Year 6 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	**Unit 1** Place value	**Unit 5** Division				
Week 2						
Week 3	**Unit 2** Algebra and Sequences	**Unit 6** Fractions, Decimals, Percentages				
Week 4	**Unit 3** Addition and Subtraction	**Unit 7** Geometry and Area				
Week 5						
Week 6	**Unit 4** Multiplication	**Unit 8** Statistics Assess and review week		Assess and review week		Assess and review week

Year 6 Expectations – Sequence of Learning

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
- 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. 34.3 × 8 Multiply a number with two decimal places by a single digit e.g. 45.38 × 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
• 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	