Fortuna Primary School
Stage 6 Maths (Equivalent to Y6 National Curriculum)

Prerequisite Knowledge

Before starting Stage 6 pupils should be secure at:

- Recognising place value to at least 1,000,000, including and use this to order and compare numbers.
- Counting backwards through zero into negative numbers in 1s and whole number steps.
- Counting backwards and forwards in powers of 10.
- Writing numbers to 1,000,000 in digits and in words.
- Deriving calculations for all four operations.
- Using columns for addition and subtraction with values beyond 4-digit numbers, including those that create 'tricky' columns.
- Using rounding to check answers for all four functions.
- Mentally calculating the difference and/or total of pairs of larger numbers, if such a strategy is appropriate/efficient.
- Be able to read, write and compare decimals to 3 decimal places.
- Multiplying and dividing numbers (including decimals) by 10, 100 and 1000.
- Recalling all times table and related division facts to 12 x 12, as well as 25s & 50s.
- Identifying factor pairs for numbers.
- Recognising and identifying square, cube and prime numbers.
- Using the grid method or long multiplication to solve UxThHTU problems, and use rounding to check the answer.
- Solving ThTHU÷U using short division.
- Naming 2D and 3D shapes and describe their properties using mathematical language.
- Estimating and drawing angles to within 2^0 of accuracy using a protractor.
- Drawing, reading and interpreting line graphs.
- Reading and interpreting timetables, including calculating durations.
- Calculating the perimeter and area of rectangular and composite shapes.
- Recognising and converting equivalent units of measure for length, mass, volume, time and money.
- Identifying fractions greater than 1 and write them as mixed numbers.
- Recognising tenths, hundredths and thousandths.
- Recognising and calculating equivalent fractions, decimals and percentages.

End of Stage Success Criteria

When a child has progressed through Stage 6 they should:

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Key for Progression statements

(*) reworded from Programme of Study statement (+) new statements (^) split Programme of Study statements **NAHT Assessment Framework key performance indicators**

Arithmetic 1			
Objective	**Beginning**	**Developing**	**Secure**
6.1.a.1 (Count) Calculate intervals across zero (^)	I can work out the difference between ⁻8 and zero. *and then…* I can work out the difference between 4 and ⁻5. *and then…* I can work out the connection between finding the difference between negative numbers and subtracting them.		
6.1.b.3 (Represent Numbers) Use negative numbers in context (^)	I can answer questions such as 'How much colder is ⁻5°C than 10°C?' *and then…* I can answer questions such as 'How much warmer is ⁻2°C than ⁻10°C?' and then… I can solve problems such as ordering the changes in temperature between day and night on the planets in the solar system.		
6.1.a.2 (Count) Consolidate counting forwards or backwards in steps of powers of 10 for any given number to 1000000 (+)	I can count backwards from 374,920 in steps of 10,000. *and then…*		

	I can count backwards from 902,401 in steps of 100,000, 10,000, 1000, 100 and 10. *and then…* I can reduce any number to zero by subtracting the appropriate number of each of the appropriate powers of 10.		
6.1.b.1 (Represent Numbers) Read and write numbers to 10 000 000 and determine the value of digits (^)	I can read and write numbers to ten million that are multiples of 100. *and then…* I can form a number with up to seven digit cards and write it in words. *and then…* I can relate megabytes, gigabytes and terabytes and express each in terms of the others.		
6.1.e.1 (Rounding Numbers) Round whole numbers to 10 000 000 to a required degree of accuracy (*)		I can round 68 to the nearest 20.	I can round 8,438 to the nearest 50. *and then…* I can identify a number over 1000 that rounds to the same number when rounded to the nearest 20 and nearest 50.
6.2.b.2 (Calculate Mentally) Consolidate knowledge of addition facts and the related subtraction facts, deriving further related facts as required (+)	I can write several calculations derived from 105 + 60 = 165. *and then…* I can write a variety of calculations derived from 105 + 632 = 737.	I can write a variety of calculations derived from 105 + 632 = 737 and generalise to describe further calculations.	
6.2.a.2 (Understand Calculation) Consolidate their understanding of the equals sign as representing equivalence between two expressions (+)		I can interpret instances of the equals sign such as 4 + 8 x 2 = 10 + 10. *and then…* I can deal with a variety of instances of the equals sign including 30 – ? = 12 + 3 x 5. *and then…* I can solve problems such as 3 + 5 x ? = 5 x 10 – 3 x 4.	
6.2.b.1 (Calculate Mentally) Perform mental calculations, including with mixed operations and large numbers		I can work out 10 x 6 – 3 x 4 mentally. *and then…* I can work out 12 x 70 + 3 x 20 mentally. *And then…* I can solve problems such as 'Using the numbers 6, 3, 5, 9, 25 and 100 once each, use any of the four operations to make the target number of 673'.	
6.2.e.1 (Written Calculation) Consolidate adding and subtracting whole numbers with more than 4 digits, including using formal written columnar addition and subtraction (+)	I can calculate 8238 + 3261 and 8237 – 3265 using formal columnar methods, with some prompting. and then… I can calculate 187,234 + 321,465 and 807,234 – 372,465 using formal columnar methods.	I can calculate 987,234 + 132,465 and 867,234 – 352,465 using formal columnar methods, describing why each step in the algorithm is used.	
6.2.f.1 (Check) Check answers to calculations with mixed operations and large numbers, choosing the most appropriate method, including estimation, and determining, in the context of a problem, an appropriate degree of accuracy (*)		I can choose an appropriate level of accuracy for the answer to a problem such as '£10 is shared equally between three people. How much do they get each?': 10 ÷ 3 = 3.333 … by rounding it to £3.33.	I can check the answer to any calculation using an appropriate method, choosing to round it if appropriate, e.g. 'I buy 1.5 m of gold trimming for 14 decorations. How much do I need for each?': 1.5 ÷ 14 = 0.10714 m, so the answer is rounded to 10 cm. *and then…* I can check the answer to any calculation using an appropriate method, choosing to round it if appropriate, e.g. 'I buy 1.5 m of gold trimming for 14 decorations. How much do I need for each?': 1.5 ÷ 14 = 0.10714 m, so the answer is rounded to 10 cm, justifying their choice of accuracy.
6.3.c.5 (Use F/D/P as Numbers) Round decimals to three decimal places or other approximations depending on the context (+)			I can round an answer involving decimals of pounds to two decimal places as it is to the nearest penny. *and then…* I can round 0.6666 ... to 0.667 when working with length and 0.67 when working with money.*and then…* I can justify rounding to a particular number of decimal places by referring to the context.
6.3.d.2 (Use F/D/P as Numbers) Solve problems which require decimal answers to be rounded to specified degrees of accuracy			I can solve problems such as 'I have £5 to share between three people. How much do they get each?' (answer £1.66 with 2p to be given to charity!). *and then…*

			I can solve problems such as 'I have £20 to share between 15 people. How much do they get each?' (answer £1.33 with 1p to be given to charity). *and then…* I can make up problems involving fractions, decimals and percentages which require the answer to be rounded in some way.
6.3.a.3 (Use F/D/P as Numbers) Identify the value of each digit in numbers given to three decimal places			I can identify the 7 in 5.78 as meaning seven-tenths. *and then…* I can identify the 7 in 9.587 as meaning seven-thousandths. *and then…* I can identify the 7 in 6.578 as meaning seven-hundredths or 70-thousandths.
6.3.b.6 (Convert F/D/P)Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	I can recall the decimal and percentage equivalents of halves, quarters and tenths, with prompting. *and then…* I can recall the decimal and percentage equivalents of halves, quarters, thirds, fifths and tenths in a variety of contexts. *and then…* I can recall the decimal and percentage equivalents of halves, quarters, thirds, fifths and tenths in a variety of contexts, selecting the most appropriate form to use for that context and the numbers involved.		
6.3.b.5 (Convert F/D/P) Consolidate understanding of the connection between fractions, decimals and percentages (+)	I can use manipulatives to show that 25% and 1/4 are equivalent. *and then…* I can draw diagrams to show why 25%, 1/4 and 0.25 are equivalent. *and then…* I can explain why 20%, 1/5 and 0.2 are equivalent.		
6.3.b.3 (Convert F/D/P) Consolidate understanding of the relation between tenths, hundredths and thousandths and decimal notation (+)		I can identify 0.2 as the decimal equivalent of 1/5 by converting 1/5 to 2/10. and then… I can identify 0.125 as the decimal equivalent of 1/8 by deducing it from the decimal equivalent of 1/4 and then… I can interpret any fraction with a power of 10 as its denominator in terms of decimal notation.	
6.3.b.4 (Convert F/D/P) Calculate decimal fraction equivalents for a simple fraction (^)		I can calculate 0.2 as the decimal equivalent of 1/5 by converting 1/5 to 2/10. *and then…* I can calculate 0.125 as the decimal equivalent of 1/8 by deducing it from the decimal equivalent of 1/4 or use a calculator to do 1 ÷ 8. *and then…* I can convert any fraction to its decimal equivalent by dividing the numerator by the denominator, either using a calculator or long division.	

Geometry & Data			
Objective	**Beginning**	**Developing**	**Secure**
6.2.1 (Classify Shape) Compare and classify geometric shapes based on increasingly complex geometric properties and sizes	I can sort a set of geometric shapes into a Carroll diagram for a variety of different criteria such as 'equal diagonals', 'pairs of parallel lines' and line symmetry, with prompting. *and then…* I can do the above independently. *and then…* I can do the above and devise shapes to go into empty cells or explain why it is not possible to do that.		
6.1.2 (Make and Visualise Shape) Use conventional markings and labels for lines and angles (+)	I can label a rectangle from written instructions such as AB = 8 cm, BC = 9 cm, CD = 8 cm and AD = 9 cm. *and then…*		

	I can label a triangle from written instructions such as AB = 8 cm, BC = 9 cm and ∠ABC = 56°. *and then…* I can do the above, realising that there are two different triangles that satisfy these conditions.		
6.1.1 (Make and Visualise Shape) Draw 2-D shapes accurately using given dimensions and angles (*)	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 draw a triangle from written instructions such as AB = 8 cm, BC = 9 cm and ∠ABC = 56°. I can draw a triangle from written instructions such as AB = 8 cm, BC = 9 cm and ∠BCA = 56°, realising that there are two different triangles that could be drawn.		
6.2.3 (Classify Shape) Recognise 3-D shapes from their nets	I can sort pentominoes (made of five squares joined exactly edge to edge) into those that are nets of open cubes and those that are not, with prompting. I can sort hexominoes (made of six squares joined exactly edge to edge) into those that are nets of cubes and those that are not. I can sort hexominoes (made of six squares joined exactly edge to edge) into those that are nets of cubes and those that are not, explaining how I know without folding them up		
6.1.3 (Make and visualise Shape) Build simple 3-D shapes, including making nets	I can construct the net for a cuboid and make it. *and then…* I can construct the net for a tetrahedron and make it. *and then…* I can construct the net for an	octahedron and make it.	
6.3.2 (Solve Shape Problems) Check solutions to missing angle problems by estimating (+)		I can solve some missing angle problems and check by estimating whether the angle is greater or less than a half turn. *and then…* I can solve missing angle problems and check by estimating whether the angle is greater or less than a right angle. *and then…* I can solve a wide variety of missing angle problems and check their answers by estimating the size of the missing angle.	
6.3.1 (Solve Shape Problems) Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles		I can solve some missing angle problems that require use of 'angles at a point sum to 360°' and 'angles on a straight-line sum to 180°', with prompting *and then…* I can do the above independently. *and then…* I can solve a wide variety of missing angle problems that require use of 'angles at a point sum to 360°' and 'angles on a straight-line sum to 180°'. (See 6.3.3)	
6.3.3 (Solve Shape Problems) Find unknown angles and lengths in triangles, quadrilaterals, and regular polygons (^) **N.B. Criteria changed from RS to fit objective better.**		I can find an unknown angle in a triangle or quadrilateral when all but one angle is given. *and then…* I can work out the value of a pair of opposite and equal unknown angles in a quadrilateral. *and then…* I can solve complex missing angle problems for intersecting lines.	
6.4.1 (Describe Position) Use positions on the full coordinate grid (all four quadrants)			I can locate a point in any quadrant such as (–3, –5), knowing that it marks the intersection of two gridlines and that 3 represents the distance moved 'along' so –3 represents the distance 'back' and 5 the

			distance moved 'up' so –5 is the distance moved 'down', with support. *and then…* I can do the above independently *and then…* I can do the above and I realise that a change in origin would change the coordinates of any point.
6.4.2 (Describe Position) Draw and label rectangles (including squares), parallelograms and rhombuses specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes (+)			I can identify the fourth vertex of a rectangle on a coordinate grid. *and then…* I can identify the fourth vertex of a rhombus on a coordinate grid. *and then…* I can identify the fourth vertex of a rhombus on a coordinate grid and explain how I used its properties to do so.
6.5.1 (Describe Movement) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes			I can draw the image of a shape following a translation or reflection on the coordinate grid, with prompting. *and then…* I can do the above independently *and then…* I can draw the image of a shape following a combination of translations and reflections on the coordinate grid.
6.2.2 (Classify Shapes) Illustrate and names parts of circles, including radius, diameter and circumference and know that the diameter of a circle is twice the radius	I can label a diagram of a circle, identifying the radius, diameter and circumference, with prompting. *and then…* I can label a diagram of a circle, identifying the radius, diameter and circumference. I deduce that the diameter is twice the radius. *and then…* I can relate radius, diameter and circumference to everyday instances of circles such as the circumference of a bicycle wheel equals the distance moved when the wheel goes round once.		
6.3.2 (Solve Data Problems) Calculate and interpret the mean as an average	I can calculate the mean of a set of data and can compare it with other relevant data sets (e.g. the length of rivers in a country or the heights of children in a class). I seek to understand my data (link river length to terrain or height to age).		
6.1.1 (Interpret Data) Interpret data in pie charts (^)	I can answer questions such as 'Which is the most popular pet?' from an appropriate pie chart. *and then…* I can answer questions such as 'There are 60 people represented on the pie chart. Estimate how many had dogs as pets' from an appropriate pie chart. *and then…* I can write some questions that can be answered from a pie chart and some that cannot unless additional information is given.		
6.2.1 (Present Data) Present data using pie charts and line graphs (*)		I can construct a pie chart to represent appropriate data, with support and prompting. *and then…* I can do the above independently. *and then…* I can write some instructions for constructing a pie chart to represent appropriate data.	
6.3.1 (Solve Data Problems) Solve problems using pie charts and line graphs (*) (^)		I can collect data about favourite meals of children in my class. I represent it in a pie chart and make a comment about it. I answer questions about changes over time by interpreting line graphs. *and then…* I can do the above. I develop my own questions related to my data. *and then…* The children can explain what question I are answering by collecting data and can interpret my results.	
5.3.2 (Solve Data Problems) Solve problems using			I can solve problems using timetables such as 'I arrive at Bodmin station at 10 a.m. When is the next train to Plymouth?'

information in tables, including timetables			*and then…* I can solve problems using timetables such as 'I need to be in Plymouth by 10 a.m. Which is the latest train from Bodmin I can catch and be there in time?' *and then…* I can plan a trip using public transport to a destination of my choice.
6.2.2 (Present Data) Consolidate skills in completing tables, including timetables (+)		I can complete tables, deducing what is needed from the available information, with support.	I can complete tables and timetables, deducing what is needed from the available information.
6.1.2 (Interpret Data) Consolidate skills in interpreting more complex tables, including timetables (+)			I can answer questions such as 'I get to the bus stop at 8:35 a.m. and catch the first bus that arrives. How long do I have to wait if it is on time?' by interpreting an appropriate bus timetable, with prompting. *and then…* I can answer questions such as 'I get to the bus stop at 8:35 a.m. and catch the first bus that arrives. What time do I arrive at Penzance?' by interpreting an appropriate bus timetable. *and then…* I can answer questions such as 'I need to get to Penzance by 9:45 a.m. What is the latest bus that I can catch from St Ives?' by interpreting an appropriate bus timetable.

Measures			
Objective	**Beginning**	**Developing**	**Secure**
The objectives within the measures strand of the curriculum lend themselves particularly well to play and every effort should be made to incorporate play into the allocated maths lesson and maths into PSHE Play activities.			
6.3.2 (Solve Measurement Problems) Add and subtract positive and negative measurements such as temperature (+)	I can work out the difference in temperature between $^{-}4^{o}C$ and $^{-}1^{o}C$. *and then…* I can work out the difference in temperature between $-4^{o}C$ and $11^{o}C$. *and then…* I solve practical and 'real world' problems.		
6.2.4 (Make Measurements) Consolidate skills in identifying and measuring perimeter (+)	I can identify which lengths make up the perimeter of a shape. *and then…* I can measure perimeter reliably. *and then…* I can identify, estimate and measure the perimeter of shapes.		
6.3.5 (Solve Measurement Problems) Consolidate skills in calculating perimeter (+)	I can calculate the perimeter of rectilinear shapes and other shapes given the dimensions. *and then…* I can explain how to calculate the perimeter for a variety of shapes.		
6.1.6 (Understand Units of Measure) Recognise that shapes with the same areas can have different perimeters and vice versa	I can work out the perimeter of a rectilinear figure and consider, with prompting, the effect of changing the area. *and then…* I can work out the perimeter for different pentominoes (made with five squares joined full edge to full edge) and then explore what other 'ominoes could also have those perimeters. *and then…* I can work out what changes to a rectilinear shape will alter the area but not the perimeter, and which will alter the perimeter but not the area.		
6.2.5 (Make Measurements) Estimate volume of cubes and cuboids (^)		I can estimate the size of a cubic metre using my knowledge of the length of a metre. *and then…* I can estimate the volume of a cuboid by comparing it with a known volume such as a cubic metre. *and then…* I can do the above and use this to estimate weight.	

6.3.6 (Solve Measurement Problems) Calculate the area of parallelograms and triangles	I can use the formula for the area of a triangle to work out the area of a given triangle, with prompting *and then…* I can do the above independently. *and then…* I can explain how the formulae for the area of triangles and parallelograms relate to more informal methods.		
6.3.7 (Solve Measurement Problems) Recognise when it is possible to use formulae for area and volume of shapes	I can recognise that using a formula to calculate the area of a rectangle is more efficient.	I can use the appropriate formula to calculate area and volume for rectilinear shapes. *and then…* I can apply my knowledge of formulae to calculate the surface area and volume of a cuboid.	
6.3.8 (Solve Measurement Problems) Calculate and compare volume of cubes and cuboids using standard units (+)		I can solve problems such as 'A cube measures 2 cm by 2 cm by 2 cm. How many fit inside a cube with internal measurements of 6 cm by 6 cm by 6 cm?' with prompting. *and then…* I can solve problems such as 'A cuboid measures 4 cm by 10 cm by 3 cm. How many cubic centimetres is its volume?' *and then…* I can work out how many cubic centimetres there are in one cubic metre. I calculate the volume of a cuboid.	
6.2.3 (Make Measurements) Continue to measure and compare using different standard units of measure (+)	I can interpret simple scales on measuring instruments. *and then…* I can interpret scales on a range of measuring instruments. *and then…* I confidently reads scales on a wide variety of measuring instruments.		
6.1.4 (Understand Units of Measure) Use, read and write standard units with up to three decimal places, including converting from smaller to larger units and vice versa (*)		I can solve problems using measures expressed using decimals with one decimal place, with prompting. *and then…* I can solve problems using measures expressed using decimals with up to three decimal places.	I can solve problems using measures expressed using decimals with any number of decimal places.
6.1.5 (Understand Units of Measure) Convert between miles and kilometres and use a conversion graph (^)			I can use the relationship that 5 miles = 8 km to convert multiples of 5 miles to km and multiples of 8 km to miles and use a conversion graph to change inches to centimetres for example, with prompting. *and then…* I can do the above independently. *and then…* I can change the relationship 5 miles = 8 km to a single multiplier to convert between miles and km and devise a conversion graph, with a formula expressed in words or algebra, and a ready reckoner to convert inches to centimetres.
6.3.4 (Solve Measurement Problems) Solve measurement problems with decimal notation up to three decimal places and approximate equivalences between metric and imperial measurements (*)		I can solve problems such as 'One litre is approximately 2.1 pints. How many pints is four litres?' *and then…* I can solve problems such as 'I buy 2 m of wood. I cut off eight 9 inch lengths for some shelving. How much is left in centimetres?'	I can solve problems such as 'I buy 20 pounds of potatoes. How much is that in kilograms?'
6.1.3 (Understand Units of Measure) Consolidate fluency in using money expressed in £ and p (+)			I can write an amount in pence as £, using decimal notation. *and then…* I can apply my skills in converting between p and £ in context. *and then…* I can explain why £ and p are an example of numbers with two decimal places.
6.3.3 (Solve Measurement Problems) Continue to solve problems involving money using the four operations (+)			I can solve problems such as 'Which is the better buy: ten packs costing £12 or six packs costing £6.99?' *and then…* I can solve problems such as 'Which is the better buy: 500 ml at £3.99 or 200 ml at £1.75?' *and then…*

			I can solve a wide variety of best buy problems.
6.1.1 (Understand Units of Measure) Continue to develop understanding of how analogue and digital clocks tell the time (+)		I can work out time intervals by looking at an analogue clock. *and then…* I can work out time intervals from both an analogue and digital clock. *and then…* I can work out time intervals by selecting the most appropriate method from the alternatives available.	
6.1.2 (Understand Units of Measure) Consolidate understanding of converting between units of time (+)		I can write 15 minutes as one-quarter of an hour. *and then…* I can convert from smaller to larger units of time such as minutes to hours. *and then…* I can convert between units of time in order to solve problems.	
6.2.1 (Make Measurements) Consolidate fluency in working with time (+)		I can tell whether I have enough time to perform short tasks. *and then…* I can calculate time intervals in order to plan ahead. I can work out time in a diverse range of situations.	
6.2.2 (Make Measurements) Consolidate fluency in recording the time (+)			I can write down the time in a variety of ways, with prompting. *and then…* I can do the above independently.
6.3.1 (Solve Measurement Problems) Consolidate skills in solving problems converting between units of time (+)			I can solve problems such as 'How many days have you been alive?' *and then…* I can solve problems such as 'How many hours have you been alive?' *and then…* I can solve problems such as 'How many seconds have you been alive?'

Arithmetic 2			
Objective	**Beginning**	**Developing**	**Secure**
6.3.a.1 Associate a fraction with division (^)	I can recognise that 1/7 can be interpreted as 1 ÷ 7 and that 1 ÷ 5 can be interpreted as one-fifth. *and then…* I can recognise that three-fifths can also be interpreted as 3 ÷ 5 and that 7 ÷ 5 can be interpreted as seven-fifths or one and two-fifths. I can choose whether to interpret 3/7 as three-sevenths or 3 ÷ 7 depending on the context, justifying my choice.		
6.3.a.2 (Understand F/D/P) Consolidate understanding of equivalent fractions by extending to improper fractions (+)	I can recognise that 3/2 and 6/4 are equivalent. *and then…* I can recognise that 7/5 and 14/10 are equivalent. *and then…* I can recognise that 1 2/8 is equivalent to 1 1/4.		
6.3.b.1 (Understand F/D/P) Use common factors to simplify fractions (^)		I can identify that the numerator and denominator of 4/8 can both be halved and then do so. With prompting, I can then repeat the process to obtain 1/2. *and then…* I can identify that four is a common factor for the numerator and denominator of 8/12 and divide by it to get 2/3. *and then…* I can identify the common factors for the numerator and denominator of a fraction, realising that the highest common factor is needed to reach the simplest form in one step.	
6.3.b.2 (Understand F/D/P) Use common multiples to express fractions in the same denomination (^)		I can express halves, quarters and eighths all as eighths. *and then…* I can change 1/3 to twelfths by multiplying both the numerator and denominator by four, and 3/4 to twelfths by multiplying	

		both the numerator and the denominator by three. *and then…* I can express 2/3 and 4/5 as fifteenths, knowing that 15 is a common multiple of 3 and 5.	
6.3.c.1 (Understand F/D/P) Compare and order fractions, including fractions > 1			I can select the larger fraction out of 2/3 and 3/4 using appropriate images. *and then…* I can select the larger fraction out of 17/20 and 5/7. *and then…* I can devise a general set of instructions for selecting the larger of two fractions.
6.3.d.3 (Understand F/D/P) Solve problems with FDP from the Year 6 curriculum (+)		I can solve problems such as 'Which is greater: 3/4 of £15 or 20% of £50?' *and then…* I can solve problems such as 'Place the following in ascending order of size: 65%, 2/3, 0.6, 5/7'. *and then…* I can make up problems involving fractions, decimals and percentages which involve at least three steps.	
6.1.a.3 (Count) Consolidate counting in multiples of 2, through to 10, 25 and 50 (+)	I can count up in 6s, 9s and 12s using my knowledge of counting up in 3s, and in 12s using my knowledge of counting up in 4s and 6s. *and then…* I can decide whether a number is a multiple of any number by counting up in multiples of that number, developing more efficient strategies than enumerating every multiple. *and then…* I can identify whether numbers are in more than one of the sequences with which I am are familiar, developing efficient strategies for deciding.		
6.2.b.4 (Calculate Mentally) Consolidate multiplying and dividing whole numbers and decimals by 10, 100 and 1000 (+)	I can work out 2.1 x 10 = 21 and 56 ÷ 10 = 5.6, applying this in the context of measurement. *and then…* I can work out 2.3 x 1000 = 2300 and 98 ÷ 1000 = 0.098, applying this in the context of metric measures. and then… I can calculate 0.012 x 600 = 7.2, applying this in a variety of contexts including measures.		
6.3.a.4 Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places (^)	I can calculate 5 x 10 = 50 and 34 x 100 = 3400 and, with prompting, work out 7 ÷ 10 = 0.7. *and then…* I can calculate 23 ÷ 100 = 0.23, and 306 ÷ 1000 = 0.306. *and then…* I can extend my understanding of multiplying and dividing whole numbers by 10, 100 and 1000 to calculating 5.8 ÷ 100 = 0.058 and 4.402 x 100 = 440.2.		
6.2.e.2 (Use written Calculation) Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication	I can calculate 3964 x 7 and 3964 x 32 using a formal written method such as the grid method.	I can do the above, using long multiplication as an alternate method *and then…* I can calculate 3964 x 7 and 3964 x 32 using a formal written method such as long multiplication and relate the steps to the grid method.	
6.2.e.3 (Use Written Calculation) Divide numbers up to 4 digits by a two-digit whole number using the formal methods of short or long division, and interpret remainders as appropriate for the context as whole numbers, fractions or by rounding (*)	I can calculate 364 ÷ 13 using the formal method of long division, with supporting jottings for the layout.	I can calculate 3612 ÷ 42 using the formal method of long division. *and then…* I can calculate 57,324 ÷ 68 using the formal method of long division.	
6.3.c.7 (Use F/D/P as Numbers) Multiply one-digit numbers with up to two decimal places by whole numbers		I can calculate 2.6 x 12 using an appropriate written method including jottings.	I can calculate 3.78 x 27 using an appropriate written method. *and then…* I can apply the formal method of long multiplication or the grid method to work out 23.38 x 83.

6.3.c.6 (Use F/D/P as numbers) Use written division methods in cases where the answer has up to two decimal places		I can calculate 17 ÷ 5 using jottings and with appropriate prompts.	I can calculate 317 ÷ 25 using jottings or a more formal written method. *and then…* I can apply the formal methods of short or long division to calculations which have answers of several decimal places.
6.3.c.3 (Understand F/D/P) Multiply simple pairs of proper fractions (^)		I can calculate 1/2 x 1/3 using appropriate images and with prompts. *and then…* I can calculate 1/2 x 1/3 using appropriate images and with prompts. *and then…* I can show how to multiply 1/3 and 1/5 using an appropriate array.	
6.3.c.4 (Understand F/D/P) Divide proper fractions by whole numbers (^)		I can calculate 1/3 ÷ 2 using an appropriate diagram and suitable prompts. *and then…* I can calculate 1/4 ÷ 5 using a diagram. *and then…* I can explain how to divide a fraction by a whole number and why it works.	

Reasoning			
Objective	**Beginning**	**Developing**	**Secure**
6.1.c.1 (Order and Compare Numbers) Order and compare numbers up to 10 000 000 (^)	I can choose the smaller number out of 800,000 and 8,000,000. *and then…* I can place the correct sign (=, < and >) in statements such as between 8,282,828 and 28,282,828. *and then…* I can solve problems involving ordering large numbers e.g. the distances in light years to stars and galaxies.		
6.1.d.1 (Solve Number Problems) Solve number problems and practical problems with number and place value from the Year 6 curriculum (*)	I can solve problems such as 'The temperature is zero at 10 a.m. It drops to –4^{o}C by 5 p.m. How much has it dropped?' *and then…* I can solve problems such as 'The temperature at sunrise is –5^{o}C and rises to 8^{o}C by midday. How much has it risen?'		I can solve problems such as 'What is 10,000 less than 236.7?'
6.3.1 (Algebra) Generate and describe linear number sequences	I can continue a growing sequence of shapes such as T-shapes made with five squares then eight squares then 11 squares, describing how to continue the sequence. *and then…* I can continue a growing sequence of shapes such as T-shapes made with five squares then eight squares then 11 squares, describing how to continue the sequence and being able to answer questions such as 'Will there be a T-shape with 100 squares in the sequence?'	I can continue a growing sequence of shapes such as T-shapes made with five squares then eight squares then 11 squares, describing how to continue the sequence and being able to write down a formula for the nth term.	
6.2.c.4 (Solve Calculation Problems) Consolidate solving calculation problems involving scaling by simple fractions and simple rates (+)	I can solve problems such as 'One packet of biscuits weighs 200 g. How much does 1/4 of a packet weigh?'	I can solve problems such as 'One packet of biscuits weighs 200 g. How much does 4/5 of a packet weigh?' *and then…* I can make up problems such as 'One packet of biscuits weighs 200 g. How much does 3/8 of a packet weigh?'	
6.2.c.2 (Solve Calculation Problems) Consolidate solving problems using more than one of the four operations (+)		I can solve problems such as 'Jack buys a bottle of water at £1.20 and a banana at 20p and pays with a £5 note. What change does he get?'	I can solve problems such as 'Jack buys seven bottles of water and a pizza for £3.50 and gets 20p change when he pays with a £10 note. How much is each bottle of water?' *and then…* I can make up problems involving several steps and prompting different calculation strategies such as 'Use the numbers 5, 4, 6, 7, 25 and 75 once each and any combination of the four operations to make the number 612'.
6.2.a.1 Use knowledge of the order of operations (^)	I can correctly calculate 7 + 2 x 3 as 13. *and then…* I can correctly calculate 3 – 5 x 8 + 1 as –36, and 3 x (5 + 7) as 36. *and then…*		

	I can correctly calculate any expression involving brackets and a mixture of the four operations. I can solve problems such as 'Insert signs to make the calculation correct: (3 ? 7) ? 6 = 100 ? 5 ? 17'.		
6.2.c.1 (Solve Calculation Problems) Solve multi-step addition and subtraction problems in less familiar contexts, deciding which operations and methods to use and why (*)		I can solve problems such as 'I buy a shirt for $15 and a pair of jeans for $26 and 50 cents. How much change do I get from $50?'	I can solve problems such as 'Jim puts down a deposit of £25 when he hires a rotavator. He pays £12 for the first day and £8.50 for subsequent days. He damages the rotavator on a large stone and loses £12 of his deposit. He hires the rotavator for two days, what does he pay?' *and then…* I can devise a toolkit for solving multi-step addition and subtraction problems and show how it works on a variety of problems.
6.2.f.2 (Check) Check answers to calculations with all four operations involving any numbers by rounding (*)		I can check the answer to 8.9 x 1.9 by rounding and working out 9 x 2 = 18.	I can check the answer to 8.9 ÷ 1.9 + 0.49 by rounding and working out 9 ÷ 2 + 0.5 = 5. *and then…* I can check the answer to 8.9 ÷ 1.9 + 0.49 x 3.4 by rounding and working out 9 ÷ 2 + 0.5 x 3 = 6, deploying the correct order for the operations.
6.1.1 (Algebra) Express missing number problems algebraically	I can solve problems such as 'If x + 3 = 17, work out x'. *and then…* I can solve problems such as 'If 3x – 5 = 16, find x'. *and then…* I can formulate the missing number problem using x and then solve it.		
6.2.b.3 (Calculate Mentally) Identify common factors, common multiples and prime numbers greater than 100 (*)			I can decide, given 30 and 45, what their common factors and multiples are, with prompts. I can identify prime numbers below 30. I can do this using recall, mental calculation and jottings. *and then…* I can decide, given 35 and 80, what their common factors and multiples are. I can decide whether 133 is a prime number. I can do this using recall, mental calculation and jottings. *and then…* I can identify, given 35 and 80, the highest common factor and the least common multiple without listing all of the common factors and common multiples. I can do this using recall, mental calculation and jottings.
6.2.d.2 (Recall) Consolidate recall of square numbers and cube numbers and the notation for them (+)	I can list the first ten square numbers and interpret 8^2 as 8 x 8 = 64. *and then…* I can identify whether a given number is a square number or cube number up to 200, interpret 6^2 as 6 x 6 = 36 and 2^3 = 2 x 2 x 2 = 8. *and then…* I can sort the numbers below 500 into a Venn diagram with two sets: square numbers and cube numbers. I can also interpret 3^4 as 3 x 3 x 3 x 3 = 81 and extend the idea to higher powers.		
6.2.c.3 (Solve Calculation Problems) Solve multi-step calculation problems involving combinations of all four operations (+)	I can solve problems such as 'Zoe has £5. She buys three pints of milk at 59p each. She wants to buy some tins of soup which cost 85p each. How many can she afford?', using a strategy which avoids division for example. *and then…* I can solve problems such as 'A fence is 2.4 m long. It consists of three panels and the posts are 12 cm wide. How wide is each panel?' *and then…* I can solve problems such as 'Use some or all of the numbers 1, 2, 3 and 4, no more than once each, and any combination of the four operations to make as many as possible of the numbers 1 to 50'.		

6.2.d.1 Consolidate knowledge of multiples and factors, including all factor pairs of a number, and common factors of two numbers (+)	I can list the factors of numbers below 20 and arrange them in pairs that multiply to give 24. I can also list multiples of numbers in the multiplication tables.		I can identify multiples or factors of a number from a set of numbers below 80 and list the factors of 50 as 1, 50; 2, 25; 5, 10. I recognises that 8 is a common factor of 40 and 64. *and then…* I can solve problems involving factors and multiples such as 'Numbers are co-prime if they have no factors in common. Find all of the numbers below 50 that are co-prime with 36. What do you notice? Can you explain this?'
6.2.a.4 (Understand Calculation) Consolidate knowledge of types of number (+)		I can identify factors and multiples of familiar numbers. *and then…* I can identify factors and multiples of numbers up to 50 and prime numbers up to 20. *and then…* I can identify factors and multiples of many numbers and prime numbers beyond 20.	
6.2.a.3 (Understand Calculation) Consolidate understanding of the structure of numbers (+)		I can apply my understanding of multiples to learning the multiplication table facts. *and then…* I can apply my understanding of factors to simplifying fractions, for example. *and then…* I can apply my understanding of factors and primes to a variety of problems.	
6.2.d.3 (Recall) Consolidate recall of prime numbers up to 19 (+)		I can identify the prime numbers below 12. *and then…* I can correctly and promptly list the prime numbers up to 19. *and then…* I can apply my knowledge of the prime numbers below 20 to quickly test numbers up to 400 to ascertain whether they are prime.	
6.3.d.1 (Solve F/D/P Problems) Multiply a quantity that represents a unit fraction to find the whole quantity (+)	I can solve problems such as 'Half a packet of biscuits is ten biscuits. How many biscuits are in the whole packet?'	I can solve problems such as 'One-quarter of a packet of biscuits is five biscuits. How many biscuits are in the whole packet?'	I can solve problems such as 'A packet of biscuits plus a third of a packet of biscuits is 36 biscuits. How many biscuits are in one packet of biscuits?' (answer 27).
6.3.c.2 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions			I can calculate 1/3 + 1/2 with supporting diagrams. *and then…* I can calculate 3/4 + 2/5 = 1 3/20. *and then…* I can calculate 3/4 +2/5 – 1/6 = 59/60.
6.1.b.2 Consolidate reading Roman numerals to 1000 (M) and recognising years written in Roman numerals (+)			I can write the numbers from 1 to 20 using Roman numerals, and write the year 2100 using Roman numerals. *and then…* I can write the date using Roman numerals and identify the year a film was made. *and then…* I can explain why calculation with large numbers is difficult with Roman numerals and how our place value system is better for doing so.