



Long Term Planning

Year 6

National Curriculum Objectives and Small steps Overview

Term 1

<u>Unit</u>	<u>Place Value</u>	<u>The Four Operations</u>
<p><u>National Curriculum Objectives</u></p>	<ul style="list-style-type: none"> • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above. 	<ul style="list-style-type: none"> • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
<p><u>Small Steps Guidance</u></p>	<p>White rose Autumn Term Revise work from Year 5 on rounding (many children find this concept difficult)</p> <ul style="list-style-type: none"> • Numbers to 10,000 • Numbers to 100,000 • Numbers to 1 million • Extend to Year 6 • Numbers to 10 million • Read and write numbers to 10 million. • Numberline to 10 million. • Compare and order any number • Round numbers to 10,100 and 100 • Round any number • Negative Numbers. 	<p>Whiterose Autumn Term</p> <ul style="list-style-type: none"> • Review 4 operations from Year 5 including: • Adding whole numbers with more than 4 digits (formal method) • Subtracting whole numbers with more than 4 digits (formal method) • Inverse operations • Multi-step addition and subtraction problems. • Choosing efficient methods (mental vs written + and -) <p>Year 5 revision:</p> <ul style="list-style-type: none"> • Multiply 4 digit x 1, • 2 digit by 2 digit formal method <p>Extend to</p> <ul style="list-style-type: none"> • 3 digit by 2 digit • 4 digit by 2 digit <p>Year 5 revision:</p> <ul style="list-style-type: none"> • Divide 4 digit by 1 digit (bus stop) including remainders <p>Extend</p> <ul style="list-style-type: none"> • Divide 4 digit number by small 2 digit numbers (e.g. 12, 13) • Divide using factors • Long Division <p>Revise from Year 5 through mental starters: Factors, common factors, primes, square and cube numbers</p> <p>Extend Rules of divisibility Order of calculations and use of known facts.</p>



1 day a week

<u>Unit</u>	<u>Shape and Angles</u>
<u>National Curriculum Objectives</u>	Pupils should be taught to: <ul style="list-style-type: none">• draw 2-D shapes using given dimensions and angles• recognise, describe and build simple 3-D shapes, including making nets• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
<u>Small Steps Guidance</u>	<u>White rose Autumn Term</u> <u>2D and 3D shape revision from Years 3-5</u> Name, describe properties of 2D and 3D shapes review include acute, obtuse, right, reflex angles, line symmetry, sides, vertices, edges, faces, parallel, perpendicular, bisecting lines, types of triangles, quadrilaterals, parallelograms etc. Extend: <ul style="list-style-type: none">• Nets of 3D shapes <u>Angles</u> Revise from year 5 <ul style="list-style-type: none">• Measure with a protractor• Draw lines accurately• Angles on a straight line• Angles around a point Extend <ul style="list-style-type: none">• Calculate angles• Vertically opposite angles• Angles in a triangle (including equal sides, opposite angles and missing angles)• Angles in Quadrilaterals (including equal sides, opposite angles and missing angles)• Angles in polygons• Drawing shapes accurately



Term 2

<u>Unit</u>	<u>Fractions</u>
<u>National Curriculum Objectives</u>	<ul style="list-style-type: none"> • use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form • divide proper fractions by whole numbers
<u>Small Steps Guidance</u>	<p>Whiterose Autumn Term Revise Year 5 Equivalent fractions Extend: Simplify fractions Revise- Improper fractions to mixed numbers/ Mixed to improper fractions Extend</p> <ul style="list-style-type: none"> • Fractions on a numberline • Compare and order (denominator) • Compare and order (numerator) • Add and subtract fractions (denominators multiples of same numbers) • Add and subtract fractions (unlike denominators) • Adding mixed numbers (like denominators) • Adding mixed numbers (unlike denominators) • Subtracting mixed numbers (like denominators) • Subtracting mixed numbers (unlike denominators) • Problem solving including fractions with mixed fractions • Multiplying fractions by integers • Multiplying fractions by fractions • Dividing fractions by integers (numerator multiple of integer) • Dividing fractions by integers (numerator not multiple of integer) • Combining operations with fractions <p>Through mental starters</p> <ul style="list-style-type: none"> • Fraction of amount • Finding a whole.

1 Day a week

<u>Unit</u>	<u>Position and Direction</u>
<u>National Curriculum Objectives</u>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
<u>Small Steps Guidance</u>	<p>White rose Autumn</p> <ul style="list-style-type: none"> • First quadrant • Four quadrants • Translation • Reflections



Term 3

<u>Unit</u>	<u>Decimals</u>	<u>Percentages</u>
<p><u>National Curriculum Objectives</u></p>	<ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{83}{100}$] • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. 	<ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{83}{100}$] • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
<p><u>Small Steps Guidance</u></p>	<p>White rose Spring Term</p> <p>Revise:</p> <ul style="list-style-type: none"> • Decimals up to 2 places • Understanding thousandths <p>Extend:</p> <ul style="list-style-type: none"> • Three decimal places • Multiply by 10, 100 and 1000 • Divide by 10, 100 and 1000 • Multiply decimals by integers • Divide decimals by integers • Division to solve problems • Decimals as fractions • Fractions to decimals (FD equivalence) • Fractions to decimals (using division) 	<p><u>Whiterose Spring Term</u></p> <p><u>Revise</u></p> <ul style="list-style-type: none"> • Understanding percentages <p>Extend</p> <ul style="list-style-type: none"> • Fractions to percentages • Equivalent FDP • Order FDP • Percentage of amount (using FDP) • Percentage of amount (using 10%) • Solving problems with percentages including missing values and concept of the whole.



1 day a week

<u>Unit</u>	<u>Converting Units</u>
<u>National Curriculum Objectives</u>	<ul style="list-style-type: none">• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places• convert between miles and kilometres
<u>Small Steps Guidance</u>	White rose Spring Term Revise metric unit conversion from Year 4/5 - Cm to m, mm to cm and m to km, Kg to g, l to ml <ul style="list-style-type: none">• Metric conversion - length and distance - mm to cm, cm to m, m to km• Difference between capacity and volume- ml to l• Metric conversion weight- g to kg• Calculating with metric measures (solving problems)• Miles and km• Imperial measures• Solving word problems with varied units of measurement and all 4 operations.



Term 4

<u>Unit</u>	<u>Algebra</u>	<u>Ratio</u>
<u>National Curriculum Objectives</u>	<ul style="list-style-type: none"> Pupils should be taught to: use simple formulae generate and describe linear number sequences express missing number problems algebraically find pairs of numbers that satisfy an equation with two unknowns enumerate possibilities of combinations of two variables. 	<ul style="list-style-type: none"> Pupils should be taught to: solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison solve problems involving similar shapes where the scale factor is known or can be found solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
<u>Small Steps Guidance</u>	White rose Spring Term <ul style="list-style-type: none"> Finding a rule - 1 step Finding a rule- 2 step Forming expressions Substitution Formulae Forming equations Solve simple one- step equations Solve two-step equations Find pairs of values and enumerate possibilities 	White rose Spring Term <ul style="list-style-type: none"> Using ratio language Ratio and fractions Introducing the ratio symbol Calculating ratio Use scale factors Calculating scale factors Ratio and proportion problems

1 day a week

<u>Unit</u>	<u>Perimeter Area and Perimeter</u>
<u>National Curriculum Objectives</u>	<ul style="list-style-type: none"> recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles 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 [for example, mm^3 and km^3].
<u>Small Steps Guidance</u>	Whiterose Spring Term <ul style="list-style-type: none"> Shapes- same area Area and perimeter of shapes Area of triangle (counting squares) Area of triangle (using area of rectangles) Area of triangle using base x height divided by 2 Area of a parallelogram Volume- counting cubes Cube numbers (through mental starter) Volume of a cuboid



Term 5

<u>Unit</u>	<u>Statistics</u>	<u>Consolidation and KS3 preparation</u>
<u>National Curriculum Objectives</u>	<ul style="list-style-type: none"> interpret and construct pie charts and line graphs and use these to solve problems calculate and interpret the mean as an average. 	Project- WhiteRose Bakery Planning and making cupcakes and packaging https://vimeo.com/545850166 These projects practice and consolidate objectives from across the KS2 curriculum. See below for activity focuses:
<u>Small Steps Guidance</u>	Whiterose Summer Term Revise from Year 5 <ul style="list-style-type: none"> Read and interpret line graphs Draw line graphs Use line graphs to solve problems Teach <ul style="list-style-type: none"> Dual Bar Charts Read and interpret pie charts Pie charts with percentages Draw pie charts The mean 	<ul style="list-style-type: none"> Activity 1- ratio and proportion, scaling, fractions of amounts, problem solving with 4 operations, rounding Activity 2- Best buys - 4 operations, converting units, rounding, reasoning and problem solving including money, percentages Activity 3- Profit and Loss - Money, problem solving with 4 addition and subtraction, bar modelling Activity 4 - Packaging- 3D shape, nets, Area, perimeter and volume, nets of cuboids (drawing and scale) Activity 5 - Cooking problems - word problem solving including time duration, logic, bar modelling, fractions

Term 6

<u>Unit</u>	<u>Consolidate and KS3 Preparation</u>	<u>Consolidation and KS3 preparation</u>
<u>National Curriculum Objectives</u>	Project- Whiterose Tours https://vimeo.com/556171610 Plan a holiday for you and your family. Budgeting These projects practice and consolidate objectives from across the KS2 curriculum. See below for activity focuses:	Project- WhiteRose Futures https://vimeo.com/568333370 Thinking about the future dream jobs and homes These projects practice and consolidate objectives from across the KS2 curriculum. See below for activity focuses:
<u>Small Steps Guidance</u>	<ul style="list-style-type: none"> Activity 1- Destination and climate- statistics- line and bar graphs and climate graphs- problem solving Activity 2- Distance- converting units, word problems involving km, miles and time duration and money Activity 3- Accommodation- word problems involving money, percentages Activity 4 - Budget and exchange rates- decimals, currency conversion (ratio), multiplying decimals, problem solving involving money, Activity 5 - Time - problem solving involving time duration 	<ul style="list-style-type: none"> Activity 1 - Annual Salaries- 4 operations and money, basic tax and percentages, calculating net and gross pay monthly Activity 2 - Bills- problems involving 4 operations and money, saving, fractions, Activity 3- Mortgage- Ordering numbers to 1 million, percentages, time Activity 4 - House- Area and perimeter, decimals, conversions, multiplying fractions by integers, Algebra, money.