Year 6 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	**Unit 1** Number and Place Value and Decimals	**Unit 5** Division	**Unit 10** Place Value, Negative Numbers and Number Sequences	**Unit 14** Ratio and Proportion	**Unit 19** Place Value	**Unit 24** Calculation
Week 2	**Unit 2** Algebra and Sequences	**Unit 6** Fractions, Decimals and Percentages	**Unit 11** Coordinates and Geometry	**Unit 15** Statistics	**Unit 20** Fractions	
Week 3			**Unit 12** Calculation	**Unit 16** Geometry (2-D and 3-D Shape)	**Unit 21** Ratio and Proportion	**Unit 25** Algebra
Week 4	**Unit 3** Addition and Subtraction	**Unit 7** Geometry and Area		**Unit 17** Perimeter, Area and Volume	**Unit 22** Statistics	**Unit 26** Measurement
Week 5		**Unit 8** Statistics		**Unit 18** Algebra	**Unit 23** Geometry	**Unit 27** Geometry
Week 6	**Unit 4** Multiplication	Assess and review week	**Unit 13** Fractions	Assess and review week		Assess and review week

Autumn 1 – 6 weeks

Starters
• Identify, represent and estimate numbers on a number line within the range 0 to 10,000,000 where the number line has ten demarcations • Count forwards or backwards in steps of powers of 10 from any number up to 10,000,000 • Recognise that the numbers in calculations can be reordered to make calculating more efficient e.g. 54 – 65 + 39 becomes 54 + 39 – 65 and use this strategy where appropriate • Recognise and solve calculations that involve known or related facts e.g. 0.62 + 0.38 using knowledge of 62 + 38 = 100 • Use knowledge of place value and multiplication facts to divide related larger numbers e.g. 6,300 ÷ 9 = 700 and 6,300 ÷ 90 = 70 • Multiply whole numbers and numbers with up to three decimal places by 10, 100 or 1,000 • Divide whole numbers by 10, 100 or 1,000 and numbers with up to two decimal places by 10 and numbers with up to one decimal place by 100 • Multiply H00 × T0 and Th000 × T0 using knowledge of factorising and tables facts e.g. 600 × 40 = 6 × 4 × 100 × 10 = 24,000 • Multiply HT0 × U using a partitioning strategy • Use knowledge of place value and multiplication facts to multiply 0.0h × U • Multiply a 0.th number by a one-digit number using a partitioning strategy • Identify common multiples of two numbers • Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places • Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes • Compare/classify geometric shapes based on the properties and sizes

Number and Place Value and Decimals
Weeks 1 and 2

Lesson	Lesson Focus
1	Identify and represent numbers up to 10,000,000 using place value counters and a place value chart Partition a seven-digit number into millions, hundred thousands, ten thousands, thousands, hundreds, tens and ones
2	Identify and represent numbers with up to three decimal places using place value counters and a place value chart Partition a number with up to three decimal places into tens, ones, tenths, hundredths and thousandths
3	Compare and order numbers up to 10,000,000 Compare and order numbers with up to three decimal places
4	Round any number up to 10,000,000 to the nearest 10, 100, 1,000, 10,000, 100,000 or 1,000,000
5	Round decimals with three decimal places to the nearest whole number e.g. 327.702 rounds to 328 Round decimals with three decimal places to the nearest tenth e.g. 327.702 rounds to 327.7
6	Find 1, 10, 100, 1,000, 10,000 or 100,000 more/less than a given number up to 10,000,000 including crossing any boundaries Find 0.001 more/less than a given number including crossing any boundaries
7	Count forwards or backwards in steps of powers of 10 from any number up to 10,000,000

Algebra and Sequences
Weeks 2 and 3

Lesson	Lesson Focus
1	Understand and use algebraic convention e.g. 6 x l = 6l (because it is l + l + l + l + l + l) and a + a = 2a Describe simple rules using words e.g. perimeter of a regular hexagon is one length multiplied by 6

	Write simple rules using symbols e.g. p = l x 6 where p is the perimeter of a regular hexagon and l is the length of one side Express a given one-step word problem algebraically e.g. I think of a number and subtract 15. My answer is 12. What is my number? a – 15 = 12 Express a given two-step word problem algebraically e.g. Megan has two boxes. There are m counters in each box. She puts all her counters together in a pile and then removes five of them. Write an expression for the number of counters that are in the pile now 2m – 5 or m + m – 5
2	Understand and use algebraic convention for combining like terms e.g. a + 4 + a + 8 = 2a + 12
3	Substitute values for variables (letters) in simple formulae e.g. 3t + 4 = ? where t is 5 Find the value of a variable (letter) from a given formula e.g. 3t + 4 = 16 Find pairs of missing numbers to complete an equation where a total is given e.g. 2g + w = 10
4	Find the value of a variable (letter) from a given formula e.g. 3t + 4 = 16 Find pairs of missing numbers to complete an equation with addition and/or subtraction e.g. 10 + ? = ! + 2 Describe the relationship between the pairs of numbers used to solve the equation e.g. 10 + ? = ! + 2 the missing numbers have a difference of 8 which is the same difference between 10 and 2
5	Find pairs of missing numbers to complete an equation with multiplication and/or division e.g. ? × 6 = 18 × ! Describe the relationship between the pairs of numbers used to solve the equation e.g. ? × 6 = 18 × ! the missing number on the left of the = sign is 3 times greater than the missing number on the right of the = because 18 is 3 times greater than 6
6	Generate a linear number sequence when given the rule for each term e.g. complete the sequence using the rule: multiply the term by 3 and subtract 1 Describe the rule for a linear sequence algebraically e.g. 3 times the term plus 1 can be represented as 3n + 1 where n is the term number
7	Describe the relationship between the values in a linear sequence and their position (term) where the relationship is a single step e.g. the value is 3 times the term Describe the relationship between the values in a linear sequence and their position (term) where the relationship is two steps e.g. the value is 3 times the term plus 1 Describe the rule for a linear sequence algebraically e.g. 3 times the term plus 1 can be represented as 3n + 1 where n is the term number
8	Use the relationship between the values in a linear sequence and their position to identify the value of a given term Use the relationship between the values in a linear sequence and their position to identify the term from a given value Describe the rule for a linear sequence algebraically e.g. 3 times the term plus 1 can be represented as 3n + 1 where n is the term number

Addition and Subtraction
Weeks 4 and 5

Lesson	Lesson Focus
1	Recognise calculations that require mental partitioning e.g. 6,584 – 2,360 or 873 + 350 and use this strategy where appropriate
2	Recognise calculations that require counting on or back mentally, bridging efficiently e.g. 0.7 + 0.56 becomes 0.7 + 0.3 + 0.26 and use this strategy where appropriate
3	Recognise calculations that require a mental compensation method e.g. 5.6 + 3.9 becomes 5.6 + 4 – 0.1 and use this strategy where appropriate
4	Recognise calculations that require counting on mentally to find the difference e.g. 4.1 – 3.46 and use this strategy where appropriate (This should be supported by a number line)
5	Add whole numbers up to 10,000,000 Add numbers with up to three decimal places e.g. 2.65 + 354.682 + 64.7 + 24
6	Subtract whole numbers up to 10,000,000 Subtract numbers with up to three decimal places e.g. 834.2 – 58.829
7	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)

Multiplication Weeks 5 and 6	
Lesson	**Lesson Focus**
1	Use partitioning to double any number, including decimals to three decimal places
2	Use compensation strategy to multiply U.9 × U Use compensation strategy to multiply U.99 × U
3	Multiply a number with one decimal place by a single digit e.g. 4.3 × 8 Multiply a number with two decimal places by a single digit e.g. 5.38 × 7
4	Multiply whole numbers up to four digits by a one-digit number
5	Multiply two-digit whole number by a two-digit whole number using the formal written method of long multiplication
6	Multiply multi-digit numbers up to three digits by a two-digit whole number using the formal written method of long multiplication
7	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
Learning Check Up To This Point	

Autumn 2 – 5 weeks

Starters
• Recall and use multiplication facts up to 12 × 12 and related division facts
• Use knowledge of place value and multiplication facts to divide related larger numbers e.g. 6,300 ÷ 9 = 700 and 6,300 ÷ 90 = 70
• Use partitioning to halve any number, including decimals to three decimal places where all the digits are even e.g. halve 24.682
• Know that: $\frac{3}{5}$ is 0.6 or 60%; $\frac{1}{3}$ is approximately 0.33 or 33.3%; $\frac{2}{3}$ is approximately 0.66 or 66.6%; $\frac{1}{8}$ is 0.125 or 12.5%
• Use the fact that $\frac{1}{8}$ is 0.125 or 12.5% to derive decimal and percentage equivalents for $\frac{3}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$ e.g. $\frac{1}{8}$ is 0.125 so $\frac{3}{8}$ is 0.125 x 3 = 0.375
• Calculate missing angles on a straight line

Division Weeks 1 and 2	
Lesson	**Lesson Focus**
1	Use partitioning to halve any number, including decimals to three decimal places
2	Divide a 4-digit number by a 1-digit number
3	Divide a 3-digit number by a 2-digit number
4	Divide a 3-digit number by a 2-digit number Convert between different units of time where long division is required e.g. how many days is 356 hours?
5	Divide a 3-digit number by a 2-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
6	Divide a four-digit number by a one-digit number using a partitioning strategy e.g. 1542 ÷ 6 becomes (1200 ÷ 6) + (300 ÷ 6) + (42 ÷ 6)
7	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)

Fractions, Decimals and Percentages Weeks 2 and 3	
Lesson	**Lesson Focus**
1	Identify common multiples of two numbers Identify common multiples of three or more numbers
2	Understand and use the term 'simplify' and use common factors to simplify fractions Use common multiples to express fractions in the same denomination
3	Compare two fractions or mixed numbers by using common multiples to express the fractions in the same denomination
4	Add and subtract two fractions by converting both into fractions with a common denominator

5	Understand and calculate fraction and decimal equivalence by expressing fractions in tenths or hundredths e.g. $\frac{1}{4} = \frac{25}{100} = 0.25$ Understand and calculate fraction and percentage equivalence by expressing fractions in hundredths $\frac{2}{5} = \frac{40}{100} = 40\%$
6	Find fractions of amounts
7	Find 10% of an amount by dividing it by 10 Find 1% of an amount by dividing by 100 or by dividing 10% of the amount by 10 Find 5% of an amount by dividing 10% by 2 (finding half of 10%)
8	Find 15%, 35%, 45%, 55%, 65%, 85% of an amount by adding multiples of 10% of the amount to 5% of the amount

Geometry **Weeks 4 and 5**	**Area**

Lesson	Lesson Focus
1	Draw given angles, and measure them in degrees (°)
2	Complete a given shape by drawing one angle of a given size and one side of a given length
3	Calculate missing angles where two straight lines cross and one angle is given Recognise that vertically opposite angles are equal
4	Find missing angles in triangles where two angles are given Find missing angles in isosceles triangles where one angle is given
5	Compare/classify geometric shapes based on the properties and sizes
6	Derive the area of a parallelogram by relating it to a rectangle with the same width and vertical height Calculate the area of parallelograms Know the formulae for the area of rectangles (including squares) is length × width and how this relates to the area of parallelograms as base × height
7	Know the formulae for the area of rectangles (including squares) is length × width and how this relates to the area of triangles as ½ (base × height)

Statistics **Week 5**	

Lesson	Lesson Focus
1	Interpret pie charts by directly comparing the size of the segments Identify halves, quarters and thirds of a circle including in different orientations Relate the proportion (including percentage) of the circle to the proportion of the total where the segments are halves, thirds and quarters
2	Identify sixths and eighths of a circle, including different orientations, by comparing them to halves, quarters and thirds Relate the proportion of the circle to the proportion of the total where the segments are sixths and eighths Estimate proportions of the circle using fractions and percentages
3	Solve comparison, sum and difference problems using information presented in all types of graph Understand and use approximate equivalences between miles and kilometres when given the conversion graph or conversion fact that 5 miles ≈ 8km

Learning Check Up To This Point

Spring 1 – 6 weeks

Starters
• Recall and use multiplication facts up to 12 × 12 and related division facts
• Identify, represent and estimate numbers on a number line within the range 0 to 10,000,000 where the number line has ten demarcations
• Count forwards or backwards in steps of powers of 10 from any number up to 10,000,000
• Recognise that the numbers in calculations can be reordered to make calculating more efficient e.g. 54 – 65 + 39 becomes 54 + 39 – 65 and use this strategy where appropriate
• Recognise and solve calculations that involve known or related facts e.g. 0.62 + 0.38 using knowledge of 62 + 38 = 100
• Multiply whole numbers and numbers with up to three decimal places by 10, 100 or 1,000
• Divide whole numbers by 10, 100 or 1,000 and numbers with up to two decimal places by 10 and numbers with up to one decimal place by 100
• Multiply H00 × T0 and Th000 × T0 using knowledge of factorising and tables facts e.g. 600 × 40 = 6 × 4 × 100 × 10 = 24,000
• Multiply HT0 × U using a partitioning strategy
• Use knowledge of place value and multiplication facts to multiply 0.0h × U
• Multiply a 0.th number by a one-digit number using a partitioning strategy
• Identify common multiples of two numbers
• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places
• Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes
• Compare/classify geometric shapes based on the properties and sizes
• Order three or more fractions or mixed numbers by using common multiples to express the fractions in the same denomination

Place Value, Negative Numbers and Number Sequences Weeks 1 and 2	
Lesson	**Lesson Focus**
1	Round any whole number to a required degree of accuracy
2	Round decimals with three decimal places to the nearest whole number or one or two decimal places
3	Compare negative numbers including in a variety of contexts Order negative numbers including in a variety of contexts (include positive numbers)
4	Add a positive number to a negative number, including crossing zero e.g.-7 + 4 or -5 + 12 Subtract a positive number from a positive number crossing zero e.g. 4 – 9 Subtract a positive number from a negative number e.g. -8 – 4 Calculate the difference between a positive and a negative number Calculate the difference between two negative numbers
5	Calculate the difference between a positive and a negative temperature Calculate the difference between two negative temperatures
6	Count forwards or backwards in steps of integers from any number up to 10,000,000 and through zero e.g. 105, 60, 15, -30, -75 (counting in steps of 45) Identify the rule of a sequence with inconsistent steps e.g. 1, 3, 6, 10, 15 by adding one more than the previous step size
7	Count forwards or backwards in decimal steps where the step size is in thousandths greater than one hundredth e.g. 5.742, 5.757, 5.772 (counting in steps of 0.015)

Coordinates and Geometry Weeks 2 and 3	
Lesson	**Lesson Focus**
1	Describe positions in the first two quadrants of a coordinate grid (the x-axis only is extended into negative numbers) Describe positions on the full coordinate grid (all four quadrants) including where the gird is marked and where there is no grid
2	Solve problems involving coordinates including completing shapes (four quadrants)

3	Translate a single point then a simple shape in one direction on a coordinate grid within the first quadrant identifying the coordinates of the vertices after translation Translate a single point then a simple shape in one direction on a coordinate grid where one axis is crossed identifying the coordinates of the vertices after translation Translate a single point then a simple shape in one direction on a coordinate grid where both axes are crossed identifying the coordinates of the vertices after translation
4	Translate a single point and a simple shape in two directions on a coordinate grid within the first quadrant identifying the coordinates of the vertices after translation Translate a single point and a simple shape in two directions on a coordinate grid where one axis is crossed identifying the coordinates of the vertices after translation Translate a single point and a simple shape in two directions on a coordinate grid where both axes are crossed identifying the coordinates of the vertices after translation
5	Reflect a shape in one axis, including when the shape is touching an axis and has no sides parallel or perpendicular to the axis, identifying the coordinates of the vertices after reflection

Calculation
Weeks 3, 4 and 5

Lesson	Lesson Focus
1	Round numbers to an appropriate power of 10 e.g. 23,567 + 8,214 + 345,210 becomes 24,000 + 8,000 + 345,000 Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
2	Add and subtract numbers with up to three decimal places e.g. 834.2 – 58.829
3	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
4	Multiply a number with one decimal place by a two-digit number e.g. 4.7 × 53 Multiply a number with two decimal places by a two-digit number e.g. 4.52 × 23 Use estimation to predict answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
5	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
6	Solve addition, subtraction and multiplication multi-step problems in contexts, deciding which operations and methods to use and why
7	Use rules of divisibility and mental chunking to identify whether a number is prime or composite up to 144 (multiplication tables knowledge)
8	Use knowledge of place value and multiplication facts to divide related decimal numbers where the divisor is scaled down e.g. 32 ÷ 0.8 = 40 Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and the divisor are scaled down by different powers of 10 e.g. 0.32 ÷ 0.8 = 0.4
9	Divide a 4-digit number by a 2-digit number Use estimation to predict answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
10	Divide a 4-digit number by a 2-digit number Divide a 4-digit number by a 2-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Use estimation to predict answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
11	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
12	Solve problems involving all four operations, including those with missing numbers
13	Know that calculations within brackets are performed first e.g. 3 × (4 + 7) = 33

Lesson	Lesson Focus
1	Add a fraction to a mixed number by converting both fractional parts into fractions with a common denominator Subtract a fraction from a mixed number by converting both fractional parts into fractions with a common denominator
2	Use pictorial representations to show multiplication of a non-unit fraction by a unit fraction e.g. $\frac{1}{4} \times \frac{4}{5}$ or $\frac{1}{3} \times \frac{6}{7}$
3	Use pictorial representations to show multiplication of one unit fraction by another e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ by interpreting $\frac{1}{4} \times \frac{1}{2}$ as $\frac{1}{4}$ of $\frac{1}{2}$ Use pictorial representations to show multiplication of a non-unit fraction by another e.g. $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ by interpreting $\frac{3}{4} \times \frac{2}{3}$ as $\frac{3}{4}$ of $\frac{2}{3}$
4	Use pictorial representations to show division of a non-unit fraction by a whole number where the numerator is the same as the divisor e.g. $\frac{3}{5} \div 3 = \frac{1}{5}$ understanding ÷ 2 as halving, ÷ 3 as finding one third etc. Use pictorial representations to show division of a non-unit fraction by a whole number where the numerator is a multiple of the divisor e.g. $\frac{8}{9} \div 4 = \frac{2}{9}$ understanding ÷ 2 as halving, ÷ 3 as finding one third etc.
5	Use pictorial representations to show division of a non-unit fraction by a whole number where the numerator is not related to the divisor e.g. $\frac{2}{3} \div 3 = \frac{2}{9}$ (can be done pictorially or by converting fraction so that numerator is related to the divisor)
Learning Check Up To This Point	

Spring 2 – 5 weeks

Starters
• Recall and use multiplication facts up to 12 × 12 and related division facts
• Identify, represent and estimate numbers on a number line within the range 0 to 10,000,000 where the number line has ten demarcations
• Multiply whole numbers and numbers with up to three decimal places by 10, 100 or 1000
• Divide whole numbers by 10, 100 or 1000 and numbers with up to two decimal places by 10 and numbers with up to one decimal place by 100
• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places
• Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes
• Interpret line graphs and use these to solve problems
• Count forwards or backwards in steps of integers from any number up to 10,000,000 and through zero e.g. 105, 60, 15, -30, -75 (counting in steps of 45)
• Round numbers to an appropriate power of 10 e.g. 23,567 + 8,214 + 345,210 becomes 24,000 + 8,000 + 345,000
• Use simple formulae

Ratio and Proportion Weeks 1 and 2	
Lesson	**Lesson Focus**
1	Use concrete materials or pictorial representations to show scaling up or down to find missing values e.g. 4 people eat 350g of pasta, how much pasta is needed for 12 people? Use a direct proportion diagram to solve problems when finding missing values e.g. 4 people eat 350g of pasta, how much pasta is needed for 12 people?
2	Identify the multiplicative relationship between corresponding sides of similar shapes Use the multiplicative relationship for corresponding sides to calculate the lengths of missing sides
3	Use concrete materials or pictorial representations to share a single digit to a given ratio e.g. a total of 5 sweets in the ratio of 2:3 (2 sweets for you and 3 sweets for me)

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	Use concrete materials or pictorial representations to share amounts to a given ratio where the total is a multiple of the sum of the parts (a ratio of 2:3 has 5 parts) e.g. 25 sweets in the ratio of 2:3 would be shared as 10:15 *Ensure that the ratio table includes a **total column***
4	Use concrete materials or pictorial representations to share amounts to a given ratio where the value of one of the parts is given and the value of the other part is calculated e.g. A number of apples are in the ratio of 1 green to 3 red. 5 of them are green, how many are red? Use concrete materials or pictorial representations to share amounts to a given ratio where the value of one of the parts is given and the total is calculated e.g. A number of apples are in the ratio of 1 green to 3 red. 5 of them are green, how many apples are there? *Ensure that the ratio table includes a **total column***
5	Solve problems involving ratio and proportion
6	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
7	Find percentages of amounts that are multiples of 10% of the amount added to multiples of 1% of the amount e.g. 43% of 120
8	Find percentages of amounts that require a compensation strategy e.g. 95% of an amount is 100% - 5%

Statistics
Week 2

Lesson	Lesson Focus
1	Interpret pie charts and use these to solve problems
2	Calculate the mean as an average and understand that it is the mathematical representation of the typical value of a series of numbers i.e. the mean of 4, 6, 8, 10 and 12 is 8 because 8 + 8 + 8 + 8 + 8 would give the same total Interpret the mean as an average including when it is appropriate to be used

Geometry (2-D and 3-D Shape)
Week 3

Lesson	Lesson Focus
1	Know that the perimeter of a circle is called the circumference Know that a straight line from one point on the edge of a circle to another point on the edge that passes through the centre is called the diameter Know that a straight line from the centre of a circle to the edge is called a radius Identify that the radius is half of the diameter or that the diameter is double the radius
2	Draw a given shape where the size of one angle and the length of one side are specified
3	Use properties of quadrilaterals to find missing angles when given an appropriate amount of information Use properties of regular polygons to find missing angles when given an appropriate amount of information
4	Draw the net of a variety of triangular prisms in which the end faces are equilateral triangles Draw the net of a variety of triangular prisms in which the end faces are isosceles triangles
5	Solve problems involving shape

Perimeter, Area and Volume
Weeks 4 and 5

Lesson	Lesson Focus
1	Recognise that shapes with the same areas can have different perimeters and vice versa
2	Derive the area of any triangle by relating it to a rectangle with the same width and vertical height Derive the area of a right-angled triangle by relating it to a rectangle with the same width and vertical height
3	Derive the area of any triangle by relating it to a rectangle with the same width and vertical height Derive the area of any triangle by relating it to a rectangle with the same width and vertical height Calculate the area of triangles

4	Calculate the area of composite shapes e.g. a shape made up of a square rectangle and a triangle
5	Know the formulae for the volume of cuboids (including cubes) is length × width × depth Calculate and compare the volumes of different cuboids (including cubes) where the dimensions of the cuboids are in the same unit and when they are not
6	Know the formulae for the volume of triangular prisms is $\frac{1}{2}$ (base × height) × depth

Algebra **Week 5**	
1	Generate and describe linear number sequences
2	Express missing number problems algebraically
3	Find pairs of numbers that satisfy an equation with two unknowns e.g. the sum of two numbers is 25 and the difference between them is 7. What are the two numbers? The sum of two numbers is 20. One number is three times the other number. What are the two numbers?
4	Use concrete materials or pictorial representations to systematically find all the combinations of two variables e.g. a football kit is made up of a shirt, shorts and socks and each item can be red or blue. How many different combinations are there? Identify and use the relationship between the number of options for each variable and the number of possible combinations of the two variables e.g. variable 1 are the items of clothing (3 items) variable 2 are the colours (2 colours) 8 possibilities which is 2 × 2 × 2
Learning Check Up To This Point	

Starters
• Recall and use multiplication facts up to 12 × 12 and related division facts
• Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number
• Use negative numbers in context, and calculate intervals across zero
• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
• Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$)

Place Value
Week 1

Lesson	Lesson Focus
1	Order and compare numbers including integers, decimals and negative numbers
2	Round any whole number to a required degree of accuracy
3	Round decimals with three decimal places to the nearest whole number or one or two decimal places
4	Recognise and continue sequences that count forwards or backwards in steps of integers, decimals, powers of 10
5	Continue a sequence forwards and backwards with alternating steps given the rule e.g. double the number then subtract 3 Identify the rule of a sequence with alternating steps e.g. 5, 50, 55, 550, 555, 5550 by multiplying by 10 then adding 5 Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal

Fractions
Week 2

Lesson	Lesson Focus
1	Compare and order fractions, including fractions > 1 (including on a number line) Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
2	Add two mixed numbers by converting both fractional parts into fractions with a common denominator Subtract two mixed numbers by converting both fractional parts into fractions with a common denominator Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
3	Recognise that the numerators are multiplied together to give the numerator of the answer and the denominators are multiplied together to give the denominator of the answer Write answers in their simplest form Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)
4	Recognise that when dividing a fraction by a whole number, if the numerator is not a multiple of the divisor then the denominator is multiplied by the divisor and the numerator stays the same Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)
5	Find simple percentages of amounts Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison

Ratio and Proportion
Week 3

Lesson	Lesson Focus
1	Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication / division facts
2	Use a direct proportion diagram to solve problems when finding missing values by finding how much is needed for one first e.g. 4 people eat 360g of pasta, how much pasta is needed for 7 people?

3	Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
4	Solve problems involving similar shapes where the scale factor is known or can be found
5	Solve problems involving ratio and proportion using a bar model

**Statistics
Week 4**

Lesson	Lesson Focus
1	Construct a pie chart using a circle split into equal sections where the values of the data set are multiples of the number of sections of the circle
2	Construct a pie chart using a protractor where the total of the data set is a factor of 360 (degrees)
3	Interpret and construct pie charts and use these to solve problems
4	Solve comparison, sum and difference problems using information presented in all types of graph
5	Continue to complete and interpret information in a variety of sorting diagrams

**Geometry
Weeks 5 and 6**

Lesson	Lesson Focus
1	Describe positions on the full coordinate grid (all four quadrants)
2	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
3	Draw 2-D shapes using given dimensions and angles
4	Find unknown angles in any triangles, quadrilaterals, regular polygons
5	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
6	Draw the net of other simple 3-D shapes including a range of pyramids and prisms
7	Draw the net of other simple 3-D shapes including a range of pyramids and prisms
8	Recognise, describe and build simple 3-D shapes, including making nets
9	Recognise, describe and build simple 3-D shapes, including making nets
Learning Check Up To This Point	

Summer 2 – 5 weeks

Starters
• Recall and use multiplication facts up to 12 × 12 and related division facts
• Convert between miles and kilometres
• Calculate differences in temperature, including those that involved a positive and negative temperature
• Identify, represent and estimate numbers on a number line within the range 0 to 10,000,000 where the number line has ten demarcations
• Multiply whole numbers and numbers with up to three decimal places by 10, 100 or 1000
• Divide whole numbers by 10, 100 or 1000 and numbers with up to two decimal places by 10 and numbers with up to one decimal place by 100
• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places
• Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes
• Identify common factors, common multiples and prime numbers
• Use partitioning to double or halve any number

Calculation Weeks 1 and 2	
Lesson	**Lesson Focus**
1	Perform mental calculations involving addition and subtraction including with large numbers and decimals Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
2	Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction) Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
3	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) Select a mental strategy appropriate for the numbers in the calculation
4	Perform mental calculations involving multiplication including with large numbers Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
5	Perform mental calculations involving division, including with large numbers Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
6	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Multiply one-digit numbers with up to two decimal places by whole numbers Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
7	Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
8	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
9	Use knowledge of the order of operations to carry out calculations Solve problems involving all four operations, including those with missing numbers
10	Use knowledge of the order of operations to carry out calculations Solve problems involving all four operations, including those with missing numbers

Algebra Week 3	
Lesson	**Lesson Focus**
1	Enumerate possibilities of combinations of two variables

2	Generate and describe linear number sequences
3	Use simple formulae
4	Express missing number problems algebraically
5	Find pairs of numbers that satisfy an equation with two unknowns

Measurement Week 4	
Lesson	**Lesson Focus**
1	Use, read and write standard units of length and time using decimal notation to three decimal places *(athletics context)* Calculate and interpret the mean as an average Convert between standard units of length and time using decimal notation to three decimal places Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
2	Use, read and write standard units of length and time using decimal notation to three decimal place *(athletics context)* Calculate and interpret the mean as an average Convert between standard units of length and time using decimal notation to three decimal places Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
3	Use, read and write standard units of mass and volume using decimal notation to three decimal places Convert between standard units of mass and volume using decimal notation to three decimal places Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
4	Use, read and write standard units of mass and volume using decimal notation to three decimal places Convert between standard units of mass and volume using decimal notation to three decimal places Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
5	Calculate the area of parallelograms and triangles Recognise when it is possible to use formulae for area of shapes
6	Recognise that shapes with the same areas can have different perimeters and vice versa
7	Calculate the number of cm^3 in different cuboids where dimensions are given in metres Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units (e.g. mm^3 and km^3) Recognise when it is possible to use formulae for volume of shapes

Geometry Week 5	
Lesson	**Lesson Focus**
1	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
2	Compare/classify geometric shapes based on the properties and sizes
3	Compare/classify geometric shapes based on the properties and sizes
Learning Check Up To This Point	