

3-year scheme of work

The following scheme of work provides a suggestion for how Pupil Book 1.3 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
Half-term / Term 1				
1 Using numbers	1.1 Charts and financial mathematics	1	<ul style="list-style-type: none"> To carry out calculations from information given in tables and charts To understand and use financial language 	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"> To use a number line to order positive and negative numbers, including decimals To understand and use the symbols < (less than) and > (greater than) 	
	1.3 Simple arithmetic with negative numbers	2	<ul style="list-style-type: none"> To carry out additions and subtractions involving negative numbers To use a number line to calculate with negative numbers 	
	1.4 Subtracting negative numbers	1	<ul style="list-style-type: none"> To carry out subtractions involving negative numbers 	
	1.5 Multiplying negative numbers	1	<ul style="list-style-type: none"> To carry out multiplications involving negative numbers 	
	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"> To use function machines to generate inputs and outputs To use given inputs and outputs to work out a function 	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"> To recognise, describe and generate sequences that follow a simple rule 	
	2.3 Working out missing terms	1	<ul style="list-style-type: none"> To work out missing terms in a sequence 	
	2.4 Working out the n th term	1	<ul style="list-style-type: none"> To work out the nth term To use the nth term to work out any term in a sequence 	
	2.5 Other sequences	1	<ul style="list-style-type: none"> To know and understand the square and triangular number sequences, the Fibonacci sequence and Pascal's triangle 	
	Mathematical reasoning – Valencia Planetarium	1		This is an opportunity for pupils to apply what they have learnt to a less familiar problem.

3 Perimeter, area and volume	3.1 Perimeter and area of rectangles	1	<ul style="list-style-type: none"> To use a simple formula to work out the perimeter of a rectangle To use a simple formula to work out the area of a rectangle 	
	3.2 Perimeter and area of compound shapes	1	<ul style="list-style-type: none"> To work out the perimeter and the area of a compound shape 	
	3.3 Area of some other 2D shapes	1	<ul style="list-style-type: none"> To work out the area of a triangle To work out the area of a parallelogram To work out the area of a trapezium 	
	3.4 Surface area and volume of cubes and cuboids	2	<ul style="list-style-type: none"> To work out the surface area of cubes and cuboids To work out the volume of cubes and cuboids 	
	Problem solving – Design a bedroom	1		
<i>Chapter 1–3 assessment on Collins Connect</i>				
Half-term				
Half-term / Term 2				
4 Decimal numbers	4.1 Multiplying and dividing by 10, 100, 1000 and 10 000	1	<ul style="list-style-type: none"> To be able to multiply and divide decimal numbers by 10, 100, 1000 and 10 000 	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"> To be able to order decimal numbers according to size 	
	4.3 Estimates	1	<ul style="list-style-type: none"> To estimate calculations in order to spot possible errors. To round up or down, to one decimal place 	
	4.4 Adding and subtracting decimals	1	<ul style="list-style-type: none"> To be able to add and subtract with decimal numbers 	
	4.5 Multiplying decimals	1	<ul style="list-style-type: none"> To be able to multiply decimal numbers 	
	4.6 Dividing decimals	1	<ul style="list-style-type: none"> To be able to divide with decimals 	
	Financial skills – Shopping for leisure	1		
5 Working with numbers	5.1 Square numbers and square roots	1	<ul style="list-style-type: none"> To recognise and use square numbers up to 225 (15×15) and the corresponding square roots 	
	5.2 Rounding	1	<ul style="list-style-type: none"> To round numbers to more than one decimal place (dp) To round numbers to one or two significant figures (sf) 	
	5.3 Order of operations	1	<ul style="list-style-type: none"> To use the conventions of BIDMAS to carry out calculations 	
	5.4 Multiplication problems without a calculator	2	<ul style="list-style-type: none"> To use written methods to carry out multiplications involving decimals accurately 	
	5.5 Division problems without a calculator	2	<ul style="list-style-type: none"> To use written methods to carry out divisions involving decimals accurately 	

	5.6 Calculations with measurements	1	<ul style="list-style-type: none"> To convert between common metric units To use measurements in calculations To recognise and use appropriate metric units 	
	Problem solving – What is your carbon footprint?	2		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	6.1 Mode, median and range	1	<ul style="list-style-type: none"> To understand and calculate the mode, median and range of data 	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"> To understand and calculate the mean average of data 	
	6.3 Statistical diagrams	1	<ul style="list-style-type: none"> To be able to read and interpret different statistical diagrams 	
	6.4 Collecting and using discrete data	1	<ul style="list-style-type: none"> To create and use a tally chart 	
	6.5 Collecting and using continuous data	2	<ul style="list-style-type: none"> To understand continuous data and use grouped frequency 	
	6.6 Data collection	2	<ul style="list-style-type: none"> To develop greater understanding of data collection 	
	Challenge – Schools sports day	1		This activity is designed to use both the mathematical reasoning and problem-solving outcomes that have been covered in this chapter, in a familiar situation.
<i>Chapter 4–6 assessment on Collins Connect</i>				
Holidays				
Half-term / Term 3				
7 Algebra	7.1 Expressions and substitution	1	<ul style="list-style-type: none"> To use algebra to write simple expressions and recognise equivalent expressions To substitute numbers into expressions to work out their value 	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"> To learn how to simplify expressions 	
	7.3 Using formulae	2	<ul style="list-style-type: none"> To use formulae 	
	7.4 Writing formulae	2	<ul style="list-style-type: none"> To write formulae 	
	Problem solving – Winter sports	1		
8 Fractions	8.1 Equivalent fractions	1	<ul style="list-style-type: none"> To find equivalent fractions To write fractions in their simplest form 	
	8.2 Comparing fractions	1	<ul style="list-style-type: none"> To compare and order two fractions 	
	8.3 Adding and subtracting fractions	2	<ul style="list-style-type: none"> To add and subtract fractions with different denominators 	
	8.4 Mixed numbers and improper fractions	1	<ul style="list-style-type: none"> To convert mixed numbers to improper fractions To convert improper fractions to mixed numbers 	

	8.5 Calculations with mixed numbers	1	<ul style="list-style-type: none"> To add and subtract simple mixed numbers with different denominators 	
	Challenge – 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"> To use a protractor to measure an angle To use a protractor to draw an angle 	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"> To understand the properties of parallel, intersecting and perpendicular lines To calculate angles around a point To calculate angles on a straight line To calculate opposite angles 	
	9.3 Corresponding and alternate angles	1	<ul style="list-style-type: none"> To calculate angles in parallel lines 	
	9.4 Angles in a triangle	1	<ul style="list-style-type: none"> To know that the sum of the angles in a triangle is 180° 	
	9.5 Angles in a quadrilateral	1	<ul style="list-style-type: none"> To know that the sum of the angles in a quadrilateral is 360° 	
	9.6 Properties of triangles and quadrilaterals	1	<ul style="list-style-type: none"> To understand and use the properties of triangles To understand and use the properties of quadrilaterals 	
	Activity – Constructing triangles	1		This activity is designed to build confidence and fluency.
<i>Chapter 7–9 assessment on Collins Connect</i>				
Half-term				
Half-term / Term 4				
10 Coordinates and graphs	10.1 Coordinates in four quadrants	1	<ul style="list-style-type: none"> To understand and use coordinates to locate points in all four quadrants 	
	10.2 Graphs from relationships	1	<ul style="list-style-type: none"> To draw a graph for a simple relationship 	
	10.3 Predicting graphs from relationships	1	<ul style="list-style-type: none"> To understand the connection between pairs of coordinates and the relationship shown in an equation and a graph 	
	10.4 Graphs of fixed values of x and y , $y = x$ and $y = -x$	1	<ul style="list-style-type: none"> To recognise and draw line graphs with fixed values of x and y To recognise and draw graphs of $y = x$ and $y = -x$ 	
	10.5 Graphs of the form $x + y = a$	1	<ul style="list-style-type: none"> To recognise and draw graphs of the form $x + y = a$ 	
	10.6 Graphs from the real world	1	<ul style="list-style-type: none"> To learn how graphs can be used to represent real-life situations To draw and use real-life graphs 	
	Challenge – Global warming	2		

11 Percentages	11.1 Fractions, decimals and percentages	1	<ul style="list-style-type: none"> To understand the equivalence between a fraction, a decimal and a percentage To understand and use percentages greater than 100% 	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 to enable them to be functional in a modern society.
	11.2 Fractions of a quantity	1	<ul style="list-style-type: none"> To work out a fraction of a quantity without using a calculator 	
	11.3 Calculating simple percentages	1	<ul style="list-style-type: none"> To work out a percentage of a quantity without using a calculator 	
	11.4 Percentages with a calculator	1	<ul style="list-style-type: none"> To use a calculator to work out a percentage of a quantity To know when it is appropriate to use a calculator 	
	11.5 Percentage increases and decreases	2	<ul style="list-style-type: none"> To work out the result of a percentage change 	
	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 scales	1	<ul style="list-style-type: none"> To learn and use the correct words about probability 	
	12.2 Combined events	1	<ul style="list-style-type: none"> To use sample space diagrams to work out the probability of a combined event 	
	12.3 Experimental probability	2	<ul style="list-style-type: none"> To understand experimental probability To understand the difference between theoretical probability and experimental probability 	
	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>				
Holidays				
Half-term / Term 5				
13 Symmetry	13.1 Line symmetry and rotational symmetry	1	<ul style="list-style-type: none"> To recognise shapes that have reflective symmetry and draw their lines of symmetry To recognise shapes that have rotational symmetry and find the order of rotational symmetry 	
	13.2 Reflections	1	<ul style="list-style-type: none"> To understand how to reflect a shape To use coordinates to reflect shapes in all four quadrants 	
	13.3 Rotations	1	<ul style="list-style-type: none"> To understand how to rotate a shape 	
	13.4 Tessellations	1	<ul style="list-style-type: none"> To understand how to tessellate shapes 	
	Activity – Landmark spotting	1		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.
14 Equations	14.1 Finding unknown numbers	1	<ul style="list-style-type: none"> To find missing numbers in simple calculations 	

	14.2 Solving equations	1	<ul style="list-style-type: none"> To understand what an equation is To solve equations involving one operation 	
	14.3 Solving more complex equations	1	<ul style="list-style-type: none"> To solve equations involving two operations 	
	14.4 Setting up and solving equations	2	<ul style="list-style-type: none"> To use algebra to set up and solve equations 	
	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	15.1 Pie charts	1	<ul style="list-style-type: none"> To use a scaling method to draw a pie chart To read and interpret data from pie charts 	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.
	15.2 Comparing range and averages of data	1	<ul style="list-style-type: none"> To use averages and range to compare data To make sensible decisions by comparing averages and ranges of two sets of data 	
	15.3 Statistical surveys	2	<ul style="list-style-type: none"> To carry out a statistical survey To use charts and diagrams to interpret data and then write a report 	
	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>				
Half-term				
Half-term / Term 6				
16 3D shapes	16.1 Naming and drawing 3D shapes	1	<ul style="list-style-type: none"> To be familiar with the names of 3D shapes and their properties To use isometric paper to draw shapes made from cubes 	
	16.2 Using nets to construct 3D shapes	1	<ul style="list-style-type: none"> To draw nets of 3D shapes To construct 3D shapes from nets including more complex shapes 	
	16.3 3D investigations	2	<ul style="list-style-type: none"> To understand the relationship between faces, edges and vertices for 3D shapes To solve problems involving 3D shapes 	
	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.
17 Ratio	17.1 Introduction to ratios	1	<ul style="list-style-type: none"> To use ratio notation To use ratio to compare quantities 	
	17.2 Simplifying ratios	1	<ul style="list-style-type: none"> To write a ratio as simply as possible with whole numbers To write ratios in the form 1 : x where x could be a decimal. 	
	17.3 Ratios and sharing	1	<ul style="list-style-type: none"> To use ratios to find totals or missing quantities To write ratios to compare more than two items 	

	17.4 Solving problems	1	<ul style="list-style-type: none"> To understand the connections between fractions and ratios To understand how ratios can be useful in everyday life 	
	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>				
<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 1.3 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.

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
Half-term / Term 1				
1 Using numbers	1.1 Charts and financial mathematics 1.2 Positive and negative numbers	1	<ul style="list-style-type: none"> To carry out calculations from information given in tables and charts To understand and use financial language To use a number line to order positive and negative numbers, including decimals To understand and use the symbols < (less than) and > (greater than) 	The first part of section 1.1 and 1.2 can be left out if pupils are familiar with this material from KS2. This includes questions 1–4 in Exercise 1A and Exercise 1B. Ensure that pupils have a good understanding of the rules they are applying throughout the chapter.
	1.3 Simple arithmetic with negative numbers	1	<ul style="list-style-type: none"> To carry out additions and subtractions involving negative numbers To use a number line to calculate with negative numbers 	
	1.4 Subtracting negative numbers 1.5 Multiplying negative numbers	1	<ul style="list-style-type: none"> To carry out subtractions involving negative numbers To carry out multiplications involving negative numbers 	
	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"> To use function machines to generate inputs and outputs To use given inputs and outputs to work out a function 	Put greater emphasis on inverse functions for more able pupils. Make sure pupils realise that 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
	2.2 Sequences and rules	1	<ul style="list-style-type: none"> To recognise, describe and generate sequences that follow a simple rule 	

	2.3 Working out missing terms	1	<ul style="list-style-type: none"> To work out missing terms in a sequence 	fluent in identifying types of sequences.
	2.4 Working out the n th term 2.5 Other sequences	1	<ul style="list-style-type: none"> To work out the nth term To use the nth term to work out any term in a sequence To know and understand the square and triangular number sequences, the Fibonacci sequence and Pascal's triangle 	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.
	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	3.2 Perimeter and area of compound shapes	1	<ul style="list-style-type: none"> To work out the perimeter and the area of a compound shape 	Leave out lesson 3.1 as consolidating work from KS2. Use the discussion points to check understanding if necessary.
	3.3 Area of some other 2D shapes	1	<ul style="list-style-type: none"> To work out the area of a triangle To work out the area of a parallelogram To work out the area of a trapezium 	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.
	3.4 Surface area and volume of cubes and cuboids	1	<ul style="list-style-type: none"> To work out the surface area of cubes and cuboids To work out the volume of cubes and cuboids 	
	Problem solving – Design a bedroom	1		This activity is designed to show pupils an everyday situation that involves area and perimeter.
Chapters 1–3 assessment on Collins Connect				
4 Decimal numbers	4.2 Ordering decimal 4.3 Estimates	1	<ul style="list-style-type: none"> To be able to order decimal numbers according to size To estimate calculations in order to spot possible errors To round up or down, to one decimal place 	Leave out lesson 4.1 as consolidating work from KS2. Use the discussion points to check understanding if necessary. 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"> To be able to add and subtract with decimal numbers 	
	4.5 Multiplying and dividing decimals 4.6 Dividing decimals	1	<ul style="list-style-type: none"> To be able to multiply decimal numbers To be able to divide with decimals 	
	Financial skills – Shopping for leisure	1		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.
Half-term				
Half-term / Term 2				
5 Working with numbers	5.1 Square numbers and square roots	1	<ul style="list-style-type: none"> To recognise and use square numbers up to 225 (15×15) and the corresponding square roots 	Pupils will have considered written methods in Key Stage 2. So for lessons 5.4 and 5.5, 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"> To round numbers to more than one decimal place (dp) To round numbers to one or two significant figures (sf) 	
	5.3 Order of operations	1	<ul style="list-style-type: none"> To use the conventions of BIDMAS to carry out calculations 	

	5.4 Multiplication problems without a calculator	1	<ul style="list-style-type: none"> To use written methods to carry out multiplications involving decimals accurately 	
	5.5 Division problems without a calculator	1	<ul style="list-style-type: none"> To use written methods to carry out divisions involving decimals accurately 	
	5.6 Calculations with measurements	1	<ul style="list-style-type: none"> To convert between common metric units To use measurements in calculations To recognise and use appropriate metric units To recognise and use appropriate metric units 	
	Problem solving – What is your carbon footprint?	1		
6 Statistics	6.3 Statistical diagrams	1	<ul style="list-style-type: none"> To be able to read and interpret different statistical diagrams 	Leave out lessons 6.1 and 6.2, as consolidating work from KS2. Use the discussion points to check understanding if necessary. 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.
	6.4 Collecting and using data	1	<ul style="list-style-type: none"> To create and use a tally chart 	
	6.5 Grouped frequency	1	<ul style="list-style-type: none"> To understand continuous data and use grouped frequency 	
	6.6 Data collection	1	<ul style="list-style-type: none"> To develop greater understanding of data collection 	
	Challenge – School sports day	1		This activity is designed to use both the mathematical reasoning and problem-solving outcomes that have been covered in this chapter, in a familiar situation.
<i>Chapter 4–6 assessment on Collins Connect</i>				
7 Algebra	7.1 Expressions and substitution	1	<ul style="list-style-type: none"> To use algebra to write simple expressions and recognise equivalent expressions To substitute numbers into expressions to work out their value 	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"> To learn how to simplify expressions 	
	7.3 Using formulae	1	<ul style="list-style-type: none"> To use formulae 	
	7.4 Writing formulae	1	<ul style="list-style-type: none"> To write formulae 	
	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"> To find simple equivalent fractions To write fractions in their simplest form 	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"> To compare and order two fractions 	
	8.3 Adding and subtracting fractions	1	<ul style="list-style-type: none"> To add and subtract fractions with the same denominator 	

	8.4 Mixed numbers and improper fractions 8.5 Calculations with mixed numbers	1	<ul style="list-style-type: none"> To convert mixed numbers to improper fractions To convert improper fractions to mixed numbers To add and subtract simple mixed numbers with different denominators 	
	Challenge – 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.
<i>Chapter 7–9 assessment on Collins Connect</i>				
Holidays				
Half-term / Term 3				
9 Angles	9.2 Calculating angles	1	<ul style="list-style-type: none"> To understand the properties of parallel, intersecting and perpendicular lines To calculate angles around a point To calculate angles on a straight line To calculate opposite angles 	Leave out lesson 9.1 as consolidating work from KS2. Use the discussion points to check understanding if necessary.
	9.3 Corresponding and alternate angles 9.4 Angles in a triangle	1	<ul style="list-style-type: none"> To calculate angles in parallel lines To know that the sum of the angles in a quadrilateral is 180° 	
	9.5 Angles in a quadrilateral	1	<ul style="list-style-type: none"> To know that the sum of the angles in a quadrilateral is 360° 	
	9.6 Properties of triangles and quadrilaterals	1	<ul style="list-style-type: none"> To understand the properties of parallel, intersecting and perpendicular lines To understand and use the properties of triangles To understand and use the properties of quadrilaterals 	
	Activity – Constructing triangles	1		
10 Coordinates and graphs	10.2 Graphs from relationships	1	<ul style="list-style-type: none"> To draw a graph for a simple relationship 	Leave out lesson 10.1 as consolidating work from KS2. Use the discussion points to check understanding if necessary.
	10.3 Predicting graphs from relationships	1	<ul style="list-style-type: none"> To understand the connection between pairs of coordinates and the relationship shown in an equation and a graph 	
	10.4 Graphs of fixed values of x and y , $y = x$ and $y = -x$	1	<ul style="list-style-type: none"> To recognise and draw line graphs with fixed values of x and y To recognise and draw graphs of $y = x$ and $y = -x$ 	
	10.5 Graphs of the form $x + y = a$	1	<ul style="list-style-type: none"> To recognise and draw graphs of the form $x + y = a$ 	
	10.6 Graphs form the real world	1	<ul style="list-style-type: none"> To learn how graphs can be used to represent real-life situations To draw and use real-life graphs 	
	Challenge – Global warming	2		

11 Percentages	11.5 Percentage increases and decreases	2	<ul style="list-style-type: none"> To work out the result of a percentage change 	Leave out lessons 11.1 to 11.4 as consolidating work from KS2. Combine the problem-solving or investigational activities in the first four 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"> To understand experimental probability To understand the difference between theoretical probability and experimental probability 	Leave out lessons 12.1 and 12.2 as consolidating work from KS2. 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>				
Half-term				
Half-term / Term 4				
13 Symmetry	13.1 Line symmetry and rotational symmetry	1	<ul style="list-style-type: none"> To recognise shapes that have reflective symmetry and draw their lines of symmetry To recognise shapes that have rotational symmetry and find the order of rotational symmetry 	Many of the concepts in this chapter will be familiar to pupils from KS2. 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 Reflections	1	<ul style="list-style-type: none"> To understand how to reflect a shape To use coordinates to reflect shapes in all four quadrants 	
	13.3 Rotations	1	<ul style="list-style-type: none"> To understand how to rotate a shape 	
	13.4 Tessellations	1	<ul style="list-style-type: none"> To understand how to tessellate shapes 	
	Activity – Landmark spotting	1		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.
14 Equations	14.3 Solving more complex equations	1	<ul style="list-style-type: none"> To solve equations involving two operations 	Recap using letters in equations and run through solving equations before moving straight on to lessons 14.3 and 14.4.
	14.4 Setting up and solving equations	1	<ul style="list-style-type: none"> To use algebra to set up and solve equations 	
	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"> To use averages and range to compare data To make sensible decisions to compare averages and ranges of two sets of data 	Focus on the MR questions and the activity in lesson 15.2. Then move straight on to the application of skills in lesson 15.3. Statistical data is everywhere in a modern society, and to function in this society it is important to be able to analyse the data being presented, critically.
	15.3 Statistical surveys	1	<ul style="list-style-type: none"> To carry out a statistical survey To use charts and diagrams to interpret data and then write a report 	

	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"> To be familiar with the names of 3D shapes and their properties To use isometric paper to draw shapes made from cubes 	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"> To draw nets of 3D shapes To construct 3D shapes from nets including more complex shapes 	
	16.3 3D investigations	1	<ul style="list-style-type: none"> To understand the relationship between faces, edges and vertices of some 3D shapes To solve problems involving 3D shapes 	
	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.
Holidays				
Half-term / Term 5				
17 Ratios	17.1 Introduction to ratios 17.2 Simplifying ratios	1	<ul style="list-style-type: none"> To use ratio notation To use ratio to compare quantities To write a ratio as simply as possible with whole numbers To write ratios in the form 1 : x where x could be a decimal 	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"> To use ratios to find totals or missing quantities To write ratios to compare more than two items 	
	17.4 Solving problems	1	<ul style="list-style-type: none"> To understand the connections between fractions and ratios To understand how ratios can be useful in everyday life 	
	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 2.3				
Half-term				
Half-term / Term 6				
Work continues with Pupil Book 2.3				