Year 6 Maths Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Autumn	**Unit 1** Place value		**Unit 2** Four Operations				**Unit 2**	**Unit 3** Fractions				**Unit 4** Position and direction	Consolidation
Spring	**Unit 5** Decimals		**Unit 6** Percentages		**Unit 7** Algebra	**Unit 7** Algebra	**Unit 8** Converting units	**Unit 9** Perimeter, area and volume		**Unit 10** Statistics			
Summer	**Unit 11** Properties of shape **Revision**			**Unit 12** Ratio and proportion **Revision**	**SATS**		Recap units in more depth based on assessment Fiver challenge						

Number	Measurement	Geometry	Statistics

Year 6 Maths Curriculum 2021-22

Year 6 maths curriculum map 2021-22

COVID Recovery Curriculum

NCETM prioritisation curriculum/ NCETM spines/ White Rose SOL/ DFE Ready to Progress criteria have all been used to support the planning, teaching and learning of mathematics.

Rough suggestions are given for the intended length of each unit, but teachers are expected to adjust according to the needs and prior learning of their pupils.

Unit	Unit name	Learning outcomes	Links with other resources
1 (2 weeks)	**Place value** **White Rose**	1) Pupils use concrete manipulatives and pictorial representations to recap representing numbers up to 10,000 (Numbers to 10,000) 2) Pupils represent numbers on a place value grid, read and write numbers and place them on a number line to 100,000 (Numbers to 100,000) 3) Pupils read, write and represent numbers to 1,000,000 (Numbers to a million) 4) Pupils need to read, write and represent numbers to ten million in different ways. (Numbers to ten million) 3) Pupils will compare and order whole numbers up to ten million using numbers presented in different ways. (Compare and order any number) 4) Pupils recap rounding to 10, 100 and 1,000. (Round numbers to 10, 100 and 1,000) 5) Pupils will learn to round any number within ten million. (Round any number) 6) Pupils will count forwards and backwards through zero. (Negative numbers) (NCETM spines 1.27)	NCETM prioritisation unit 2 and 3
2 (5 weeks)	**Addition, subtraction, multiplication and division** **White Rose and NCETM**	1) Pupils to add and subtract integers. (Add and subtract integers) 2) Pupils will use their knowledge of addition and subtraction to check their workings to ensure accuracy. (Inverse operations (addition and subtraction)) 3) Pupils will be using their knowledge of addition and subtraction to solve multi-step problems. (Multi-step addition and subtraction problems) 4) Pupils recap multiplying 4 digits by 1 digits. (Multiply 4-digits by 1-digit) (NCETM spines 2.23) 5) Pupils recap multiplying 2 digit by 2 digit. (Multiply 2-digits by 2-digits) (NCETM spines 2.23) 9) Pupils recap multiplying 3-digit numbers by 2-digit numbers. They will use multiplication to find area and solve multi-step problems. (Multiply 3-digits by 2-digits) (NCETM spines 2.23) 10) Pupils consolidate their knowledge of column multiplication, multiplying numbers with up to 4 digits by a 2-digit number. (Multiply up to a 4-digit number by 2-digit number) (NCETM spines 2.23) 11) Pupils recap dividing 4-digit numbers by a 1-digit number. (Divide 4-digits by 1-digit) 12) Pupils recap short division with remainders, using concrete resources to develop their understanding where necessary. (Divide with remainders) Step 11&12 could be combined if pupils are secure.	6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. • 2.18 Using equivalence to calculate • 2.23 Multiplication strategies for larger numbers and long multiplication • 2.24 Division: dividing by two-digit divisors • 2.25 Using compensation to calculate 2.22 Combining multiplication with addition and subtraction

		13) Pupils build on their understanding of dividing up to 4-digits by 1-digit by now dividing by up to 2-digits. They use the short division method and focus on the grouping structure of division. (Short division) 14) Pupils use their number sense, specifically their knowledge of factors, to be able to see relationships between the dividend (number being divided) and the divisor (number that the dividend is being divided by). (Division using factors NCETM spines 2.24)) 15) (Long division (1) NCETM spines 2.24) 16) (Long division (2) NCETM spines 2.24) 17) (Long division (3) NCETM spines 2.24) 18) (Long division (4) NCETM spines 2.24) 19) Pupils learn that factors of a number multiply together to give that number, meaning that factors come in pairs. (Factors) 20) Pupils find the common factors of two numbers. (Common factors) 21) Building on knowledge of multiples, pupils find common multiples of numbers. (Common multiples) 22) Building on their learning in year 5, pupils should know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. (Primes to 100) 23) Pupils have identified square and cube numbers previously and now explore the relationship between them, and solve problems involving them. (Squares and cubes) 24) Pupils will look at different operations within a calculation and consider how the order of operations affects the answer. Pupils will learn that, in mixed operation calculations, calculations are not carried out from left to right. (Order of operations) (See NCETM spine 2.28) 25) Discussions with pupils around efficient mental calculations and sensible estimations need to run through all steps. (Mental calculations and estimation) 26) Pupils should use known facts from one calculation to determine the answer of another similar calculation without starting afresh. (Reason from known facts)	2.28 Combining division with addition and subtraction
3 (4 weeks)	**Fractions** **White Rose and NCETM**	1) Pupils explore equivalent fractions using models and concrete representations. (Equivalent fractions) (See NCETM spine 3.7) 2) Pupils use their understanding of the highest common factor to simplify fractions (Simplify fractions) (See NCETM spine 3.7) 3) Pupils convert improper fractions to mixed numbers. (Improper fractions to mixed numbers) 4) Pupils now convert from mixed numbers to improper fractions using concrete and pictorial methods to understand the abstract method. (Mixed numbers to improper fractions) 5) Pupils count forwards and backwards in fractions. They compare and order fractions with the same denominator or denominators that are multiples of the same number. (Fractions on a number line) 6) Pupils use their knowledge of equivalent fractions to compare fractions where the denominators are not multiples of the same number. (Compare and order (denominator)) (See NCETM spine 3.8 – teaching point 5) 7) Building on their prior knowledge of comparing unit fractions, pupils look at comparing fractions by finding a common numerator. (Compare and order (numerator)) 8) Pupils add and subtract fractions within 1 where the denominators are multiples of the same number. (Add and subtract fractions (1)) (See NCETM spine 3.8) 9) Pupils add and subtract fractions where the denominators are not multiples of the same number. (Add and subtract fractions (2)) (See NCETM spine 3.8) 10) Pupils move on to adding two fractions where one or both are mixed numbers or improper fractions. (Add mixed numbers)	NCETM prioritisation unit 7 6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions. • 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. • 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy. • 3.8 Common denomination: more adding and subtracting • 3.9 Multiplying fractions and dividing fractions by a whole number

		11) Pupils add mixed numbers. They look at different methods depending on whether the fractions total more than one. (Add fractions) 12) Pupils apply their understanding of subtracting fractions where one denominator is a multiple of the other to subtract proper fractions from mixed numbers. (Subtract mixed numbers) 13) Pupils subtract mixed numbers. They explore different methods including exchanging wholes for fractions and subtracting the wholes and fractions separately and converting the mixed number to an improper fraction. (Subtract fractions) 14) Pupils solve problems that involve adding and subtracting fractions and mixed numbers. (Mixed addition and subtraction) **NCETM Spines 3.9** 15) Pupils multiply fractions and mixed numbers by integers. (Multiply fractions by integers) 16) Pupils use concrete and pictorial representations to support them to multiply fractions. (Multiply fractions by fractions) (See NCETM spine 3.9 – teaching point 1) 17) Pupils divide fractions where the numerator is not a multiple of the integer they are dividing by. (Divide fractions by integers (2)) (See NCETM spine 3.9 – teaching point 2) 18) Pupils are introduced to dividing fractions by integers. They focus on dividing fractions where the numerator is a multiple of the integer they are dividing by. (Divide fractions by integers (1)) (See NCETM spine 3.9 – teaching point 3) 19) Pupils combine the four operations when calculating with fractions. (Four rules with fractions) 20) Pupils calculate fractions of an amount. (Fraction of an amount) 21) Pupils find the whole amount from the known value of a fraction. (Fraction of an amount – find the whole)	
4 (1 week)	**Position and Direction** **White Rose**	1) Pupils recap work from Year 4 and Year 5 by reading and plotting coordinates in the first quadrant. (The first quadrant) 2) Pupils extend their knowledge of the first quadrant to read and plot coordinates in all four quadrants. (Four quadrants) 3) Pupils use knowledge of coordinates and positional language to translate shapes in all four quadrants. (Translations) 4) Pupils extend their knowledge of reflection by reflecting shapes in four quadrants. (Reflections)	NCETM prioritisation unit 6
5 (2 weeks)	**Decimals** **White Rose** and **NCETM**	1) Pupils look at the value of each place value column and describe its value in words and digits. (Three decimal places) 2) Pupils use concrete resources to multiply decimals and explore what happens when you exchange with decimals. (Multiply decimals by integers) 3) Pupils continue to use concrete resources to divide decimals and explore what happens when exchanges take place. (Divide decimals by integers) 4) Pupils will apply their understanding of division to solve problems in cases where the answer has up to 2 decimal places. (Division to solve problems) 5) (Fractions as decimals) (See NCETM spines 3.10 - Teaching point 1) 6) (Fractions to decimals (1)) (See NCETM spines 3.10 - Teaching point 2) 7) (Fractions to decimals (2)) (See NCETM spines 3.10 - Teaching point 3)	NCETM prioritisation unit 7 3.10 Linking fractions, decimals and percentages

6 (2 weeks)	**Percentages** **NCETM**	1) Pupils explain what percent means 2) Pupils explain how to represent a percentage in different ways 3) Pupils explain how to convert percentages to decimals and fractions (with a denominator of 100) 4) Pupils explain how to convert a percentage to a fraction (without denominator of 100) 5) Pupils use their knowledge of fraction-decimal-percentage conversions to solve conversion problems in a range of contexts 6) Pupils use their knowledge of calculating 50%, 10% and 1% of a number to solve problems in a range of contexts 7) Pupils use their knowledge of calculating common percentages of a number to solve problems in a range of contexts 8) Pupils use their knowledge of calculating any percentage of a number to solve problems in a range of contexts 9) Pupils explain how to solve problems where the percentage part and the size of the part is known and the whole is unknown 10) Pupils explain how to solve problems where the known percentage part and the size of the part changes the whole	NCETM prioritisation unit 7 3.10 Linking fractions, decimals and percentages (See NCETM spines 3.10 - Teaching point 4, 5 and 6)
7 (2 weeks)	**Algebra** **White Rose**	1) Pupils explore simple one step function machines. (Find a rule - one step) 2) Pupils build on their knowledge of one step functions to look at two step function machines. (Find a rule - two step) 3) Pupils use simple algebraic inputs e.g. y. (Forming expressions) 4) Pupils substitute into simple expressions to find a particular value. (Substitution) 5) Pupils substitute into familiar formulae such as those for area and volume. (Formulae) 6) Building on the earlier step of forming expressions, pupils now use algebraic notation to form one step equations. (Forming equations) 7) Pupils solve simple one step equations involving the four operations. (Solve simple one step equations) 8) Pupils progress from solving equations that require one step to equations that require two steps. (Solve two step equations) 9) Pupils use their understanding of substitution to consider what possible values a pair of variables can take. (Find pairs of values) 10) Pupils find possible solutions to equations which involve multiples of one or more unknown. (Enumerate possibilities)	
8 (1 weeks)	**Converting units** **White Rose**	1) Pupils read, write and recognise all metric measures for length, mass and capacity. (Metric measures) 2) Pupils will use their skills of multiplying and dividing by 10, 100 and 1,000 when converting between units of length, mass and capacity. (Convert metric measures) 3) Pupils use and apply their conversion skills to solve measurement problems in context. (Calculate with metric measures) 4) Pupils need to know that 5 miles is approximately equal to 8 km. (Miles and kilometres) 5) Pupils to perform related conversions, both within imperial measures and between imperial and metric. (Imperial Measures)	
9 (2 weeks)	**Perimeter, area and volume** **White Rose and NCETM 2.30**	1) Pupils will find and draw rectilinear shapes that have the same area. (Shapes - same area) 2) Pupils should calculate area and perimeter of rectilinear shapes. (Area and perimeter) 3) Pupils will use their previous knowledge of approximating and estimating to work out the area of different triangles by counting. (Area of a triangle (1)) 4) Pupils use their knowledge of finding the area of a rectangle to find the area of a right angled triangle. (Area of a triangle (2)) 5) Pupils will extend their knowledge of working out the area of a right-angled triangle to work out the area of any triangle. (Area of a triangle (3))	NCETM prioritisation unit 6 2.30 Multiplicative contexts: area and perimeter 2

		6) Pupils use their knowledge of finding the area of a rectangle to find the area of a parallelogram. (Area of parallelogram) 7) Pupils understand that volume is the amount of solid space something takes up. (What is volume?) 8) Pupils will start by counting cubic units (1 cm³) to find the volume of 3D shapes. (Volume - counting cubes) 9) Pupils make the link between counting cubes and the formula ($l \times w \times h$) for calculating the volume of (Volume of a cuboid)	
10 (2 weeks)	**Statistics** **White Rose and NCETM 2.26**	1) Pupils will build on their experience of interpreting data in context from Year 5, using their knowledge of scales to read information accurately. (Read and interpret line graphs) 2) Pupils will build on their experience of reading and interpreting data in order to draw their own line graphs. (Draw line graphs) 3) Once pupils can read, interpret and draw lines graphs they need to be able to use line graphs to solve problems. (Use line graphs to solve problems) 4) Pupils will illustrate and name parts of circles, using the words radius, diameter, centre and circumference confidently. (Circles) 5) Pupils will build on their understanding of circles to start interpreting pie charts. (Read and interpret pie charts) 6) Pupils will apply their understanding of calculating percentages of amounts to interpret pie charts. (Pie charts with percentages) 7) Pupils will build on angles around a point totalling 360 degrees to know that this represents 100 % of the data within a pie chart. From this, they will construct a pie chart, using a protractor to measure the angles. (Draw pie charts) 8) Pupils will apply their addition and division skills to calculate the mean average in a variety of contexts. They could find the mean by sharing equally or using the formula: Mean =Total ÷ number of items. (The mean) (See NCETM spine 2.26)	NCETM prioritisation unit 13 2.26 Mean average and equal shares
11 (3 weeks)	**Properties of shape** **White Rose**	1) Pupils will recap measuring angles using a protractor. (Measure with a protractor) 2) Pupils need to draw lines correct to the nearest millimetre. They use a protractor to draw angles of a given size. (Draw lines and angles accurately) 3) Pupils build on their understanding of degrees in a right angle and make the connection that there are two right angles on a straight line and four right angles around a point. (Introduce angles) 4) Pupils build on their knowledge of a right angle and recognise two right angles are equivalent to a straight line, or a straight line is a half of a turn. (Angles on a straight line) 5) Pupils need to know that there are 360 degrees in a full turn. (Angles around a point) 6) Pupils apply their understanding of angles in a right angle, angles on a straight line and angles around a point to calculate missing angles. (Calculate angles) 7) Pupils recognise that vertically opposite angles share a vertex. They realise that they are equal and use practical examples to show this. (Vertically opposite angles) 8) Pupils practically explore interior angles of a triangle and understand that the angles will add up to 180 degrees. (Angles in a triangle) 9) Pupils are introduced to hatch marks for equal lengths. They concentrate on angles in right angled triangles and isosceles triangles. (Angles in a triangle - special cases) 10) Pupils make links and recognise key features of specific types of triangle. They think about using this information to solve missing angle problems. (Angles in a triangle - missing angles) 11) Pupils use their knowledge of properties of shape to explore interior angles in a parallelogram, rhombus, trapezium etc. (Angles in special quadrilaterals)	NCETM prioritisation unit 6 6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

		12) Pupils use their knowledge of properties of shape to explore interior angles in polygons. (Angles in regular polygons) 13) Pupils begin by drawing shapes accurately on different grids such as squared and dotted paper. They then move on to using a protractor on plain paper. (Draw shapes accurately) 14) Pupils use their knowledge of 2 D and 3 D shapes to identify three dimensional shapes from their nets. (Draw nets of 3D shapes)	
12 (1 weeks)	**Ratio and proportion*** **White Rose and NCETM 2.27** (Teach what is needed for SATs)	1) Pupils will understand that a ratio shows the relationship between two values and can describe how one is related to another. (Using ratio language) 2) Pupils will use objects and diagrams to compare ratios and fractions. (Ratio and fractions) 3) Pupils are introduced to the colon notation as the ratio symbol, and continue to link this with the language 'for every…, there are…' (Introducing the ratio symbol) 4) Pupils build on their knowledge of ratios and begin to calculate ratios. They answer worded questions in the form of (Calculating ratio) 5) Pupils enlarge shapes to make them 2 or 3 times as big etc. (Using scale factors) 6) Pupils find scale factors when given similar shapes. (Calculating scale factors) 7) Pupils will apply the skills they have learnt in the previous steps to a wide range of problems in different contexts. (Ratio and proportion problems)	NCETM prioritisation unit 9 6AS/MD–3 Solve problems involving ratio relationships. 2.27 Scale factors, ratio and proportional reasoning
		Revision	
		KS2 SATs	
12 (2 weeks)	**Ratio and Proportion**	Cover this unit in more depth based on assessment	6AS/MD–3 Solve problems involving ratio relationships. 2.27 Scale factors, ratio and proportional reasoning
		Cover units in more depth based on assessment	
		FIVER CHALLENGE	

Year 6 Maths Curriculum 2021-22

Dark grey references are ready-to-progress criteria from the DfE Guidance 2020

Light grey references are from the NCETM Primary Mastery Professional Development materials

Blue references are White Rose materials