

Unit 1 – Number and Patterns

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Addition, subtraction, multiplication and division of whole numbers</p> <p><u>Place value, ordering and rounding</u></p> <ul style="list-style-type: none"> • ...multiply and divide integers ... by 10, 100, 1000 and explain the effect • Round positive whole numbers to the nearest 10, 100 or 1000 <p><u>Calculations</u></p> <ul style="list-style-type: none"> • Understand addition, subtraction, multiplication and division as they apply to whole numbers...know how to use the laws of arithmetic... • Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts. • Make and justify estimates and approximations of calculations. • Key objective: Know and use order of operations, (including brackets). <p><u>Written Methods</u></p> <ul style="list-style-type: none"> • Use standard column procedures to add and subtract whole numbers ... • Key Objective: Multiply and divide three-digit by two-digit whole numbers... <p><u>Calculator Methods</u></p> <ul style="list-style-type: none"> • Carry out calculations with more than one step using brackets and the memory... 		4 4 4 4 5 5	1 – 37	2 weeks	1 – 40	2 weeks
<p>Directed/negative numbers Addition and subtraction of negative numbers</p> <p><u>Integers, powers and roots</u></p> <ul style="list-style-type: none"> • Understand negative numbers as positions on a number line, order, add and subtract positive and negative integers in context. 		5 5	325 – 334 335 – 338		54 – 66	
<p>Multiplication and division of negative numbers</p> <p>Number Patterns</p> <p><u>Sequences, functions and graphs</u></p> <ul style="list-style-type: none"> • Generate and describe simple integer sequences. • Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in a sequence). • Generate sequences from practical contexts and describe the general term in simple cases 		4 5/6 4	49 – 64		218 – 235	

Unit 2 – Representing Data

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Collecting information and displaying data in frequency tables, bar charts and pictographs</p>	<p><u>Specifying a problem, planning and collecting data</u></p> <ul style="list-style-type: none"> Given a problem that can be addressed by statistical methods, suggest possible answers. Decide which data would be relevant to an enquiry and possible sources. Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data. Collect small sets of data from surveys and experiments, as planned. <p><u>Processing and representing data, using ICT as appropriate</u></p> <ul style="list-style-type: none"> Construct, on paper and using ICT, graphs and diagrams to represent data, including – bar-line graphs. <p><u>Interpreting and discussing results</u></p> <ul style="list-style-type: none"> Interpret diagrams and graphs (including pie charts) and draw simple conclusions based on the shape of graphs. 	<p>4</p> <p>4</p> <p>4/5</p> <p>4</p> <p>4/5</p> <p>5/6</p>	<p>38 – 48</p> <p>363 – 370</p> <p>357 – 363</p> <p>414 – 417</p> <p>418 – 424</p>	<p>2 weeks</p>	<p>41 – 52</p> <p>260 – 268</p> <p>268 - 274</p>	<p>3 weeks</p>
<p>Median and mode</p> <p>Mean and range</p>	<p><u>Processing and representing data, using ICT as appropriate</u></p> <ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: <ul style="list-style-type: none"> Find the mode, median and range... Calculate the mean, including from a simple frequency table, using a calculator for a large number of items <p>▪ Key Objective: Compare two simple distributions using the range and one of the mode, median or mean.</p>	<p>4</p> <p>5</p> <p>5</p>	<p>363 – 370</p> <p>357 – 363</p> <p>414 – 417</p>	<p>2 weeks</p>	<p>260 – 268</p> <p>268 - 274</p>	<p>3 weeks</p>
<p>Grouped Data</p>	<p><u>Specifying a problem, planning and collecting data</u></p> <ul style="list-style-type: none"> Plan how to collect and organise small sets of data ... grouped where appropriate in equal class intervals. <p><u>Processing and representing data, using ICT as appropriate</u></p> <ul style="list-style-type: none"> Calculate statistics for small sets of discrete data ... the modal class for grouped data Construct, on paper and using ICT, graphs and diagrams to represent data, including – frequency diagrams for grouped discrete data Use ICT to generate pie charts <p>Students should: Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented.</p>	<p>4</p> <p>5</p> <p>5</p> <p>6</p>	<p>414 – 417</p> <p>418 – 424</p>	<p>2 weeks</p>	<p>268 - 274</p>	<p>3 weeks</p>
<p>Pie Charts</p>	<p><u>Specifying a problem, planning and collecting data</u></p> <ul style="list-style-type: none"> Plan how to collect and organise small sets of data ... grouped where appropriate in equal class intervals. <p><u>Processing and representing data, using ICT as appropriate</u></p> <ul style="list-style-type: none"> Calculate statistics for small sets of discrete data ... the modal class for grouped data Construct, on paper and using ICT, graphs and diagrams to represent data, including – frequency diagrams for grouped discrete data Use ICT to generate pie charts <p>Students should: Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented.</p>	<p>4</p> <p>5</p> <p>5</p> <p>6</p>	<p>414 – 417</p> <p>418 – 424</p>	<p>2 weeks</p>	<p>268 - 274</p>	<p>3 weeks</p>

Unit 3 – Fractions, Decimals and Percentages

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
The meaning of fractions – equivalence and simplifying	<p><u>Fractions, decimals, percentages, ratio and proportion</u></p> <ul style="list-style-type: none"> Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one. Key Objective: Simplify fractions by cancelling all common factors and identify equivalent fractions. Converting terminating decimals to fractions Use a diagram to compare two or more simple fractions 	4 5 4 4	70 – 76	3 weeks	92 – 108	2 weeks
The decimal system	<p><u>Place value, ordering and rounding</u></p> <ul style="list-style-type: none"> Understand and use decimal notation... 	4	76 – 77		119 – 131	
The meaning of percentages	<p><u>Fractions, decimals, percentages, ratio and proportion</u></p> <ul style="list-style-type: none"> Understand percentage as the 'number of parts per 100' 	4	78 – 79		109 – 113	
Changing fractions, decimals and percentages	<ul style="list-style-type: none"> Key Objective: Recognise the equivalence of percentages, fractions and decimals. 	5/6	80 – 86 128 – 129		132 – 135 114 – 117	
Finding fractions of quantities	<ul style="list-style-type: none"> Calculate simple fractions of quantities and measurements (whole-number answers). 	5	87 - 89			
Adding and subtracting fractions and decimals	<ul style="list-style-type: none"> Begin to add and subtract simple fractions and those with common denominators. <p><u>Calculations</u></p> <ul style="list-style-type: none"> Understand addition, subtraction... as they apply to ... decimals. Key Objective: ... extend mental methods of calculation to include decimals, fractions and percentages. <p><u>Written methods</u></p> <ul style="list-style-type: none"> Use standard column procedures to add and subtract ... decimals with up to two places. 	5/6 4 5	96 – 105 112 – 118		137 - 147	
Comparing/ordering fractions/decimals		4	89 – 94			
Mixed/improper fractions			105 – 111			
Multiplication/division of decimals	<p><u>Calculations</u></p> <ul style="list-style-type: none"> Understand ... multiplication and division as they apply to ... decimals. <p><u>Written methods</u></p> <ul style="list-style-type: none"> Key Objective: ... extend to multiplying and dividing decimals by single digit whole numbers 	5 5	120 – 127 129 – 132 137 – 142			
Rounding to a given number of decimal places	<p><u>Place value, ordering and rounding</u></p> <ul style="list-style-type: none"> Round ... decimals to the nearest whole number or one decimal place. 	4/5	133 – 137			

Unit 4 - Measures

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Metric units (length and mass)</p> <p>Imperial units (length and mass)</p> <p>Time and Money</p>	<p><u>Measures and mensuration</u></p> <ul style="list-style-type: none"> ▪ Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity, time... ▪ Key Objective: Convert one metric unit to another (e.g. grams to kilograms); read and interpret scale on a range of measuring instruments. <p><u>Place value, ordering and rounding</u></p> <ul style="list-style-type: none"> • Compare and order decimals in different contexts know that when comparing measurements they must be in the same units. 	<p>4</p> <p>5</p> <p>4</p>	<p>144 – 154</p> <p>158 – 164</p> <p>154 – 156</p>	<p>3 weeks</p>	<p>198 – 210</p> <p>313 – 328</p>	<p>3 weeks</p>
<p>Area and Perimeter</p>	<p><u>Measures and mensuration</u></p> <ul style="list-style-type: none"> ▪ Know and use the formula for area of a rectangle; calculate the perimeter and area of shapes made from rectangles. ▪ Calculate the surface area of cubes and cuboids. 	<p>5/6</p>	<p>257 – 274</p>	<p>3 weeks</p>	<p>236 – 248</p>	<p>3 weeks</p>
<p>Solids</p>	<p><u>Geometric reasoning</u></p> <ul style="list-style-type: none"> ▪ Use 2-D representations to visualise 3-D shapes and deduce some of their properties. <p><u>Construction</u></p> <ul style="list-style-type: none"> ▪ Use ruler and protractor to construct simple nets of 3-D shapes, e.g. cuboid... 	<p>6</p> <p>6</p>	<p>372 – 390</p>	<p>3 weeks</p>	<p>283 – 300</p>	<p>3 weeks</p>

Unit 5 - Symmetry

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Line Symmetry</p> <p>Rotational Symmetry</p>	<p><u>Transformations</u></p> <ul style="list-style-type: none"> ▪ Understand and use the language and notation associated with reflections... and rotations. ▪ Recognise and visualise the transformation and symmetry of a 2-D shape: <ul style="list-style-type: none"> ❖ Reflection in given mirror lines and line symmetry; ❖ Rotation about a given point and rotation symmetry... • Explore these transformations and symmetries using ICT 	<p>4</p> <p>4/5</p>	<p>197 – 203</p> <p>204 – 205</p>	<p>1 week</p>	<p>67 – 74</p> <p>75 – 81</p>	<p>1 – 2 weeks</p>
<p>Congruence</p>	<p><u>Geometrical reasoning: lines, angles and shapes</u></p> <ul style="list-style-type: none"> • Know that if two 2D shapes are congruent, corresponding sides and angles are equal. 	<p>4/5</p>	<p>205 – 206</p>	<p>1 week</p>		
<p>Planes of Symmetry</p>			<p>207 – 209</p>	<p>1 week</p>		

Unit 6 – Probability

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Describing probability</p> <p>Simple probability/outcomes</p> <p>Relative Frequency</p>	<p><u>Probability</u></p> <ul style="list-style-type: none"> Use vocabulary and ideas of probability, drawing on experience. Key Objective: Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event. Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data. Compare experimental and theoretical probabilities in simple contexts. 	<p>5</p> <p>5</p> <p>5</p> <p>5</p>	<p>235 – 236</p> <p>236 – 241</p> <p>242 – 245</p>	<p>1 – 2 weeks</p>	<p>276 – 279</p> <p>280 – 282</p>	<p>2 weeks</p>

Unit 7 – Formulas, Equations and Negative Numbers

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
<p>Writing formulas</p> <ul style="list-style-type: none"> Sequences, functions and graphs <ul style="list-style-type: none"> Express simple functions in words, then using symbols. Equations, formulae and identities <ul style="list-style-type: none"> Key Objective: Use letter symbols to represent unknown numbers or variables; know the meaning of the words <i>term</i>, <i>expression</i> and <i>equation</i>. Key Objective: Understand that algebraic operations follow the same conventions and order as arithmetic operations. Use simple formulae from mathematics and other subjects...and, in simple cases, derive a formula. ... substitute positive integers into simple linear equations and formulae. 	<p>4</p> <p>5</p> <p>5</p> <p>4/5</p>	<p>314 – 320</p>	<p>4 weeks</p>	<p>211 – 214</p>	<p>3 weeks</p>	
<p>Substituting values into formulae</p>	<ul style="list-style-type: none"> ... substitute positive integers into simple linear equations and formulae. 	<p>4/5</p>	<p>320 – 325</p>	<p>4 weeks</p>	<p>215 – 217</p>	<p>3 weeks</p>
<p>Forming equations Solving equations using one or two operations</p>	<ul style="list-style-type: none"> Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations). 	<p>6</p>	<p>391 – 404</p>	<p>4 weeks</p>		
<p>Simplifying expressions</p>	<ul style="list-style-type: none"> Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients). 	<p>5/6</p>	<p>405 – 406</p>	<p>4 weeks</p>		
<p>Solving equations with unknowns on both sides</p>		<p>6</p>	<p>407 - 412</p>	<p>4 weeks</p>		

Unit 8 – Coordinates and Line Graphs

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
Coordinates in four quadrants	<p><u>Coordinates</u></p> <ul style="list-style-type: none"> Use conventions and notation for 2-D coordinates in all four quadrants; find coordinates of points determined by geometric information. 	5	297 – 313	2 weeks	177 – 197	3 weeks
Reading from/plotting line graphs Coordinates and line graphs	<p><u>Sequences, functions and graphs</u></p> <ul style="list-style-type: none"> Express simple functions ... represent them in mappings. Generate coordinate pairs that satisfy a simple linear rule; Key Objective: Plot the graphs of simple linear functions, where y is given explicitly in terms of x, on paper and using ICT; Recognise straight line graphs parallel to the x-axis and the y-axis. 	5 5 5	340 – 342 345 – 346		300 – 307	
Conversion graphs	<ul style="list-style-type: none"> Begin to plot and interpret the graphs of simple linear functions arising from real life situations. 	5/6	343 – 344		307 – 312	

Unit 9 – Angles and Constructions

Curriculum Content	National Curriculum Reference	NC Level	7A Text & Resource Ref	Time Frame	7B Text & Resource Ref	Time Frame
Naming, measuring and drawing angles	<p>Geometric reasoning: lines, angles and shapes</p> <ul style="list-style-type: none"> Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes. <p>Construction</p> <ul style="list-style-type: none"> Use a ... protractor to: measure and draw ... angles, including reflex angles to the nearest degree. 	4/5	174 – 189	2 weeks		4 weeks
Angle rules	<p>Geometric reasoning: lines, angles and shapes</p> <ul style="list-style-type: none"> Key Objective: Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle, and recognise vertically opposite angles. Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by step deduction and explaining reasoning with diagrams and text. 	5/6 6	189 – 195 216 – 219 224 – 231 275 – 296			
Using compasses/constructing triangles	<p>Construction</p> <ul style="list-style-type: none"> Use a ruler and protractor to: <ul style="list-style-type: none"> ❖ construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); ❖ explore these constructions using ICT. 	5/6	212 – 215 220 – 223 231 – 233	Total 21 weeks		Total 24 weeks

Other **Key Objectives** within the Y7 Framework that occur throughout the Scheme of Work:

- **Break a complex calculation into smaller steps, choosing and using appropriate and efficient operations and methods.**
- **Check a result by considering whether it is the right order of magnitude.**
- **Solve word problems and investigate, in a range of contexts, explaining and justifying methods and conclusions.**