

## 3-year scheme of work

The following scheme of work provides a suggestion for how Pupil Book 1.2 can be taught over the course of one year, as part of a 3-year Key Stage 3 course.

Please note that you can recombine the test questions provided on Collins Connect to create new tests if your frequency of assessment differs from that below, or if you wish to combine content from different chapters in your own half-termly tests.

This scheme of work is provided in editable Word and Excel format on the CD-ROM accompanying this Teacher Pack.

Chapter	Lesson	No. of hours	Learning objective	Comments/ suggestions
<b>Half-term / Term 1</b>				
1 Using numbers	1.1 Timetables, charts and money	1	<ul style="list-style-type: none"> <li>To be familiar with everyday uses of tables and charts</li> <li>To carry out calculations from information given in tables and charts</li> </ul>	Tables and charts appear everywhere in real life. It is important that pupils become confident in their ability to extract and use information from them in increasingly unfamiliar and complex situations.
	1.2 Positive and negative numbers	1	<ul style="list-style-type: none"> <li>To use a number line to order positive and negative numbers</li> <li>To understand and use the symbols &lt; (less than) and &gt; (greater than)</li> </ul>	
	1.3 Adding negative numbers	2	<ul style="list-style-type: none"> <li>To carry out additions and subtractions involving negative numbers</li> <li>To use a number line to calculate with negative numbers</li> </ul>	
	1.4 Subtracting negative numbers	2	<ul style="list-style-type: none"> <li>To carry out subtractions involving negative numbers</li> </ul>	
	Travelling in Asia and Eastern Europe	1		This activity is designed to use both the mathematical and problem solving outcomes covered in this chapter in a very common real-life problem set in a slightly less familiar context.
2 Sequences	2.1 Function machines	1	<ul style="list-style-type: none"> <li>To use function machines to generate inputs and outputs</li> </ul>	The ability to generalise is crucial in a complex modern society. Being able to identify and generate number sequences is the first step towards progressing from the particular to the general in mathematics.
	2.2 Sequences and rules	2	<ul style="list-style-type: none"> <li>To recognise, describe and generate sequences that use a simple rule</li> </ul>	
	2.3 Working out missing terms	1	<ul style="list-style-type: none"> <li>To find missing terms in a sequence</li> </ul>	
	2.4 Other sequences	1	<ul style="list-style-type: none"> <li>To know and understand the sequences of numbers known as the square numbers and the triangular numbers</li> </ul>	
	Mathematical reasoning – Valencia Planetarium	1		This is an opportunity to apply what pupils have learnt to a less familiar problem.
3 Perimeter, area and volume	3.1 Perimeter and area	1	<ul style="list-style-type: none"> <li>To work out the perimeter of 2D shapes.</li> <li>To work out the area of 2D shapes</li> </ul>	
	3.2 Perimeter and area of rectangles	1	<ul style="list-style-type: none"> <li>To use a simple formula to calculate the perimeter of a rectangle</li> <li>To use a simple formula to calculate the area of a rectangle</li> </ul>	

	3.3 Perimeter and area of compound shapes	1	<ul style="list-style-type: none"> <li>To work out the perimeter and area of a compound shape</li> </ul>	
	3.4 Volume of cubes and cuboids	2	<ul style="list-style-type: none"> <li>To work out the volume of a cube and cuboid, using a simple formula</li> <li>To work out the capacity of a cube or cuboid</li> </ul>	
	Problem solving – Design a bedroom	1	<ul style="list-style-type: none"> <li>To be able to multiply and divide decimal numbers by 10, 100 and 1000</li> </ul>	This activity is designed to show pupils an everyday situation that involves area and perimeter.
<i>Chapter 1-3 assessment on Collins Connect</i>				
<b>Half-term</b>				
<b>Half-term / Term 2</b>				
4 Decimal numbers	4.1 Multiplying and dividing by 10, 100 and 1000	1	<ul style="list-style-type: none"> <li>To be able to multiply and divide decimal numbers by 10, 100 and 1000</li> </ul>	Pupils often do not appreciate the real purpose of estimation so when asked to estimate an answer they think that if they give the full calculation that will be better. They also lack the ability to see how to simplify a calculation so they can complete it mentally. Give pupils plenty of practice with mental calculation and opportunities to assess how best to approach different types of calculations.
	4.2 Ordering decimals	1	<ul style="list-style-type: none"> <li>To be able to order decimal numbers according to size</li> </ul>	
	4.3 Estimates	2	<ul style="list-style-type: none"> <li>To estimate calculations in order to spot possible errors</li> </ul>	
	4.4 Adding and subtracting decimals	1	<ul style="list-style-type: none"> <li>To be able to add and subtract with decimal numbers</li> </ul>	
	4.5 Multiplying and dividing decimals	1	<ul style="list-style-type: none"> <li>To be able to multiply and divide decimal numbers by any whole number</li> </ul>	
	Financial skills – Shopping for leisure	1		
5 Working with numbers	5.1 Square numbers and square roots	1	<ul style="list-style-type: none"> <li>To recognise and use square numbers up to 225 (<math>15 \times 15</math>) and the corresponding square roots</li> </ul>	
	5.2 Rounding	1	<ul style="list-style-type: none"> <li>To round numbers to a given degree of accuracy</li> </ul>	
	5.3 Order of operations	1	<ul style="list-style-type: none"> <li>To use the conventions of BIDMAS to carry out calculations</li> </ul>	
	5.4 Long and short multiplication	2	<ul style="list-style-type: none"> <li>To choose a written method for multiplying two numbers together</li> <li>To use written methods to carry out multiplications accurately</li> </ul>	
	5.5 Long and short division	2	<ul style="list-style-type: none"> <li>To choose a written method for dividing one number by another</li> <li>To use written methods to carry out divisions accurately</li> </ul>	
	5.6 Calculations with measurements	1	<ul style="list-style-type: none"> <li>To convert between common metric units</li> <li>To use measurements in calculations</li> <li>To recognise and use appropriate metric units</li> </ul>	
	Problem solving –	2		

	What is your carbon footprint?			'number' chapters to give a real-life context to mathematics.
6 Statistics	6.1 Mode, median and range	1	<ul style="list-style-type: none"> <li>To understand and calculate the mode, median and range of data</li> </ul>	Pupils need to think about how we use statistics to model populations where it is difficult or in many cases impossible to gather all the population information.
	6.2 The mean	1	<ul style="list-style-type: none"> <li>To understand and calculate the mean average of data</li> </ul>	
	6.3 Statistical diagrams	1	<ul style="list-style-type: none"> <li>To be able to read and interpret different statistical diagrams</li> </ul>	
	6.4 Collecting and using data	1	<ul style="list-style-type: none"> <li>To create and use a tally chart</li> </ul>	
	6.5 Grouped frequency	2	<ul style="list-style-type: none"> <li>To understand and use grouped frequencies</li> </ul>	
	6.6 Data collection	2	<ul style="list-style-type: none"> <li>To develop greater understanding of data collection</li> </ul>	
	Challenge – Schools sports day	1		This activity is designed to use both the mathematical reasoning and problem solving outcomes covered in this chapter set in a situation that is familiar to pupils.
<i>Chapter 4-6 assessment on Collins Connect</i>				
<b>Holidays</b>				
<b>Half-term / Term 3</b>				
7 Algebra	7.1 Expressions and substitution	1	<ul style="list-style-type: none"> <li>To use algebra to write simple expressions</li> <li>To substitute numbers into expressions to work out their value</li> </ul>	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 decide cost.
	7.2 Simplifying expressions	1	<ul style="list-style-type: none"> <li>To learn the rules for simplifying expressions</li> </ul>	
	7.3 Using formulae	2	<ul style="list-style-type: none"> <li>To use formulae</li> </ul>	
	7.4 Writing formulae	2	<ul style="list-style-type: none"> <li>To write formulae</li> </ul>	
	Problem solving – Winter sports	1		
8 Fractions	8.1 Equivalent fractions	1	<ul style="list-style-type: none"> <li>To find simple equivalent fractions</li> <li>To write fractions in their simplest form</li> </ul>	
	8.2 Comparing fractions	1	<ul style="list-style-type: none"> <li>To compare and order two fractions</li> </ul>	
	8.3 Adding and subtracting fractions	2	<ul style="list-style-type: none"> <li>To add and subtract fractions with the same denominator</li> <li>To add and subtract fractions with different denominators</li> </ul>	
	8.4 Mixed numbers and improper fractions	1	<ul style="list-style-type: none"> <li>To convert mixed numbers to improper fractions</li> <li>To convert improper fractions to mixed numbers</li> </ul>	
	8.5 Adding and subtracting mixed numbers	1	<ul style="list-style-type: none"> <li>To add and subtract simple mixed numbers with the same denominator</li> <li>To add and subtract simple mixed numbers with different denominators</li> </ul>	

	Fractional dissection	1		This activity is designed to build confidence and fluency by allowing pupils to apply what they have learnt to an interesting problem in an unfamiliar context.
9 Angles	9.1 Measuring and drawing angles	1	<ul style="list-style-type: none"> <li>To use a protractor to measure an angle</li> <li>To use a protractor to draw an angle</li> </ul>	Pupils often do not appreciate the need for accuracy when measuring and drawing angles. Relate this to the contexts in the introduction to this chapter. Pupils need plenty of practice in using a protractor accurately.
	9.2 Calculating angles	1	<ul style="list-style-type: none"> <li>To calculate angles at a point</li> <li>To calculate angles on a straight line</li> <li>To calculate opposite angles</li> </ul>	
	9.3 Angles in a triangle	1	<ul style="list-style-type: none"> <li>To know that the sum of the angles in a triangle is <math>180^\circ</math></li> </ul>	
	9.4 Angles in a quadrilateral	1	<ul style="list-style-type: none"> <li>To know that the sum of the angles in a quadrilateral is <math>360^\circ</math></li> </ul>	
	9.5 Properties of triangles and quadrilaterals	2	<ul style="list-style-type: none"> <li>To understand the properties of parallel, intersecting and perpendicular lines</li> <li>To understand and use the properties of triangles</li> <li>To understand and use the properties of quadrilaterals</li> </ul>	
	Activity – Constructing triangles	1		This activity is designed to build confidence and fluency.
<i>Chapter 7-9 assessment on Collins Connect</i>				
<b>Half-term</b>				
<b>Half-term / Term 4</b>				
10 Coordinates and graphs	10.1 Coordinates	1	<ul style="list-style-type: none"> <li>To understand and use coordinates to locate points in all four quadrants</li> </ul>	
	10.2 Graphs from relationships	1	<ul style="list-style-type: none"> <li>To draw a graph for a simple relationship</li> </ul>	
	10.3 Graphs for fixed values of $x$ or $y$	1	<ul style="list-style-type: none"> <li>To recognise and draw line graphs with fixed values of <math>x</math> and <math>y</math></li> </ul>	
	10.4 Graphs of the form $y = ax$	1	<ul style="list-style-type: none"> <li>To recognise and draw lines of the form <math>x = ax</math></li> </ul>	
	10.5 Graphs of the form $x + y = a$	1	<ul style="list-style-type: none"> <li>To recognise and draw graphs of the form <math>x + y = a</math></li> </ul>	
	10.6 Graphs from the real world	1	<ul style="list-style-type: none"> <li>To learn how graphs can be used to represent real-life situations</li> <li>To draw and use real-life graphs</li> </ul>	
	Challenge – Global warming	2		
11 Percentages	11.1 Fractions, decimals and percentages	1	<ul style="list-style-type: none"> <li>To understand the equivalence between a fraction, a decimal and a percentage</li> </ul>	Percentages are everywhere in real life. From bargains in the shops to taxes on payslips. It is important for pupils to be comfortable with calculating percentages if they are going to be functional in a modern society.
	11.2 Fractions of a quantity	1	<ul style="list-style-type: none"> <li>To find a fraction of a quantity</li> </ul>	
	11.3 Percentages of a quantity	1	<ul style="list-style-type: none"> <li>To find a percentage of a quantity</li> </ul>	
	11.4 Percentages with a calculator	1	<ul style="list-style-type: none"> <li>To use a calculator to find a percentage of a quantity</li> <li>To know when it is appropriate to use a calculator</li> </ul>	

	11.5 Percentage increases and decreases	2	<ul style="list-style-type: none"> <li>To work out the result of a simple percentage change</li> </ul>	
	Financial skills – Income tax	2		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 less familiar to them than might be expected.
12 Probability	12.1 Probability words	1	<ul style="list-style-type: none"> <li>To learn and use the correct words about probability</li> </ul>	
	12.2 Probability scales	1	<ul style="list-style-type: none"> <li>To learn about and use probability scales from 0 to 1</li> <li>To work out probabilities based on equally likely outcomes</li> </ul>	
	12.3 Experimental probability	2	<ul style="list-style-type: none"> <li>To understand experimental probability</li> <li>To understand the difference between theoretical probability and experimental probability</li> </ul>	
	Financial skills – School Easter Fayre	1		
<i>Chapter 10-12 assessment on Collins Connect</i>				
<b>Holidays</b>				
<b>Half-term / Term 5</b>				
13 Symmetry	13.1 Line symmetry	1	<ul style="list-style-type: none"> <li>To recognise shapes with reflective symmetry</li> <li>To draw lines of symmetry on a shape</li> </ul>	
	13.2 Rotational symmetry	1	<ul style="list-style-type: none"> <li>To recognise shapes that have rotational symmetry</li> <li>To find the order of rotational symmetry for a shape</li> </ul>	
	13.3 Reflections	1	<ul style="list-style-type: none"> <li>To understand how to reflect a shape</li> <li>To use coordinates to reflect shapes in all four quadrants</li> </ul>	
	13.4 Tessellations	1	<ul style="list-style-type: none"> <li>To understand how to tessellate shapes</li> </ul>	
	Activity – Landmark spotting	1		
14 Equations	14.1 Finding unknown numbers	1	<ul style="list-style-type: none"> <li>To find missing numbers in simple calculations</li> </ul>	
	14.2 Solving equations	1	<ul style="list-style-type: none"> <li>To understand what an equation is</li> <li>To solve equations involving one operation</li> </ul>	
	14.3 Solving more complex equations	1	<ul style="list-style-type: none"> <li>To solve equations involving two operations</li> </ul>	
	14.4 Setting up and solving equations	2	<ul style="list-style-type: none"> <li>To use algebra to set up and solve equations</li> </ul>	
	Challenge – Number puzzles	1		
15 Interpreting data	15.1 Pie charts	1	<ul style="list-style-type: none"> <li>To read data from pie charts in which the data is given as percentages</li> </ul>	Statistical data is everywhere in a modern society and to function in this society it is important to be able to

	15.2 Comparing mean and range	1	<ul style="list-style-type: none"> <li>To use the mean and range to compare data</li> <li>To make sensible decisions by comparing the mean and range of two sets of data</li> </ul>	critically analyse the data being presented.
	15.3 Statistical surveys	2	<ul style="list-style-type: none"> <li>To use charts and diagrams to interpret data</li> </ul>	
	Challenge – Dancing competition	1		This activity is designed to use both the interpretation and communication skills covered in this chapter in a familiar scenario.
<i>Chapter 13-15 assessment on Collins Connect</i>				
<b>Half-term</b>				
<b>Half-term / Term 6</b>				
16 3D shapes	16.1 Naming and drawing 3D shapes	1	<ul style="list-style-type: none"> <li>To be familiar with the names of 3D shapes and their properties</li> <li>To use isometric paper to draw shapes made from cubes</li> </ul>	
	16.2 Using nets to construct 3D shapes	1	<ul style="list-style-type: none"> <li>To draw nets of 3D shapes</li> <li>To construct 3D shapes from nets</li> </ul>	
	16.3 3D investigations	2	<ul style="list-style-type: none"> <li>To make the connection between faces, edges and vertices of some 3D shapes</li> <li>To solve problems involving 3D shapes</li> </ul>	
	Problem solving – Packing boxes	1		
17 Ratio	17.1 Introduction to ratios	1	<ul style="list-style-type: none"> <li>To use ratio notation</li> <li>To use ratio to compare quantities</li> </ul>	
	17.2 Simplifying ratios	1	<ul style="list-style-type: none"> <li>To write a ratio as simply as possible</li> </ul>	
	17.3 Ratios and sharing	1	<ul style="list-style-type: none"> <li>To use ratios to find totals or missing quantities</li> </ul>	
	17.4 Solving problems	1	<ul style="list-style-type: none"> <li>To understand the connections between fractions and ratios</li> <li>To understand how ratios can be useful in everyday life</li> </ul>	
	Problem solving – Smoothie bar	1		
<i>Chapter 16-17 assessment on Collins Connect</i>				
<i>End of year assessment on Collins Connect</i>				

## 2-year scheme of work

The following scheme of work provides a suggestion for teaching Pupil Book 1.2 as part of a 2-year Key Stage 3 course.

Please note that you can recombine the test questions provided on Collins Connect to create new tests if your frequency of assessment differs from that below, or if you wish to combine content from different chapters in your own half-termly tests.

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Chapter	Lesson	No. of hours	Learning objective	Comments/ suggestions
<b>Half-term / Term 1</b>				
1 Using numbers	1.1 Timetables, charts and money	1	<ul style="list-style-type: none"> <li>To be familiar with everyday uses of tables and charts</li> <li>To carry out calculations from information given in tables and charts</li> </ul>	The first part of section 1.1 and 1.2 can be left out if pupils are familiar with this material from Key Stage 2. This includes questions 1 – 4 in exercise A and exercise B. Ensure pupils have a good understanding of the rules they are applying throughout the chapter.
	1.2 Positive and negative numbers		<ul style="list-style-type: none"> <li>To use a number line to order positive and negative numbers</li> <li>To understand and use the symbols &lt; (less than) and &gt; (greater than)</li> </ul>	
	1.3 Adding negative numbers	1	<ul style="list-style-type: none"> <li>To carry out additions and subtractions involving negative numbers</li> <li>To use a number line to calculate with negative numbers</li> </ul>	
	1.4 Subtracting negative numbers	1	<ul style="list-style-type: none"> <li>To carry out subtractions involving negative numbers</li> </ul>	
	Travelling in Asia and Eastern Europe	1		
2 Sequences	2.1 Function machines	1	<ul style="list-style-type: none"> <li>To use function machines to generate inputs and outputs</li> </ul>	Put a greater emphasis on inverse functions for more able students. Make sure pupils realise there are a range of different 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 they spot using the structure of the problem. This will start to make the link between pattern spotting and mathematical proof.
	2.2 Sequences and rules	1	<ul style="list-style-type: none"> <li>To recognise, describe and generate sequences, using a simple rule</li> </ul>	
	2.3 Finding the missing term	1	<ul style="list-style-type: none"> <li>To find missing terms in a sequence</li> </ul>	
	2.4 Other sequences	1	<ul style="list-style-type: none"> <li>To know and understand the sequences of numbers known as the square numbers and the triangular numbers</li> </ul>	
	Mathematical reasoning – Valencia Planetarium	1		
3 Perimeter, area and volume	3.2 Perimeter and area of rectangles	1	<ul style="list-style-type: none"> <li>To use a simple formula to calculate the perimeter of a rectangle</li> <li>To use a simple formula to calculate the area of a rectangle</li> </ul>	Most pupils will have met the basic concepts in this chapter. If they can demonstrate they are confident and fluent with these basic concepts they can move on to the problem challenge questions at the end of each exercise.

	3.3 Perimeter and area of compound shapes	1	<ul style="list-style-type: none"> <li>To work out the perimeter and area of a compound shape</li> </ul>	
	3.4 Volume of cubes and cuboids	1	<ul style="list-style-type: none"> <li>To work out the volume of a cube and cuboid, using a simple formula</li> <li>To work out the capacity of a cube or cuboid</li> </ul>	
	Problem solving – Design a bedroom	1		This activity is designed to show pupils an everyday situation that involves area and perimeter.
<b>Chapters 1-3 assessment on Collins Connect</b>				
4 Decimal numbers	4.2 ordering decimal 4.3 Estimates	1	<ul style="list-style-type: none"> <li>To be able to order decimal numbers according to size</li> <li>To estimate calculations in order to spot possible errors</li> </ul>	Most pupils will have met the basic concepts in this chapter although they may not have applied them to decimals. If they can demonstrate their ability to transfer this understanding efficiently they can move fairly quickly to the problem challenge questions at the end of each exercise.
	4.4 Adding and subtracting decimals	1	<ul style="list-style-type: none"> <li>To be able to add and subtract with decimal numbers</li> </ul>	
	4.5 Multiplying and dividing decimals	1	<ul style="list-style-type: none"> <li>To be able to multiply and divide decimal numbers by any whole number</li> </ul>	This activity is designed to apply the skills learnt in this chapter to a multi-step problem. The context may be familiar to learners but they are unlikely to have engaged with it themselves.
	Financial skills – Shopping for leisure	1		
<b>Half-term</b>				
<b>Half-term / Term 2</b>				
5 Working with numbers	5.1 Square numbers and square roots	1	<ul style="list-style-type: none"> <li>To recognise and use square numbers up to 225 (<math>15 \times 15</math>) and the corresponding square roots</li> </ul>	Pupils will have considered written methods in Key Stage 2. So for lessons 4 and 5, after a brief recap of methods, concentrate on the word and problem solving activities in each section.
	5.2 Rounding	1	<ul style="list-style-type: none"> <li>To round numbers to a given degree of accuracy</li> </ul>	
	5.3 Order of operations	1	<ul style="list-style-type: none"> <li>To use the conventions of BIDMAS to carry out calculations</li> </ul>	
	5.4 Long and short multiplication	1	<ul style="list-style-type: none"> <li>To choose a written method for multiplying two numbers together</li> <li>To use written methods to carry out multiplications accurately</li> </ul>	
	5.5 Long and short division	1	<ul style="list-style-type: none"> <li>To choose a written method for dividing one number by another</li> <li>To use written methods to carry out divisions accurately</li> </ul>	
	5.6 Calculations with measurements	1	<ul style="list-style-type: none"> <li>To convert between common metric units</li> <li>To use measurements in calculations</li> <li>To recognise and use appropriate metric units</li> </ul>	
	Problem solving – What is your carbon footprint?	1		This activity is designed to use the skills covered in this and earlier 'number' chapters to give a real-life context to mathematics.
6 Statistics	6.3 Statistical diagrams	1	<ul style="list-style-type: none"> <li>To be able to read and interpret different statistical diagrams</li> </ul>	
	6.4 Collecting and using data	1	<ul style="list-style-type: none"> <li>To create and use a tally chart</li> </ul>	
	6.5 Grouped frequency	1	<ul style="list-style-type: none"> <li>To understand and use grouped frequencies</li> </ul>	
	6.6 Data collection	1	<ul style="list-style-type: none"> <li>To develop greater understanding of data collection</li> </ul>	
	Challenge – School sports day	1		
<b>Chapter 4-6 assessment on Collins Connect</b>				



7 Using algebra	7.1 Expressions and substitution	1	<ul style="list-style-type: none"> <li>To use algebra to write simple expressions</li> <li>To substitute numbers into expressions to work out their value</li> </ul>	It is important to take time over the examples in this chapter. However, it may often be more worthwhile to work through one or two examples in depth as a class followed by picking out one or two examples for pupils.
	7.2 Simplifying expressions	1	<ul style="list-style-type: none"> <li>To learn the rules for simplifying expressions</li> </ul>	
	7.3 Using formulae	1	<ul style="list-style-type: none"> <li>To use formulae</li> </ul>	
	7.4 Writing formulae	1	<ul style="list-style-type: none"> <li>To write formulae</li> </ul>	
	Problem solving – Winter sports	1		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 decide cost.
8 Fractions	8.1 Equivalent fractions	1	<ul style="list-style-type: none"> <li>To find simple equivalent fractions</li> <li>To write fractions in their simplest form</li> </ul>	If pupils demonstrate the same level of confidence with adding and subtracting fractions they could leave out Exercise 8C and go straight to Exercise 8D.
	8.2 Comparing fractions	1	<ul style="list-style-type: none"> <li>To compare and order two fractions</li> </ul>	
	8.3 Add and subtracting fractions	1	<ul style="list-style-type: none"> <li>To add and subtract fractions with the same denominator</li> <li>To add and subtract fractions with different denominators</li> </ul>	
	8.4 Mixed numbers and improper fractions 8.5 Calculating with mixed numbers	1	<ul style="list-style-type: none"> <li>To convert mixed numbers to improper fractions</li> <li>To convert improper fractions to mixed numbers</li> <li>To add and subtract simple mixed numbers with the same denominator</li> <li>To add and subtract simple mixed numbers with different denominators</li> </ul>	
	Challenge – Fractional dissection	1		
<i>Chapter 7-9 assessment on Collins Connect</i>				
<b>Holidays</b>				
<b>Half-term / Term 3</b>				
9 Angles	9.2 Calculating angles	1	<ul style="list-style-type: none"> <li>To calculate angles at a point</li> <li>To calculate angles on a straight line</li> <li>To calculate opposite angles</li> </ul>	
	9.3 Angles in a triangle	1	<ul style="list-style-type: none"> <li>To know that the sum of the angles in a triangle is <math>180^\circ</math></li> </ul>	
	9.4 Angles in a quadrilateral	1	<ul style="list-style-type: none"> <li>To know that the sum of the angles in a quadrilateral is <math>360^\circ</math></li> </ul>	
	9.5 Properties of triangles and quadrilaterals	1	<ul style="list-style-type: none"> <li>To understand the properties of parallel, intersecting and perpendicular lines</li> <li>To understand and use the properties of triangles</li> <li>To understand and use the properties of quadrilaterals</li> </ul>	
	Activity – Constructing Triangles	1		
10 Coordinates and graphs	10.2 Graphs from relationships	1	<ul style="list-style-type: none"> <li>To draw a graph for a simple relationship</li> </ul>	Leave out lesson 10.1 as consolidating work from KS2. Use the discussion points to check understanding if necessary
	10.3 Graphs for fixed values of $x$ or $y$	1	<ul style="list-style-type: none"> <li>To recognise and draw line graphs with fixed values of <math>x</math> and <math>y</math></li> </ul>	
	10.4 Graphs of the form $y = ax$	1	<ul style="list-style-type: none"> <li>To recognise and draw lines of the form <math>x = ax</math></li> </ul>	

	10.5 Graphs of the form $x + y = a$	1	<ul style="list-style-type: none"> <li>To recognise and draw graphs of the form <math>x + y = a</math></li> </ul>	
	10.6 Graphs form the real world	1	<ul style="list-style-type: none"> <li>To learn how graphs can be used to represent real-life situations</li> <li>To draw and use real-life graphs</li> </ul>	
	Challenge – Global warming	2		This activity is designed to apply pupils learning in a real-life topical situation.
11 Percentages	11.5 Percentage increases and decreases	2		Combine the problem solving or investigational activities in the first 4 lessons with pupils drawing on prior knowledge from key stage 2.
	Financial skills – Income tax	2		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 less familiar to pupils than might be expected.
12 Probability	12.3 Experimental probability	1	<ul style="list-style-type: none"> <li>To understand experimental probability</li> <li>To understand the difference between theoretical probability and experimental probability</li> </ul>	Briefly recap probability scales and equally likely outcomes.
	Financial skills – School Easter Fayre	1		This activity combines pupils' understanding of experimental and theoretical probability and applies it in a real life context.
<i>Chapter 10-12 assessment on Collins Connect</i>				
<b>Half-term</b>				
<b>Half-term / Term 4</b>				
13 Symmetry	13.1 Line symmetry	1	<ul style="list-style-type: none"> <li>To recognise shapes with reflective symmetry</li> <li>To draw lines of symmetry on a shape</li> </ul>	A lot of the concepts in this chapter will be familiar to pupils from Key Stage 2. If pupils can demonstrate confidence with these basic concepts they can focus on the problems solving activities in each chapter or exploring the suggested links to real life contexts.
	13.2 Rotational symmetry	1	<ul style="list-style-type: none"> <li>To recognise shapes that have rotational symmetry</li> <li>To find the order of rotational symmetry for a shape</li> </ul>	
	13.3 Reflections	1	<ul style="list-style-type: none"> <li>To understand how to reflect a shape</li> <li>To use coordinates to reflect shapes in all four quadrants</li> </ul>	
	13.4 Tessellations	1	<ul style="list-style-type: none"> <li>To understand how to tessellate shapes</li> </ul>	
	Activity – Landmark spotting	1		
14 Equations	14.3 Solving more complex equations	1	<ul style="list-style-type: none"> <li>To solve equations involving two operations</li> </ul>	Recap using letters in equations and run through solving equations before moving straight on to lessons 3 and 4.
	14.4 Setting up and solving equations	1	<ul style="list-style-type: none"> <li>To use algebra to set up and solve equations</li> </ul>	
	Challenge – Number puzzles	1		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.
15 Interpreting data	15.2 Comparing mean and range	1	<ul style="list-style-type: none"> <li>To use the mean and range to compare data</li> <li>To make sensible decisions by comparing the mean and range of two sets of data</li> </ul>	Focus on the reasoning question 4 and 5 and the activity in lesson 2 Then move straight on to the application of skills in lesson 3. Statistical data is everywhere in a modern society and to function in this society it is important to be able to critically analyse the data being presented.
	15.3 Statistical surveys	1	<ul style="list-style-type: none"> <li>To use charts and diagrams to interpret data</li> </ul>	

	Challenge – Dancing competition	1		This activity is designed to use both the interpretation and communication skills covered in this chapter
<i>Chapter 13-15 assessment on Collins Connect</i>				
16 3D shapes	16.1 Naming and drawing 3D shapes	1	<ul style="list-style-type: none"> <li>To be familiar with the names of 3D shapes and their properties</li> </ul>	Use discussion to check recall of terminology then focus on the mathematical reasoning and problem solving questions in each lesson.
	16.2 Using nets to construct 3D shapes		<ul style="list-style-type: none"> <li>To use isometric paper to draw shapes made from cubes</li> <li>To draw nets of 3D shapes</li> <li>To construct 3D shapes from nets</li> </ul>	
	16.3 3D investigations	1	<ul style="list-style-type: none"> <li>To make the connection between faces, edges and vertices of some 3D shapes</li> <li>To solve problems involving 3D shapes</li> </ul>	
	Problem solving – Packing boxes	1		This is a common type of problem used at GCSE so it is important that pupils can identify this type of problem.
<b>Holidays</b>				
<b>Half-term / Term 5</b>				
17 Ratios	17.1 Introduction to ratios 17.2 Simplifying ratios	1	<ul style="list-style-type: none"> <li>To use ratio notation</li> <li>To use ratio to compare quantities</li> <li>To write a ratio as simply as possible</li> </ul>	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.
	17.3 Ratios and sharing	1	<ul style="list-style-type: none"> <li>To use ratios to find totals or missing quantities</li> </ul>	
	17.4 Solving problems	1	<ul style="list-style-type: none"> <li>To understand the connections between fractions and ratios</li> <li>To understand how ratios can be useful in everyday life</li> </ul>	
	Problem solving – Smoothie bar	1		This problem-solving activity is designed to reinforce the use of ratios by putting ratios in a realistic context.
<i>Chapter 16-17 assessment on Collins Connect</i>				
Work continues with Pupil Book 2.2				
<b>Half-term</b>				
<b>Half-term / Term 6</b>				
Work continues with Pupil Book 2.2				