



## Year Plan – Book 2.3 for Year 8

<b>Subject</b>	Mathematics	<b>Key Stage</b>	3	<b>Year</b>	8 Set 1	<b>Course</b>	Mathematics
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<b>Time period</b>	<b>Term 6</b>	<b>Title</b>	<b>Maths Frame working Pupil Book 2.3</b> <b>Unit 1 Working with numbers</b> <b>Unit 2 Geometry</b> <b>Unit 3 Probability</b>
<b>Number of lessons</b>	Unit 1 Working with numbers (5 hours) Unit 2 Geometry (6 hours) Unit 3 Probability (5 hours)	ICT links / tasks	
<b>Literacy links / tasks</b>	<b>Unit 1</b> 1.1 negative number, positive number 1.2 common factor, factor, integer, divisible, highest common factor 1.3 Multiples and lowest common multiple 1.4 Cube, power, square root, cube root and square 1.5 Factor Tree, prime factor, venn diagram, index form, prime number <b>Unit 2</b> 1.6 Allied angles, prove and proof 1.7 Geometric properties, bisect, opposite and parallel 1.8 Translate, translation and vector 1.9 Centre of enlargement, ray, transformation, enlargement and scale factor 1.10 angle bisector, construction, perpendicular bisector, bisect and midpoint <b>2 Unit 3</b> 2.1 Exhaustive, mutually exclusive, union, intersection and set 2.2 Sample space 2.3 Experimental probability, relative frequency and theoretical probability	Numeracy links / tasks	Throughout

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What should pupils know already?	<p><b><u>Unit 1 Working with numbers</u></b> of this material will be new to Year 8 pupils. Pupils can leave out questions 1 and 2 in Exercise 1A, which was covered in Year 7. If pupils are quick to grasp the concepts in this chapter they can move swiftly through the exercises, leaving out some of the questions.</p> <p><b><u>Unit 2 Geometry</u></b> Much of the material in the first three lessons of this chapter will be familiar to pupils. Use the activities and challenges at the end of each exercise to check pupils' understanding. If you feel that pupils' understanding is secure, move straight on to Lesson 2.4 and Lesson 2.5.</p> <p><b><u>Unit 3 Probability</u></b> Much of the material in this chapter will be new. If pupils are familiar with Lesson 3.1 from Year 7, they can move on to the activity question at the end of Exercise 3A.</p>	What will pupils learn?	<p><b><u>Unit 1 Working with numbers</u></b> 1.1 <a href="#">To multiply and divide with negative numbers</a> 1.2 <a href="#">Factors and highest common factors</a> 1.3 <a href="#">Multiples and lowest common multiples</a> 1.4 <a href="#">Powers and roots</a> 1.5 <a href="#">To find prime factors of an integer</a> <b><u>Review Questions</u></b> <b><u>Unit 2 Geometry</u></b> <a href="#">2.1 Angles in parallel lines</a> <a href="#">2.2 Geometric properties of quadrilaterals</a> <a href="#">2.3 Translate a shape</a> <a href="#">2.4 Enlarge a 2D shape by a scale factor</a> <b><u>Review Questions</u></b> <b><u>Unit 3 Probability</u></b> <a href="#">3.1 Mutually exclusive outcomes and exhaustive outcomes</a> <a href="#">3.2 Using a sample space diagram to calculate probabilities</a> 2.4 <a href="#">Estimates of probability</a> <b><u>Review Questions</u></b></p>
How will pupils be assessed?	Chapter 1 and 2 assessment on Collins Connect	What are the assessment criteria?	



## Year Plan – Book 2.3 for Year 8

Time period	Term 1	Title	Maths Frameworking Pupil Book 2.3 Unit 4 Percentages Unit 5 Congruent shapes Unit 6 Surface area and volume of prisms
Number of lessons	Unit 4 Percentages (4 hours) Unit 5 Congruent shapes (4 hours) Unit 6 Surface area and volume of prisms (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	Throughout
What should pupils know already?	<p><b><u>Unit 4 Percentages</u></b> Although pupils have met percentages before, there are some important and quite challenging concepts in this chapter. The idea of percentages as a multiplier and the use of multiplicative reasoning is very important to pupils' confidence and fluency with percentages. Therefore, you may be able to leave out some of the earlier questions in each lesson, providing that pupils demonstrate confidence and fluency with calculating percentages.</p> <p><b><u>Unit 5 Congruent shapes</u></b> Pupils will be unfamiliar with most of the concepts in this chapter. However if they can demonstrate that they are confident and fluent with these basic concepts, pupils can move on to the more challenging questions at the end of each exercise in the Pupil Book.</p> <p><b><u>Unit 6 Surface area and volume of prisms</u></b> Pupils should be familiar with the concepts in Lesson 6.1. Check pupils' understanding with a couple of examples and if pupils are confident and fluent, move on to Lesson 6.2.</p>	What will pupils learn?	<p><b><u>Unit 4 Percentages</u></b> <a href="#">4.1 Calculating the percentage of an amount</a> <a href="#">4.2 Calculating percentage increase and decrease</a> <a href="#">4.3 Calculating a percentage change</a> <b><u>Review Questions</u></b></p> <p><b><u>Unit 5 Congruent Shapes</u></b> <a href="#">5.1 Congruent shapes</a> <a href="#">5.2 Congruent triangles</a> <a href="#">5.3 Using congruent triangles to solve problems</a> <b><u>Review Questions</u></b></p> <p><b><u>Unit 6 Surface area and volume of prisms</u></b> <a href="#">6.1 Metric units for area and volume</a> <a href="#">6.2 Surface area of prisms</a> <a href="#">6.3 Volume of prisms</a> <b><u>Review Questions</u></b></p>
How will pupils be assessed?	Chapters 3–5 assessment on Collins Connect	What are the assessment criteria?	



## Year Plan – Book 2.3 for Year 8

Time period	Term 2	Title	Maths Frame working pupil book 2.3 Unit 7 Graphs Unit 8 Number Unit 9 Interpreting data
Number of lessons	Unit 7 Graphs (5 hours) Unit 8 Number (6 hours) Unit 9 Interpreting data (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	Throughout
What should pupils know already?	<p>Unit 7 Graphs It is important to take time over the examples in this chapter. Sometimes, however, it is more worthwhile to work through one or two examples in-depth as a class, followed by picking out just one or two key examples for pupils.</p> <p>This challenge activity encourages pupils to think about the M25, one of Europe's busiest motorways.</p> <p><b><u>Unit 8 Number</u></b> There are new ideas in all these lessons, which build on pupils' existing knowledge of rounding and the number system. Check pupils' understanding by doing some examples as a class; then ask pupils to focus on the PS and MR questions in the Pupil Book exercises, plus the investigations, activity and challenge at the end of the exercises This activity is designed to combine the skills covered across this chapter to explore an interesting real-life problem in a slightly more abstract context.</p> <p><b><u>Unit 9 Interpreting data</u></b> Much of the material in lessons of this chapter will be new to pupils. However, Lesson 9.3 and Lesson 9.4 could be combined. Make sure that pupils have a good grasp of correlation before moving on.</p> <p>In order to be able to do this challenge activity, pupils will</p>	What will pupils learn?	<p><b><u>Unit 7 Graphs</u></b>  <a href="#">7.1 Graphs from linear equations</a>  <a href="#">7.2 Gradient of a straight line</a>  <a href="#">7.3 Graphs from quadratic expressions</a>  <a href="#">7.4 Real -life graphs</a>  <b><u>Review Questions</u></b></p> <p><b><u>Unit 8 Number</u></b>  <a href="#">8.1 Powers of 10</a>  <a href="#">8.2 Significant figures</a>  <a href="#">8.3 Standard form with large numbers</a>  <a href="#">8.4 Multiplying with numbers in standard form</a>  <b><u>Review Questions</u></b></p> <p><b><u>Unit 9 Interpreting Data</u></b>  <a href="#">9.1 Interpreting graphs and diagrams</a>  <a href="#">9.2 Relative sized pie charts</a>  <a href="#">9.3 Scatter graphs and correlation</a>  <a href="#">9.4 Creating scatter graphs</a>  <b><u>Review Questions</u></b></p>

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	need to be able to read and interpret the table, draw pie charts relative to the data in the table, and draw on their knowledge of averages, means and scatter diagrams. Pupils are given the opportunity to practise these skills in what is most likely a familiar context.		
How will pupils be assessed?	Chapter 9 – 11 Assessment on Collins Connect	What are the assessment criteria?	



## Year Plan – Book 2.3 for Year 8

Time period	Term 3	Title	Maths Frameworking Pupil book 2.8 Unit 10 Algebra Unit 11 Shape and ratio Unit 12 Fractions and decimals
Number of lessons	Unit 10 Algebra (6 hours) Unit 11 Shape and ratio (6 hours) Unit 12 Fractions and decimals (6 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	Throughout
What should pupils know already?	<p><b>Unit 10 Algebra</b> Pupils should have met the concepts in Lesson 10.1 and Lesson 10.2 before. Work through some examples to check pupils' understanding, then move on to Lesson 10.3.</p> <p>This activity develops confidence and fluency with algebraic notation. Pupils often struggle to decode everyday language into mathematics. This activity gives them the opportunity to practise this in a range of contexts.</p> <p><b>Unit 11 Shape and ratio</b> Pupils will have met some of the basic concepts in this chapter. If they can demonstrate that they are confident and fluent with these basic concepts, pupils can move on to the more challenging questions at the end of each exercise in the Pupil Book.</p> <p><b>Unit 12 Fractions and decimals</b> Pupils should be familiar with how to use all four operations with fractions. However, these operations are important concepts and pupils often get them confused. Check pupils' confidence while working through the examples in Lessons 12.1 to 12.3. If pupils are confident, concentrate on the challenge questions in these lessons. Then move on to Lesson 12.4 and Lesson 12.5.</p> <p>This activity gives pupils the opportunity to practise their mental strategies in some real-life contexts. It also encourages pupils to make links to the use of estimation as</p>	What will pupils learn?	<p><b>Unit 10 Algebra</b>  <a href="#">10.1 Algebraic notation</a>  <a href="#">10.2 Like terms</a>  <a href="#">10.3 Expanding brackets</a>  <a href="#">10.4 Using algebraic expressions</a>  <a href="#">10.5 Using index notation</a>  <b>Review Questions</b></p> <p><b>Unit 11 Shape and Ratio</b>  <a href="#">11.1 Ratio of lengths, areas and volumes</a>  <a href="#">11.2 Fractional enlargement</a>  <a href="#">11.3 Map scales</a>  <b>Review Questions</b></p> <p><b>Unit 12 Fractions and Decimals</b>  <a href="#">12.1 Adding and subtracting fractions</a>  <a href="#">12.2 Multiplying fractions and integers</a>  <a href="#">12.3 Dividing with integers and fractions</a>  <a href="#">12.4 Multiplying with large and small numbers</a>  <a href="#">12.5 Division with large and small numbers</a>  <b>Review Questions</b></p>

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	well as the need to make assumptions when tackling real-life problems.		
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## Year Plan – Book 2.3 for Year 8

Time period	Term 4	Title	Maths Frameworking Pupil book 2.3 Unit 13 Proportion Unit 14 Circles Unit 15 Equations and Formulae
Number of lessons	Unit 13 Proportion (5 hours) Unit 14 Circles (5 hours) Unit 15 Equations and Formulae (4 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	Throughout
What should pupils know already?	<p><b>Unit 13 Proportion</b> Much of this material in this chapter will be unfamiliar to pupils. Make sure that each concept is fully understood by all pupils before moving on to the MR and PS questions in the exercises.</p> <p>For this challenge pupils are required to apply their understanding of proportion to a typical real-life context including speed, time and fuel consumption. The questions increase in complexity and pupils will need to use a range of graphical and algebraic skills to tackle the questions. Pupils also need to be able to interpret some quite complex language.</p> <p><b>Unit 14 Circles</b> Pupils may be familiar with the contents of Lesson 14.1. Check understanding with a couple of examples, and if pupils are confident and fluent move straight on to Lesson 14.3 and Lesson 14.4.</p> <p>This activity is designed to give pupils the opportunity to apply their knowledge to a multi-step real-life problem. The context is common, but the activity is presented in a slightly more complex way than pupils may be used to.</p> <p><b>Unit 15 Equations and Formulae</b> Much of this chapter will be new material. However, pupils who are familiar with multiplying out brackets and solving simple equations can either complete Exercise 15A in the</p>	What will pupils learn?	<p><b>Unit 13 Proportion</b>  <a href="#">13.1 Direct proportion</a>  <a href="#">13.2 Graphs and direct proportion</a>  <a href="#">13.3 Inverse proportion</a>  <a href="#">13.4 Comparing direct proportion and inverse proportion</a>  <b>Review Questions</b></p> <p><b>14 Circles</b>  <a href="#">14.1 The circumference of a circle</a>  <a href="#">14.2 Formula for the circumference of a circle</a>  <a href="#">14.3 Formula for the area of a circle</a>  <b>Review Questions</b></p> <p><b>Unit 15 Equations and formulae</b>  <a href="#">15.1 Equations with brackets</a>  <a href="#">15.2 Equations with variables on both sides</a>  <a href="#">15.3 More complex equations</a>  <a href="#">15.4 Rearranging formulae</a>  <b>Review Questions</b></p>

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	<p>Pupil Book quickly, or move straight on to Exercise 15B.</p> <p>In this activity, pupils will use mathematical reasoning to make links between equations and formulae and their graphical representations. Comparing graphical and algebraic representations enables pupils to check their ability to solve equations. Tell pupils that the ability to use different representations to check their understanding is a valuable skill.</p>		
How will pupils be assessed?	Chapter 12 and 13 assessment on Collins Connect	What are the assessment criteria?	

## Year Plan – Book 2.3 for Year 8



Time period	Term 5	Title	Maths Frameworking Pupil book 2.3 Unit 16 Comparing data
Number of lessons	Unit 16 Comparing data (3 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p><b><u>Unit 16 Comparing data</u></b> Use one or two examples to check pupils' understanding from Lesson 16.1 and Lesson 16.2. If pupils are fluent and confident with the concepts, move straight to Lessons 16.3 and 16.4.</p> <p>This activity is designed to combine all the lessons in this chapter by taking pupils through the steps of tabulating and displaying data for a familiar real-life problem. All the data is given but pupils will need to read and think carefully about the way the data is displayed so that they can make valid comparisons.</p>	What will pupils learn?	<p><b><u>Unit 16 Comparing data</u></b>  <a href="#">16.1 Grouped frequency tables</a>  <a href="#">16.2 Drawing frequency diagrams</a>  <a href="#">16.3 Comparing sets of data</a>  <a href="#">16.4 Misleading charts</a>  <a href="#">Review Questions</a></p>
How will pupils be assessed?	Units 14 – 16 Assessment Collins Connect	What are the assessment criteria?	