Year Plan – Book 1.2 for 7M2

Subject	Mathematics	**Key Stage**	3	**Year**	7	**Course**	N/A

Time period	**Term 1**	**Title**	**1 Using numbers** **2 Sequences** **3 Perimeter, area and volume** **4 Decimal numbers**
Number of lessons	1 Using numbers 2 Sequences 3 Perimeter, area and volume	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	1: Using number If pupils are familiar with the material in lessons 1.1 and 1.2 from KS2, they can leave out Exercise 1A and 1B, and jump straight to the PS questions at the end of each exercise. Ensure that pupils understand all the rules that they are applying throughout the chapter. 2: Sequences This activity is designed to use both the mathematical reasoning and problem-solving outcomes covered in this chapter in a series of real-life problems. For more able pupils, put greater emphasis on inverse functions.	What will pupils learn?	1.1 The calendar 1.2 The 12-hour and 24-hour clocks 1.3 Managing money 1.4 Positive and negative numbers 1.5 Adding negative numbers 1.6 Subtracting negative numbers Problem solving – Where in the UK? 2.1 Function machines 2.2 Sequences and rules 2.3 Finding terms in patterns 2.4 The square numbers 2.5 The triangular numbers Mathematical reasoning – Valencia Planetarium 3.1 Length and perimeter 3.2 Area 3.3 Perimeter and area of rectangles 3.4 Volume of cubes and cuboids Problem solving – Design a bedroom

Year Plan – Book 1.2 for 7M2

	Make sure pupils realise that there is a range of types of sequences, and that within this range, specific examples often follow specific patterns. Provide opportunities for pupils to become fluent in identifying types of sequences. Increase the emphasis on being able to explain and justify the patterns spotted, using the structure of the problem. This will start to make the link between pattern spotting and mathematical proof. 3: Perimeter and area This is an opportunity to apply what pupils have learnt to a less familiar problem. Leave out Exercises 3.1 and 3.2 in the Pupil Book if you are happy that the class is familiar with this material from KS2. Most pupils will have met the basic concepts in this chapter. If they can demonstrate that they are confident and fluent with these basic concepts they can move on to the activity, challenge or investigation questions at the end of each exercise. This activity is designed to show pupils an everyday situation that involves area and perimeter. Chapters 1–3 assessment on Collins Connect		Chapters 1–3 assessment on Collins Connect 4.1 Multiplying and dividing by 10, 100 and 1000 4.2 Ordering decimals 4.3 Estimates 4.4 Adding and subtracting decimals 4.5 Multiplying and dividing decimals Financial skills – Shopping for leisure

Year Plan – Book 1.2 for 7M2

	4: Decimal numbers You could leave out Lesson 4.1 if you are confident that your class is familiar with this material from KS2. Most pupils will have met the basic concepts in this chapter, although they may not have applied them to decimals. If pupils can demonstrate their ability to transfer this understanding efficiently, they can move on to the activities in the boxes at the end of each exercise in this chapter of the Pupil Book. This activity is designed to apply the skills learnt in this chapter to a multi-step problem. The context may be familiar but pupils are unlikely to have engaged with it themselves.		
How will pupils be assessed?	Chapters 1–3 assessment on Collins Connect	What are the assessment criteria?	

Year Plan – Book 1.2 for 7M2

Time period	**Term 2**	**Title**	**5 Working with numbers** **6 Statistics** **Chapter 4–6 assessment on Collins Connect** **7 Using algebra** **8 Fractions**
Number of lessons	5 Working with numbers (6 hours) 6 Statistics (6 hours) 7 Using algebra (4 hours) 8 Fractions (5 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	5: Pupils will have considered written methods for working with numbers in KS2. After a brief recap of methods, pupils should concentrate on the MR and PS questions in Exercise 5D and Exercise 5E of lessons 5.4 and 5.5. 6: This activity is designed to use the skills covered in this and earlier 'number' chapters to give a real-life context to mathematics. If your pupils are confident with measures of central tendency and range (covered in KS2), you could leave out Lesson 6.1. Provide a brief recap and move on to the later lessons where you will need to encourage pupils to interrogate data and make choices and decisions about the statistical measures they use. Problem solving: This activity is designed to use both the mathematical reasoning and problem solving outcomes covered in this chapter se in a situation that is familiar to pupils. This activity encourages pupils to think about statistics in train travel – a form of travel with which many pupils may be familiar	What will pupils learn?	5.1 Square numbers 5.2 Rounding 5.3 Order of operations 5.4 Long and short multiplication 5.5 Long and short division 5.6 Calculations with measurements Problem solving – What is your carbon footprint? 6.1 Mode, median and range 6.2 Reading data from tables and charts 6.3 Statistical diagrams 6.4 Collecting and using data 6.5 Grouped frequency 6.6 Data collection Challenge – Trains in Europe Chapter 4–6 assessment on Collins Connect 7.1 Expressions and substitution 7.2 Simplifying expressions 7.3 Using formulae 7.4 Writing formulae Problem solving – Winter sports 8.1 Equivalent fractions 8.2 Comparing fractions

Year Plan – Book 1.2 for 7M2

	Ask pupils to summarise what they have learnt in the chapter, as they will use much of this material to complete the activity. Chapter 4–6 assessment on Collins Connect 7: More able pupils could skip every other question in the Pupil Book exercises of this chapter if they grasp the material quickly. However, it would be unwise to miss large chunks, as much of this material will be unfamiliar to the majority of pupils. A common response to algebra is to ask how it can be used. This activity provides one of the everyday uses of algebra in terms of using a formula to work out costs. 8: By the end of KS2, pupils will have compared and ordered fractions and identified simple equivalent fractions. If they can demonstrate confidence and fluency with the KS2 content they could move straight to applying their understanding to the problem solving and mathematical reasoning questions in each exercise in the Pupil Book of this chapter. Check pupils' understanding by using one or two simple examples and/or the probing questions. More able pupils could leave out Exercise 8A and Exercise 8B and move on to Exercise 8C. Challenge: This activity explores partitioning in a familiar context, which is an important concept in understanding fractions. The tasks involve splitting a shape into unequal parts, which will help pupils' understanding of the part–whole relationship between the numerator and denominator in fractions.		8.3 Add and subtracting fractions 8.4 Mixed numbers and improper fractions 8.5 Calculations with mixed numbers Challenge – Fractional dissection

Year Plan – Book 1.2 for 7M2

How will pupils be assessed?	Chapter 4–6 assessment on Collins Connect	What are the assessment criteria?	

Year Plan – Book 1.2 for 7M2

Time period	**Term 3**	**Title**	**9 Angles** **10 Coordinates and graphs** **11 Percentages** **12 Probability**
Number of lessons	9 Angles (5 hours) 10 Coordinates and graphs (6 hours) 11 Percentages (5 hours) 12 Probability (3 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	9: Angles Pupils following a two-year scheme of work will most likely be proficient at using a compass. If this is the case, then leave out Lesson 9.1 and start with Lesson 9.2. 10: Coordinates and graphs This activity encourages pupils to think about how angles can affect a possibly familiar real-life situation – the way one plays the game of snooker. Pupils may find it interesting to see how much mathematical calculation is involved in playing a good game. If your class is confident at working with coordinates, they could move straight on to questions 7 and 8 and the investigation at the end of Exercise 10A in the Pupil Book, which is intended to be used as consolidating work from KS2. 11: Percentages This activity is designed to apply pupils learning in a real-life topical situation. Work through some of the examples in in the first three lessons as a class. Then work on the investigations or challenge questions at the end of each exercise, either	What will pupils learn?	9.1 Using the compass to give directions 9.2 Measuring angles 9.3 Drawing angles 9.4 Calculating angles 9.5 Properties of triangles and quadrilaterals Investigation – Snooker tables 10.1 Coordinates and graphs 10.2 From mappings to graphs 10.3 Naming graphs 10.6 Graphs form the real world Challenge – Global warming 11.1 Fractions and percentages 11.2 Fractions of a quantity 11.3 Percentages of a quantity 11.4 Percentages with a calculator 11.5 Percentage increases and decreases Financial skills – Income tax 12.1 Probability words 12.2 Probability scales 12.3 Experimental probability Financial skills – School Easter Fayre

Year Plan – Book 1.2 for 7M2

	as a class or pupils could work independently. Then move straight on to Lesson 11.4. 12: Probability This activity is designed to use both the mathematical and transferable process skills covered in this chapter in a very important real-life context that may be completely unfamiliar to pupils. You could briefly recap probability scales and equally likely outcomes using some of the examples in the Pupil Book if necessary. Check pupils' understanding using some of the probing questions. Provided pupils seem confident they could then move straight on to Lesson 12.3 on experimental probability. Financial skills – Easter Fayre This activity combines pupils' understanding of experimental and theoretical probability and applies it in a real life context.		
How will pupils be assessed?		What are the assessment criteria?	

Year Plan – Book 1.2 for 7M2

Time period	**Term 4**	**Title**	**13 Symmetry** **14 Equations** **15 Interpreting data** **16 3D shapes**
Number of lessons	13 Symmetry (4 hours) 14 Equations (4 hours) 15 Interpreting data (3 hours) 16 3D shapes (3 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	13: Symmetry Many concepts in this chapter will be familiar to pupils from KS2. If pupils can demonstrate confidence with these basic concepts they can focus on working through the exercises and doing the activities after each exercise. Encourage pupils to explore the suggested links to real-life contexts. 14: Equations This activity is designed to show pupils some of the aspects of symmetry used in the real world, by examining the line symmetry of six famous landmarks Recap 'Finding unknown numbers' in Lesson 14.1 and run through 'Solving equations' in Lesson 14.2, before moving on to Lesson 14.3 and Lesson 14.4. 15: Interpreting Data In this activity pupils apply what they know to an abstract number problem. They need to identify and solve multi-step linear equations to solve the problem. You could leave out Lesson 15.1 on pie charts. During Lesson 15.2, comparing data by median and range, you could focus on the activity at the end of Exercise 15B in the Pupil Book.	What will pupils learn?	13.1 Line symmetry 13.2 Rotational symmetry 13.3 Reflections 13. 4 Tessellations Activity – Landmark spotting 14.1 Finding unknown numbers 14.2 Solving equations 14.3 Solving more complex equations 14.4 Setting up and solving equations Challenge – Number puzzles 15.1 Pie charts 15.2 Comparing data by median and range 15.3 Statistical surveys Challenge – Dancing competition Chapter 13–15 assessment on Collins Connect 16.1 3D shapes and nets 16.2 Using nets to construct 3D shapes 16.3 3D investigations Problem solving – Delivering packages

Year Plan – Book 1.2 for 7M2

	Then move straight on to the application of skills to do with statistical surveys in Lesson 15.3. This activity is designed to use both the interpretation and communication skills covered in this chapter 16: 3D shapes Use discussion to check recall of terminology then focus on the MR and PS questions in the exercises in each lesson, and on the challenge and practical activities at the end of Exercise 16A and Exercise 16B in the Pupil Book. Problem solving: delivering packages This is a common type of problem used at GCSE so it is important that pupils can identify this type of problem.		
How will pupils be assessed?	Chapter 13–15 assessment on Collins Connect	What are the assessment criteria?	

Year Plan – Book 1.2 for 7M2

Time period	Term 5	Title	17 Ratio
Number of lessons	17 Ratio (4 hours)	ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?	Chapter 17: Pupils will have worked with ratio in KS2, when comparing quantities and in problems involving unequal sharing. Pupils may have been introduced to the a : b notation. If pupils can show understanding by answering one or more of the later questions in Exercise 17A of the Pupil Book, they can move on to simplifying ratios in Exercise 17B. Similarly, if pupils are confident about simple sharing problems, as provided in Exercise 17C, then they can move on to concentrate on the mixed questions in Exercise 17D. Problem solving: Smoothie bar This problem-solving activity is designed to reinforce the use of ratios by putting ratios in a realistic context.	What will pupils learn?	17.1 Introduction to ratios 17.2 Simplifying ratios 17.3 Ratios and sharing 17.4 Ratios and fractions Problem solving – Smoothie bar
How will pupils be assessed?	Chapter 16–17 assessment on Collins Connect	What are the assessment criteria?	

Year Plan – Book 1.2 for 7M2

Time period	Term 6: Start book 2.1	Title	
Number of lessons		ICT links / tasks	
Literacy links / tasks		Numeracy links / tasks	
What should pupils know already?		What will pupils learn?	
How will pupils be assessed?		What are the assessment criteria?	