

Year Plan – Book 2.1 for 8M3



Subject	Mathematics	Key Stage	3	Year	8	Course	N/A
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Time period		Title	Maths Frameworking Pupil book 2.1 Unit 1 Working with number Unit 2 Geometry Unit 3 Probability
Number of lessons	Unit 1 Working with number (5 hours) Unit 2 Geometry (5 hours) Unit 3 Probability (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p><u>Unit 1 Working with Number</u> Much of the material in this chapter will be new to Year 8 pupils. However, pupils could leave out Exercise 1A of the Pupil Book, 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>This activity encourages pupils to think about a tourist attraction with different facilities and what is involved in running them. The topic could lead to class discussion about environmental issues such as electricity and water usage.</p> <p><u>Unit 2 Geometry</u> Pupils working at this level are likely to find the work in this lesson more challenging. Encourage plenty of</p>	What will pupils learn?	<p><u>Unit 1 Working with number</u> 1.1 Adding and subtracting with negative numbers 1.2 Multiplying and dividing with negative numbers 1.3 Factors and highest common factor (HCF) 1.4 Multiples and lowest common multiple 1.5 Squares, cubes and roots 1.6 Prime factors Review and Challenge – The Eiffel Tower</p> <p><u>Unit 2 Geometry</u> 2.1 Parallel and perpendicular lines 2.2 Angles in triangles and quadrilaterals 2.3 Translation 2.4 Rotations Review questions and Challenge – Constructing triangles</p> <p><u>Unit 3 Probability</u> 3.1 Probability scales 3.2 Collecting data for a frequency table 3.3 Mixed events 3.4 Using a sample space to calculate probabilities</p>

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	<p>discussion. However, if pupils respond well to the introductions, you may be able to combine Lesson 2.3 and Lesson 2.4 by using some of the more challenging questions.</p> <p>This challenge gives pupils the opportunity to extend their learning to slightly more complex constructions. They need to be able to reproduce a set of instructions that build on what they have already done in the lesson.</p> <p><u>Unit 3 Probability</u> Much of the material in this chapter will be new. However, if pupils are familiar with Lesson 3.1 from Year 7, they can move on to the activity at the end of Exercise 3A in the Pupil Book.</p> <p>In this activity learners extend their understanding of probability to a common real-life application that they may not have previously considered. This activity also makes a real-life link between probability and financial skills.</p>		<p>3.5 Experimental probability Review questions and Financial skills – Fun in the fair ground</p>
How will pupils be assessed?	Units 1 and 2 assessment on Collins Connect	What are the assessment criteria?	

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Time period	Term 1	Title	Maths Frameworking Pupil book 2.1 Unit 4 Percentages Unit 5 Sequences Unit 6 Area
Number of lessons	Unit 4 Percentages (4 hours) Unit 5 Sequences (4 hours) Unit 6 Area (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p><u>Unit 4 Percentages</u> 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 are very important to pupils' confidence and fluency with percentages. Be careful about rushing the conceptual understanding for pupils working at this level.</p> <p>This activity is designed to give pupils the opportunity to demonstrate their understanding of percentage change in a real-life situation.</p> <p><u>Unit 5 Sequences</u> Pupils can leave out Exercise 5A in the Pupil Book if they are familiar with the Fibonacci sequence. Pupils can also jump to the investigation on the nth term at the end of Exercise 5B if they have met this in Year 7.</p> <p>Pupils apply their understanding of sequences to a real-life scenario. They will need to work methodically and be able to justify their solutions. Ask more able pupils to generalise their rules for an $m \times n$ pool.</p> <p><u>Unit 6 Area</u> Pupils should be familiar with many of the concepts in this chapter. Check their understanding with some examples. Then move on to the MR and PS questions, and the</p>	What will pupils learn?	<p><u>Unit 4 Percentages</u> 4.1 Calculating percentages 4.2 Calculating the result of a percentage change 4.3 Calculating a percentage change Review and Challenge – Changes in population</p> <p><u>Unit 5 Sequences</u> 5.1 The Fibonacci sequence 5.2 Algebra and function machines 5.3 The nth term of a sequence Review and Investigation – Pond boarders</p> <p><u>Unit 6 Area</u> 6.1 Area of a rectangle 6.2 Area of compound shapes 6.3 Area of a triangle 6.4 Area of a parallelogram Review questions and Investigation</p>

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	<p>activities at the end of each exercise in this chapter. You could also combine Lesson 6.1 and Lesson 6.2.</p> <p>In this investigation, pupils are required to apply their understanding of area to a more complex extended problem. Pupils need to work methodically and be able to explain their solutions. This is a good transferable skills objective to share with pupils when they work on this investigation. Ask pupils to share not only their solutions but also <i>how</i> they approached working on the problem.</p>		
How will pupils be assessed?	Units 3 – 5 assessment on Collins Connect	What are the assessment criteria?	

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Time period	Term 2	Title	Maths Frameworking Pupil book 2.1 Unit 7 Graphs Unit 8 Simplifying number Unit 9 Interpreting data
Number of lessons	Unit 7 Graphs (5 hours) Unit 8 Simplifying number (6 hours) Unit 9 Interpreting data (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p><u>Unit 7 Graphs</u> 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 problem solving activity encourages pupils to think about the M60, one of the UK's busiest orbital motorways. Read and then discuss the text in the Pupil Book. Ask pupils some questions relating to the text.</p> <p><u>Unit 8 Simplifying number</u> There are new ideas in all these chapters, but they do build on pupils' existing knowledge of rounding and the number system. Check pupils' understanding by working through some examples as a class. Then ask pupils to focus on the PS and MR questions in the exercises, plus the challenges, activity, and investigation at the end of the exercises in this chapter.</p> <p>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><u>Unit 9 Interpreting data</u> Pupils could leave out Lesson 9.1 if they are familiar with the concepts from Year 7. You could combine Lesson 9.2 and Lesson 9.3. Make sure that pupils have a good grasp of</p>	What will pupils learn?	<p><u>Unit 7 Graphs</u> 7.1 Rules with coordinates 7.2 Graphs from rules 7.3 Graphs from simple quadratic equations 7.4 Distance-Time graph Review questions and Problem solving the M60</p> <p><u>Unit 8 Simplifying number</u> 8.1 Powers of 10 8.2 Large numbers and rounding 8.3 Significant figures 8.4 Estimating answers 8.5 Problem solving with decimals Review questions and Challenge – Space</p> <p><u>Unit 9 Interpreting data</u> 9.1 Information from charts 9.2 Reading pie charts 9.3 Creating pie charts 9.4 Scatter graphs Review Questions and Challenge – What should we eat</p>

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	correlation before moving on. This activity will challenge pupils to think about a familiar topic. Pupils are required to discuss what constitutes a healthy diet – the elements and proportions.		
How will pupils be assessed?	Units 6 – 8 assessment on Collins Connect	What are the assessment criteria?	

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Time period	Term 3	Title	Maths Frameworking Pupil book 2.1 Unit 10 Algebra Unit 11 Congruence and scaling Unit 12 Fractions and decimals
Number of lessons	Unit 10 Algebra (6 hours) Unit 11 Congruence and scaling (5 hours) Unit 12 Fractions and decimals (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p>Unit 10 Algebra Pupils should have met the concepts in Lesson 10.1 and Lesson 10.2 before. Work through some examples to check pupils' understanding and 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><u>Unit 11 Congruence and scaling</u> Pupils will have met some of the basic concepts in this chapter. If the class 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.</p> <p>Pupils will need to be familiar with using basic scales and calculating areas and perimeters of rectangles and compound shapes involving rectangles. Pupils may also need a calculator for the financial elements.</p> <p><u>Unit 12 Fractions and decimals</u> Much of the material in this chapter should be familiar to pupils. However, before moving on make sure that pupils are confident and fluent, as the concepts in this chapter are often key barriers for pupils working at this level. If you have checked and are happy with pupils' confidence and fluency, then you could combine Lesson 12.2 and Lesson 12.3, and</p>	What will pupils learn?	<p><u>Unit 10 Algebra</u> 10.1 Algebraic notation 10.2 Like terms 10.3 Expanding brackets 10.4 Using algebra 10.5 Using powers Review questions and Mathematical reasoning strawberries</p> <p><u>Unit 11 Congruence and scaling</u> 11.1 Congruent shapes 11.2 Shape and ratio 11.3 Scale diagrams Review questions and Financial skills – Carpeting a bungalow</p> <p><u>Unit 12 Fractions and decimals</u> 12.1 Adding and subtracting fractions 12.2 Multiplying fractions and integers 12.3 Dividing with integers and fractions 12.4 Multiplying with powers of 10 12.5 Division with powers of 10 Review questions and Problem solving – making estimates</p>

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	Lesson 12.4 and Lesson 12.5. This activity gives pupils the opportunity to practice their mental strategies in some real-life contexts. It also encourages pupils to make links to the use of estimation as well as the need to make assumptions when tackling real-life problems.		
How will pupils be assessed?	Units 9 – 11 assessment on Collins Connect	What are the assessment criteria?	

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Time period	Term 4	Title	Maths Frameworking Pupil book 2.1 Unit 13 Proportion Unit 14 Circles Unit 15 Equations and formulae
Number of lessons	Unit 13 Proportion (5 hours) Unit 14 Circles (4 hours) Unit 15 Equations and formulae (4 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p>Unit 13 Proportion Much of the material in this chapter will be unfamiliar to pupils. Make sure that all pupils understand each concept fully before moving on to the MR and PS questions in the exercises, and the activities at the end of each exercise.</p> <p>Unit 14 Circles For this challenge pupils apply their understanding of proportion to a typical real-life context including speed, time and fuel consumption. The questions increase in complexity and pupils can use a range of graphical and algebraic skills to tackle them. They also need to be able to interpret some quite complex language.</p> <p>Pupils may be familiar with the content of Lesson 14.1. Check pupils' understanding by working through some examples with the class. If all pupils are confident and fluent, you could move straight on to Lesson 14.2. You may want to start this activity by recapping how to construct triangles to remind pupils how they developed their ability to follow a set of instructions. Pupils working at this level often lack the motor skills required for construction activities. Give them time to practise, encouraging them not to rush.</p> <p>Unit 15 Equations and formulae Much of this chapter will be new material. However, pupils</p>	What will pupils learn?	<p>Unit 13 Proportion 13.1 Direct proportion 13.2 Graphs and direct proportion 13.3 Inverse proportion 13.4 The difference between direct proportion and inverse proportion Review questions and Challenge – Coach trip</p> <p>Unit 14 Circles 14.1 The circle and its parts 14.2 Circumference of a circle 14.3 A formula to work out the approximate circumference of a circle Review questions and Activity- Constructions</p> <p>Unit 15 Equations and Formulae 15.1 Equations 15.2 Equations with brackets 15.3 More complex equations 15.4 Substituting into formulae Review questions and Reasoning – Old trees</p>

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	<p>who are familiar with multiplying out brackets and solving simple equations will be able to complete Exercise 15A in the Pupil Book quickly before moving on to Exercise 15B. Or, you could suggest that these pupils leave out Exercise 15A altogether and start with Exercise 15B.</p> <p>In this activity, pupils use mathematical reasoning to make links between formulae and the real world.</p>		
How will pupils be assessed?	Units 12 and 13 Assessment on Collins Connect	What are the assessment criteria?	

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Time period	Term 5	Title	Maths Frameworking Pupil book 2.1 Unit 16 Comparing data
Number of lessons	Unit 16 Comparing data (4 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	<p>Unit 16 Comparing data</p> <p>Use the examples in Lesson 16.1 and 16.2 in the Pupil Book to check pupils' understanding. If pupils are fluent and confident with the concepts, move straight to Lesson 16.3, where pupils will compare data and make decisions about the most appropriate statistical measures they should use.</p> <p>This activity is designed to combine all the lessons in this chapter by taking pupils sequentially through the steps of tabulating and displaying data for a very familiar real-life problem. All the data is given but pupils will need to read and think carefully about how they display the data so that they can make valid comparisons.</p>	What will pupils learn?	<p><u>Unit 16 Comparing data</u></p> <p><u>16.1 Frequency tables</u></p> <p><u>16.2 The mean</u></p> <p><u>16.3 Drawing frequency diagrams</u></p> <p><u>16.4 Comparing data</u></p> <p><u>16.5 Which average to use</u></p> <p><u>Review questions and Problem solving - Questionnaire</u></p>
How will pupils be assessed?	Units 14 - 16 Assessment on Collins Connect	What are the assessment criteria?	