My Year 6 Learning Journey for Mathematics

Strand			I am Working Towards Year 6's objectives with support (Emerging)	I am Working Towards Year 6's objectives (Developing)	I am Achieving Year 6's objectives (Secure)
NUMBER	Number & Place Value	1	I can order numbers to 100,000 and use symbols to compare. I can give the value of each digit.	I can read, write, order and compare using < > = whole numbers up to 1,000,000 (1 million) and can give the value of each digit in the number.	* **I understand place value in large numbers** (up to 1 million and beyond) eg I can read, write, order and compare numbers up to 10 000 000 I can give the value of each digit in a large number e.g. what is the value of the '7' in 276,541. I can solve problems involving place value eg find the difference between the largest and smallest whole numbers that can be made from using three digits
		2	I can read, write, order and compare numbers with up to decimal two places and say what each digit represents using equipment eg place value cards.	I can read, write, order and compare numbers with up to decimal two places and say what each digit represents.	*I understand place value in decimal numbers eg I can identify the value of each digit in numbers given to three decimal places I can multiply and divide whole or decimal numbers by 1, 10 100 and 1000 I can solve problems involving place value in decimals eg $8.09 = 8 + 9/ ?$; $28.13 = 28 + ? + 0.03$
		3	I can round whole numbers to the nearest 10, 100 and 1000 with some help.	I can round any whole number to the nearest 1, 10, 20, 100, 1000. I can round decimal numbers to 1 place.	I can round any number to 10 000 000 including decimals to 2 places and can use this when solving problems to provide an appropriate answer eg £10 is shared equally between three people. How much do they get each?' $10 \div 3 = 3.333 \dots$ by rounding it to £3.33'. I buy 1.5 m of gold trimming for 14 decorations. How much do I need for each?': $1.5 \div 14 = 0.10714$ m, so round to 10 cm.
		4	I can use equipment, diagrams and drawings to help me solve simple negative number problems in context, with some help.	I can use negative numbers up to -10 in context to solve simple problems.	I can use negative numbers in context to solve problems, and calculate intervals across 0 eg answer questions such as 'How much warmer is -2^0C than -10^0C?/ -15^0C than 10^0C?'
	Addition, Subtraction, Multiplication & Division	5	I can work out x and ÷ facts from the times tables up to 10 x 10 and use my knowledge of these facts to multiply and divide larger numbers mentally eg 9 x 70 or 4 x 30	I can calculate mentally by quickly recalling x and ÷ facts from the times tables up to 12 x 12 to help me multiply and divide larger numbers mentally.	*I can calculate mentally, using a range of efficient strategies eg by rearranging the calculation to simplify it: $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$; $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$; $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$).
		6	I can add and subtract whole numbers with four digits, using column addition and subtraction.	I can use column addition or subtraction to add and subtract whole numbers and decimal numbers (with up to 2 decimal places and including a mixture of whole and decimal numbers) and check my calculation.	I can add or subtract any whole or decimal numbers (with up to 3 decimal places and including a mixture of whole and decimal numbers) **using an efficient method and check that my calculation is correct.**
		7	I can multiply two digit numbers by two digit numbers eg 27 x 15 using the formal method of long multiplication, with some help.	I can multiply three digit numbers by two digit numbers eg 417 x 15 using the formal method of long multiplication, with jottings to support my method.	*I can multiply numbers of up to four digits by a 2-digit whole number using the formal written method of long multiplication.
		8	I can multiply an amount of money up to £99.99 by a single digit number, sometimes using equipment to help.	I can multiply 1-digit numbers with one decimal place or amounts of money up to £99.99 by whole numbers.	I can multiply numbers below 100 with up to two decimal places by 2-digit whole numbers including in the context of money.
		9	I can calculate 245 ÷ 5 using the formal method of short division.	I can calculate 364 ÷ 13 using the formal method of long division, with supporting jottings for the layout.	*I can divide numbers up to four digits by a 2-digit whole number using either the formal written method of short or long division as appropriate and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.
		10	With some help, I can find out which operation I need to use to solve one and two step problems.	I can use formal methods to solve multi-step problems (including money) involving +,-, x,÷ or sometimes more than one different operation eg 'I buy a shirt for £15 and a pair of jeans for £26 and 50 pence. How much change do I get from £50?'	*I can use formal methods to solve multi-step problems (including money) involving +,-, x,÷ or more than one of these operations within the same problem. e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll? A bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?.
		11	I can use different strategies eg reasoning, approximation and estimation to check my answers to see if they look correct, with some help.	I can often explain how I have solved a multi-step problem correctly, either briefly explaining why I decided to choose certain operations or methods or showing how I have checked that my answer is correct.	I can clearly explain how I have solved a multi-step problem correctly, explaining why I decided to choose certain operations or methods and showing how I have checked that my answer is correct eg by using estimation or the inverse method.
	FDP	12	I can convert between common fractions, decimals and percentages eg convert ½, ¼, ¾ tenths and hundredths into decimals or percentages with help and using equipment.	I can convert between common fractions, decimals and percentages eg convert ½, ¼, 1/5, 2/5, 3/5, 4/5, ¾ tenths and hundredths into decimals or percentages using diagrams or equipment eg a fraction board to help..	*I know the relationship between fractions, decimals and percentages and can show them as equivalent quantities e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1 5 or 0.2 or 20% of the whole cake.
		13	I can select the larger fraction out of two using appropriate images or equipment to help me eg say which is larger, 2/3 or 3/4.	I can compare and order up to three simple fractions such as ¼, 1/3, 5/8, using diagrams or equipment, to help me.	I can compare and order two or more fractions, including fractions less than 1 and mixed numbers. Eg I can work out the larger fraction out of 17/20 and 5/7.

Strand	#			
Fractions, Decimals,	14	With help, I can calculate simple addition and subtraction of fractions 1/3 + 1/2 using diagrams or equipment to help me.	I can add and subtract fractions with different denominators.	* **I can calculate using fractions: I can add and subtract fractions with different denominators and mixed numbers** and write the answer in its simplest form eg 1 ½ + ¾ 3/4 + 2/5
	15	With some help. I can multiply two simple fractions eg 1/2 x 1/3 using appropriate images to support my understanding.	I can calculate 1/3 x 1/4 using appropriate diagrams. I can calculate 1/4 ÷ 5 using a diagram to help me.	*I **can calculate using fractions: multiply simple pairs of proper fractions, writing the answer in its simplest form** [for example, 1 4 × 1 2 = 1 8] **and divide proper fractions by whole numbers** [for example, 1/ 3 ÷ 2 = 1/6].
				Multiply / **Divide**
	16	I can solve some simple one step problems involving the calculation of simple fractions or percentages with some help.	I can solve some problems involving the calculation of simple fractions and percentages eg What is 5% of 200 kg?	* **I can calculate using fractions or percentages** eg work out 15% of 60 , 7/9of 108, 15% of 360 degrees] and the use of percentages snd fractions for comparison eg to work ut which is a better deal.
Ratio	17	I can solve some simple problems involving scale factor with some help.	I can solve some simple problems involving scale factor eg work out the length and width of a photograph which has been enlarged by a scale factor of two from 12 cm by 8 cm.	**I can solve problems involving similar shapes where the scale factor is known or can be found**. Eg can work out the length and width of a photograph which has been enlarged by a scale factor of two from 7 inches by 5 inches.
Algebra	18	I can work out balancing problems such as 4 + ? = 20 – 11, with some help.	I can understand different examples of the way in which the equals sign can be used eg 4 + (8 x 2) = 10 + 10.	I can solve problems involving a variety of instances of the equals sign eg 30 – ? = 12 + (3 x 5)
	19	I can generate linear number sequences, with some help.	I can generate and describe linear number sequences, using examples to help me.	**I can generate and describe linear number sequences** (a number pattern where the sequence of numbers increases or decreases by the same amount each time).
	20	I can solve simple algebraic missing number problems such as 'If x + 3 = 17, work out x', with some help.	I can solve simple algebraic missing number problems such as 'If x + 4 - 5 = 17, work out x'..	**I can express missing number problems algebraically and find pairs of numbers that satisfy an equation with two unknowns**. Eg I can solve problems such as 'If 3x – 5 = 16, find x'.
MEASURES	21	I can use a simple formula for finding the perimeter and area of a rectangle.	I can use a simple formula to find the perimeter and area of a rectangle or triangle.	*I **can substitute values into a simple formula to solve problems** including the perimeter of a rectangle or area of a triangle.
	22	I can solve problems using measures including those involving measurement conversions with up to one decimal place, with some help.	I can solve problems using measures including those involving measurement conversions with up to two decimal places.	*I **can calculate with measures** and solve problems including those involving measurement conversions eg calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm.
	23	I can calculate the perimeter and area of rectangular shapes and the perimeter of other shapes given the dimensions.	I can calculate the perimeter and area of triangles and rectangles and the perimeter of other shapes with some dimensions missing.	**I can calculate the perimeter and area of rectangular shapes, triangles and parallelograms with some dimensions missing.** I can recognise that shapes with the same areas can have different perimeters and vice versa.
GEOMETRY	24	I can solve some missing angle problems that require use of 'angles at a point sum to 360^0' and 'angles on a straight line sum to 180^0' with some help.	I can solve missing angle problems that require use of angles at a point sum to 360^0 and angles on a straight line sum to 180^0.	*I **can use mathematical reasoning to find missing angles** (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles)
	25	I can recognise and describe some simple 3-D shapes and, with help, sort pentominoes into those that are nets of open cubes and those that are not, with some help.	I can recognise, describe and build some simple 3-D shapes, including making simple, accurate nets eg for a tetrahedron.	**I can recognise, describe and build simple 3-D shapes, including making accurate nets.** Eg sort hexominoes (made of six squares joined exactly edge to edge) into those that are nets of cubes and those that are not and create my own hexominoes.
	26	I can draw a rectangle from written instructions such as AB = 8 cm, BC = 9 cm, CD = 8 cm and AD = 9 cm.	I can recognise, describe, sort and draw 2-D shapes using given dimensions and angles, with some help for the angles.	*I **can recognise, describe, compare, classify and draw 2-D shapes using given dimensions and angles.** Eg draw a triangle from written instructions such as AB = 8 cm, BC = 9 cm and ▢ABC = 56^0.
	27	I can label a diagram of a circle, identifying the radius, diameter and circumference.	I can illustrate and name parts of circles, including radius, diameter and circumference.	**I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.**
	28	I can locate a point in any quadrant such as (−3, −5), knowing that it marks the intersection of two gridlines, with some help.	I can describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane with some help.	**I can describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.**
STATISTICS	29	I can answer questions such as 'Which is the most popular pet?' from an appropriate pie chart with some help.	I can interpret and construct pie charts using my knowledge of fractions and percentages to help me.	**I can interpret and construct pie charts and line graphs and use these to solve problems.** I can answer questions such as 'Estimate how many people had dogs as pets' from an appropriate pie chart.
	30	I remember to method to calculate the mean average, using my knowledge of addition and division.	I can calculate the mean as an average eg work out the mean length of rivers in England and compare it with the mean length of rivers in Wales. I can then state which is larger.	**I can calculate and interpret the mean as an average and use this to solve problems .** Eg calculate the mean length of rivers in England and compare it with the mean length of rivers in Wales. I then deduce which country has longer rivers.

- All steps with an asterisk are KPI's (Key Performance Indicators)
- Numbering has no significance but is for ease of reference.
- Underlined steps link to the Expected Standards for Key Stage 2 in the Interim Assessment Framework.
- 'Most' or 'Mostly' or 'nearly always' indicates that the statement is generally met with only occasional errors. If this is not specified in the 'Secure' column, the assumption is that the statement is nearly always met.
- 'Often' indicates that the skill is correctly demonstrated more often than not ie on more than half of occasions attempted.
- 'Some' or 'sometimes' indicates that the skill / knowledge is starting to be acquired, and is demonstrated correctly on occasion, but is not consistent or frequent.
- 'With support / help' indicates that the child needed some level of support or intervention to achieve the statement. If support is not specified, the assumption is that the child could achieve the statement independently.

Working at the expected standard

The pupil can:

• demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; $8.09 = 8 + 9 /?$; $28.13 = 28 + \blacklozenge + 0.03$)

• calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. $53 – 82 + 47 = 53 + 47 – 82 = 100 – 82 = 18$; $20 × 7 × 5 = 20 × 5 × 7 = 100 × 7 = 700$; $53 ÷ 7 + 3 ÷ 7 = (53 + 3) ÷ 7 = 56 ÷ 7 = 8$)

• use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?) • recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1 /5 or 0.2 or 20% of the whole cake) • calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7 /21 and that this is equal to 1 /3; 15% of 60; 11 /2 + 3 /4; 7 /9 of 108; 0.8 x 70) • substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle) • calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm) • use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).