with denominator 100 and as a decimal, e.g. 43/100 = 43% = 0.43 I can identify and solve percentage values of a given value or quantity, even when the percentage is complex, e.g. 16% of 96 = 15.36
	Equivalence	I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Generally, 0.5, 0.25 and 0.75 can be written and read as a fraction	Generally, I can identify, name and write equivalent fractions of a given fraction. *With more complex fractions, prompts or reminders may be needed*	I can independently identify, name and write equivalent fractions including tenths and hundredths
		I can read and write decimal numbers as fractions	With the support of a teacher, I can convert common decimal numbers (0.5, 0.1-0.9, 0.25 and 0.75) into fractions	I can convert common decimal numbers (0.5, 0.1-0.9, 0.25 and 0.75) into fractions, with reminders if necessary.	I can convert decimal numbers, including 0.33 and 0.66, into fractions
		I can recognise and use thousandths and relate them to tenths, hundredths	I can recognise tenths in a number, with prompts where necessary	When prompts are given, I can recognise thousandths in numbers	I can independently identify, name and write equivalent fractions of a

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		and decimal equivalents	With support, I can recognise tenths and hundredths in a number	up to three decimal places	given fraction, including tenths and hundredths
				Generally, I can relate thousandths to tenths, hundredths and decimal equivalents	I can independently relate thousandths to tenths, hundredths and decimal equivalents
	Solving problems	I can add and subtract fractions with the same denominators and denominators that are multiples of the same number	With support, I can add and subtract fractions with the same denominator	Generally, I can add and subtract fractions with the same denominator	I can fluently and accurately add and subtract fractions with the same denominator
			With support, I can add and subtract fractions with denominators that are multiples of the same number, e.g. 1/3 + 2/6 = 2/3	Generally, I can add and subtract fractions with denominators that are multiples of the same number, e.g. 1/3 + 2/6 = 2/3	I can independently add and subtract fractions with denominators that are multiples of the same number
		I can multiple proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	With the support of a teacher and other materials and diagrams, I can multiple proper fractions by whole numbers	Generally, I can multiply proper fractions and mixed numbers by whole numbers, using materials and diagrams	I can independently multiple proper fractions and mixed numbers by whole numbers and I can multiple simple pairs of proper fractions
		I can solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	I can recognise simple equivalence between fractions, decimals and percentages, e.g. 1/4, 0.25 and 25%	I can use simple equivalence between fractions, decimals and percentages (for e.g. 1/4, 2/4, 1/3 and 1/2) to solve problems independently	I can solve problems using more complex equivalences, such as 2/5 into decimals and percentages
			Support from materials and diagrams may be necessary	Generally, I can solve problems which require knowing percentage and decimal equivalents of 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25	
To understand the properties of shape		I can identify 3D shapes from 2D representations	When reminders are given, I can identify 3D shapes from 2D representations	Generally, I can identify 3D shapes from 2D representations	I can identify 3D shapes from 2D representations
					When presented with a range of 2D representations, I can sort those that represent 3D shapes from those that do not
		I know that angles are measured in	With support, I understand that	Generally, I understand that angles	I know that angles are measured in

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		degrees; I can estimate and compare acute, obtuse and reflex angles	angles are measured in degrees With support, I can estimate and compare angles and describe acute, obtuse and reflex angles	are measured in degrees Generally, I can estimate and compare acute, obtuse and reflex angles	degrees I can estimate and compare acute, obtuse and reflex angles
		I can draw given angles and measure them in degrees (^{o})	With the support of a teacher, I can draw and measure given angles	Generally, I can draw given angles and measure them to the nearest 5°	I can draw given angles and accurately measure in ^{o} I can independently draw and measure reflex angles to the nearest degree, when neither edge is horizontal/vertical
		I can identify: ▪ Angles at a point and one whole turn (total 360°) ▪ Angles at a point on a straight line and a turn (total 180°) ▪ Other multiples of 90°	With reminders, I can identify angles at a point and one whole turn (total 360°) and angles at a point on a straight line and a turn (total 180°)	Generally, I can identify angles at a point and one whole turn (total 360°), angles at a point on a straight line and a turn (total 180°), and other multiples of 90°	Without support, I can identify angles at a point and one whole turn (total 360°), angles at a point on a straight line and a turn (total 180°), and other multiples of 90° I can calculate angles at a point, such as the angle between the hands of a clock I can independently construct triangles once information for the length of two sides and the angel between the two sides is provided Without support, I can correctly calculate missing angles in triangles and angles on a straight line
		I can use the properties of rectangles to deduce related facts and find missing lengths and angles	With support, I am beginning to understand the properties of a rectangle and can use this awareness to find missing lengths	Generally, I can use the properties of a rectangle to find missing lengths and angles	I can use the properties of a rectangle to find missing lengths and angles I can use the properties of rectangles and triangles to deduce related facts, including the area and perimeter of rectangles
		I can distinguish between regular and irregular polygons based on reasoning	with support, I can use simple properties, such as equal sides, to	Generally, I can distinguish between regular and irregular	I can independently distinguish between regular and irregular

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		about equal sides and angles	distinguish between regular and irregular polygons	polygons based on reasoning about equal sides and angles	polygons through reasoning
To describe position, direction and movement		I can identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	With support, I can draw a reflection of a shape on a horizontal and vertical mirror line and, when modelling is provided, I can draw reflections of a shape on a mirror line at 45° *There is an emerging understanding of the terminology reflection and translation*	I can draw the reflection of shapes where the mirror line is at 45° and whether the shape is touching the line or not When reminders are provided, I can rotate a shape around its centre or vertex Generally, I can translate shapes along an oblique line Generally, I can identify and describe the position of a shape following a reflection and I understand that the shape has not changed	I can independently rotate a shape around its centre or vertex and through 90° or 180°, where the shape does not touch or cross the mirror line I can independently translate a shape along an oblique line I can independently find lines of reflection symmetry I can independently recognise order of rotational symmetry I can visualise patterns that will occur on a net for a 3D shape I can independently identify, represent and describe the position of a shape following a reflection or translation and I understand that the shape has not changed
To use measures		I can convert between units of metric measure	With support, I can convert between different metric measures With reminders, I can convert measurements of length and distance	Generally I can measure lengths using mm to within 2mm Generally, I can convert between units of metric measure	I can confidently convert between units of metric measure and can apply this when solving problems
		I understand and can use approximate equivalence between metric units and common imperial units such as inches , pounds and pints	With support, I can understand the equivalence between metric units and common imperial units	When reminders are provided, I can understand the equivalence between metric units and common imperial units	Independently, I understand and can use equivalence between metric units and common imperial units
		I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	When reminders are given, I can generally calculate the perimeter of simple, regular shapes (such as square, rectangle, hexagon,	Generally, I can measure and calculate the perimeter of composite rectilinear shapes (shapes made up of two shapes) in	I can measure and calculate the perimeter of composite rectilinear shapes (shapes made up of two shapes) in mm and cm

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			pentagon)	mm and cm	
		I can calculate and compare the area of rectangles (including squares), using standard units (square cm (cm^2) and square metres (m^2)) and estimate the area of irregular shapes	With the support of a teacher and by using strategies such as counting squares inside a shape or finding the number of squares in a row and multiplying by the number of rows, I can calculate the area of rectangles using standard units – cm^2 and m^2	I can calculate the area of rectangles, including squares, using standard units – cm^2 and m^2 When prompts are provided, I can estimate the area of an irregular shape	I can accurately and independently calculate and estimate the area of irregular shapes and composite shapes
		I can estimate volume and capacity	With prompts, I can estimate capacity	I can estimate volume and capacity, generally accurately	I can estimate volume and capacity and my estimates are very close to the exact measure
		I can solve problems involving converting between units of time	With the support of a teacher, practical apparatus and concrete objects, I can solve problems involving converting between units of time When reminders are provided and with pictorial representations if necessary, I can calculate time durations over the hour	Generally, I can solve problems involving converting between units of time With prompting, I can calculate time durations over the hour and can interpret and use a timetable	I can calculate time durations that are over the hour and can interpret and use a timetable
		I can use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling	with the support of a teacher, I can convert measures of mass, volume and time from a smaller unit of measure to a larger unit; I can also read and write these	I can use all four operations to solve problems involving measure and using decimal notation *With prompts or reminders if needed*	Using all four operations, I can independently solve problems involving measure, using decimal notation
To use statistics		I can solve comparison, sum and difference problems using information presented in a line graph	With support, I can use a line graph to solve comparison, sum and difference problems	Generally, I can use a line graph to solve comparison, sum and difference problems	I can use a line graph to solve comparison, sum and difference problems
		I can complete, read and interpret information in tables, including timetables	With support, I can use a range of tables to record data With support, I can interpret information in tables, including timetables	Generally, I can use a range of tables to record data Generally, I can interpret information in tables	When data is provided, I can complete two-way tables without support I can interpret information in a range of tables