3-year scheme of work

The following scheme of work provides a suggestion for how Pupil Book 2.2 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-term 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 Working with numbers	1.1 Multiplying and dividing negative numbers	1	• To carry out multiplications and divisions involving negative numbers.	One of the main misconceptions when multiplying two negative numbers together is consistently giving a negative answer. Another problem pupils have when multiplying two numbers together is that they often think the sign of the answer is determined by the sign of the largest number. Make sure that pupils do not rush through their work and that they have a clear understanding of the rules.
	1.2 Factors and highest common factors (HCF)	1	• To understand and use highest common factors	Students sometimes confuse factors and multiples. (Tell them that multiples come from multiplying.)
	1.3 Lowest common multiples (LCM)	1	• To understand and use lowest common multiples	
	1.4 Powers and roots	2	• To understand and use powers and roots	
	1.5 Prime factors	1	• To understand what prime numbers are • To find the prime numbers of an integer	
	Challenge – Blackpool Tower	1		This activity is designed to give pupils the opportunity to apply their learning to a real-life multi-step problem.
2 Geometry	2.1 Angles in parallel lines	1	• To calculate angles in parallel lines	
	2.2 The geometric properties of quadrilaterals	1	• To know the geometric properties of quadrilaterals	
	2.3 Rotations	1	• To understand how to rotate a shape	Pupils struggle to visualise transformations Give them plenty of practice and if possible use active geometry packages such as Geogebra to help them **http://www.geogebra.org/cms/en/** You could also use readymade examples on Geogebra tube **http://www.geogebratube.org/material/show/id/2163**
	2.4 Translations	1	• To understand how to translate a shape	
	2.5 Constructions	1	• To construct the mid-point and the perpendicular bisector of a line • To construct an angle bisector	Pupils are often not precise enough when doing constructions in mathematics. Give them the opportunity to assess the errors in exemplars and explain how they can be avoided. Use dynamic geometry software to support learners.
	Challenge – More constructions	1		This challenge gives pupils the opportunity to extend their learning to more complex constructions. They need to be able to reproduce a set of instruction that extend what they have

				already done in the lesson.
Chapter 1–2 assessment on Collins Connect				
3 Probability	3.1 Probability scales	1	• To use a probability scale to represent a chance	This chapter builds on previous knowledge of probability and extends this first to see how probability is applied differently to theory and experiments, and then to being able to compare the two results critically.
	3.2 Mutually exclusive events	1	• To recognise mutually exclusive events	
	3.3 Using a sample space to calculate probabilities	1	• To use sample spaces to calculate probabilities	
	3.4 Experimental probability	2	• To calculate probabilities from experiments	
	Financial skills – Fun in the fairground	1		In this activity learners extend their understanding of probability to a common real-life application that they may not have previously considered. It also makes a real-life link between probability and financial skills.
Half-term				
Half-term / Term 2				
4 Percentages	4.1 Calculating percentages	1	• To write one quantity as a percentage of another • To use percentages to compare quantities	Fractions, decimals and percentages are everywhere in real life and it is important for confidence and accuracy to be able to move between these different representations. This chapter reinforces the links between fractions, decimals and percentages.
	4.2 Calculating percentage increases and decreases	2	• To use a multiplier to calculate a percentage change	
	4.3 Calculating a change as a percentage	2	• To work out a change in value as a percentage increase or decrease	
	Challenge – Changes in population	1		This activity is designed to give pupils the opportunity to demonstrate their understanding of percentage change to a real-life situation. All the information they need is provided but they will need to read the questions carefully to decide which information they need and what mathematical skills to use.
5 Sequences	5.1 Using flow diagrams to generate sequences	1	• To use flow diagrams to generate sequences	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.
	5.2 The *n*th term of a sequence	2	• To use the *n*th term of a sequence	
	5.3 Working out the *n*th term of a sequence	2	• To work out the *n*th term of a sequence	
	5.4 The Fibonacci sequence	1	• To know and understand the Fibonacci sequence	
	Investigation – Pond borders	1		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.
Chapter 3–5 assessment on Collins Connect				
6 Area of 2D and 3D shapes	6.1 Area of a triangle	1	• To work out the area of a triangle	Pupils should understand that the height of a triangle, parallelogram and trapezium (except in some specific examples) is the vertical height, not the length of a side. Encourage pupils to see how they can use what they already know, for example, the area of a triangle and a rectangle, to work out things they may not know or have forgotten.
	6.2 Area of a parallelogram	1	• To work out the area of a parallelogram	
	6.3 Area of a trapezium	1	• To work out the area of a trapezium	

	6.4 Surface areas of cubes and cuboids	2	• To find the surface areas of cubes and cuboids	Pupils often confuse the concept of surface area and volume. Use concrete examples to help them understand the difference.
	Investigation – A cube investigation	2		Pupils apply their understanding of area to a more complex problem. They will need to work methodically and be able to explain their solutions. Ask more able pupils to justify any rules by revisiting the structure of the problem.
Holidays				
Half-term / Term 3				
7 Graphs	7.1 Graphs from linear equations	1	• To recognise and draw the graph of a linear equation	This chapter builds on previous work on mapping diagrams and graphs covered in Year 7. The important concept of the gradient of a straight line is introduced in this chapter and the form $y = mx + c$ for a straight line is explored.
	7.2 Gradient (steepness) of a straight line	1	• To work out the gradient in a graph from a linear equation • To work out an equation of the form $y = mx + c$ from the graph	
	7.3 Graphs from simple quadratic equations	2	• To recognise and draw the graph from a simple quadratic equation	
	7.4 Real-life graphs	2	• To draw graphs from real-life situations to illustrate the relationship between two variables	
	Challenge – The M25	1		A common response to algebra is to ask how it can be used. This activity provides an everyday use of algebra in terms of graphical representation of algebraic relationships set in real life contexts. Encourage pupils to suggest possible questions.
8 Simplifying numbers	8.1 Powers of 10	1	• How to multiply and divide by powers of 10	This chapter builds on previous work with decimals, introducing powers of 10 as a lead in to working with standard index form. Estimation is used as a means of teaching whether answers are realistic or sensible. Some of the work is specifically designed to reinforce skills in mental arithmetic, and there is also work on using calculators efficiently.
	8.2 Large numbers and rounding	1	• To round large numbers	
	8.3 Significant figures	1	• To round to one or more significant figures	
	8.4 Standard form with large numbers	2	• To write a large number in standard form	You can introduce standard form as a powerful tool, which is widely used in science.
	8.5 Multiplying with numbers in standard form	1	• To multiply with numbers in standard form	
	Challenge - Space – to see where no one has seen before	1		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.
Chapter 6–8 assessment on Collins Connect				
9 Interpreting data	9.1 Pie charts	1	• To work out the sectors in pie charts by their angles at the centre	This chapter builds on previously learnt statistical principles. It extends pupils' use of data and knowledge of how to interpret statistical diagrams and charts. This is vital if pupils are to understand and interrogate the data being presented.
	9.2 Creating pie charts	1	• To use a scaling method to draw pie charts	
	9.3 Scatter graphs and correlation	1	• To read scatter graphs • To understand correlation	
	9.4 Creating scatter graphs	2	• To create scatter graphs	
	Challenge - Football attendances	2		This activity consolidates the previous work on statistics.
Half-term				

Half-term / Term 4				
10 Algebra	10.1 Algebraic notation	1	• To simplify algebraic expressions involving the four basic operations	Introduce algebra as a universal language with rules that are used all over the world. Discuss a range of examples in which algebra is used. Pupils often struggle to appreciate that letters represent variables and try to substitute particular values for the letters. Give pupils plenty of opportunity to reflect on the use of algebra as generalised number and to make clear links to the rules they have learnt for number.
	10.2 Like terms	1	• To simplify algebraic expressions by combining like terms	
	10.3 Expanding brackets	1	• To remove brackets from an expression	
	10.4 Using algebraic expressions	2	• To manipulate algebraic expressions • To identify equivalent expressions	
	10.5 Using index notation	2	• To write algebraic expressions involving powers	
	Mathematical reasoning – Writing in algebra	2		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.
11 Congruence and scaling	11.1 Congruent shapes	1	• To recognise congruent shapes	Pupils often do not realise that you can test for congruence by placing one shape on top of the other. Encourage the use of tracing paper to do this. Also reinforce the fact that shapes can have different orientations and still be congruent. Pupils can often use an incorrect point as the centre of enlargement or often just enlarge the shape without reference to the given point.
	11.2 Enlargements	1	• To enlarge a 2D shape by a scale factor	
	11.3 Shape and ratio	2	• To use ratio to compare lengths, areas and volumes of 2D and 3D shapes	
	11.4 Scales	1	• To understand and use scale drawings • To know how to use map ratios	
	Problem solving – Photographs	2		This activity consolidates topics previously covered on extracting data, area and ratio.
Chapter 9–11 assessment on Collins Connect				
Holidays				
Half-term / Term 5				
12 Fractions and decimals	12.1 Adding and subtracting fractions	2	• To add and subtract fractions and mixed numbers	Help pupils to understand the relationship between decimals and fractions as being different representations of parts of a whole.
	12.2 Multiplying fractions and integers	2	• To multiply a fraction and an integer	
	12.3 Dividing with integers and fractions	2	• To divide a fraction or a mixed number by an integer • To divide an integer by a unit fraction	
	12.4 Multiplication with large and small numbers	1	• To multiply with combinations of large and small numbers mentally	
	12.5 Division with large and small numbers	1	• To divide combinations of large and small numbers mentally	
	Challenge – Guesstimates	1		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.
13 Proportion	13.1 Direct proportion	1	• To understand the meaning of direct proportion • To find missing values in problems involving proportion	Pupils will often mix up direct and inverse proportion usually using direct proportion to answer inverse proportion questions.
	13.2 Graphs and direct proportion	1	• To represent direct proportion graphically and algebraically	

	13.3 Inverse proportion	1	• To understand what inverse proportion is • To use graphical and algebraic representations of inverse proportion	
	13.4 Comparing direct proportion and inverse proportion	1	• To recognise direct and inverse proportion and work out missing values	
	Challenge – Planning a trip	1		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.
Chapter 12–13 assessment on Collins Connect				
14 Circles	14.1 The circle and its parts	1	• To know the definition of a circle and the names of its parts	Pupil's often confuse radius and diameter. Give them plenty of opportunity to use both. Pupils often do not make the link between the work they have done previously on perimeter and area and the work on the circumference and area of a circle.
	14.2 Circumference of a circle	1	• To work out the relationship between the circumference and diameter of a circle	
	14.3 Formula for the circumference of a circle	1	• To calculate the circumference of a circle	
	14.4 Formula for the area of a circle	1	• To calculate the area of a circle	
	Financial skills – Athletics stadium	2		This activity is designed to give pupils the opportunity to apply their knowledge to a multi-step real-life problem. The context is common, but is presented in a slightly more complex way than pupils are used to.
Half-term				
Half-term / Term 6				
15 Equations and formulae	15.1 Equations with brackets	1	• To solve equations involving brackets	A common problem often seen when expanding a bracket is to multiply the first term by the number outside the bracket and just write down the second term. Pupils will sometimes get confused with adding or subtracting from each side when dealing with equations with unknowns on both sides.
	15.2 Equations with the variable on both sides	1	• To solve equations with the variable on both sides	
	15.3 More complex questions	2	• To solve equations with fractional coefficients. • To solve equations with brackets and fractions	
	15.4 Rearranging formulae	1	• To change the subject of a formula	
	Mathematical reasoning – Using graphs to solve equations	1		In this activity pupils use mathematical reasoning to make links between equations and formula and their graphical representation. By comparing graphical and algebraic representations pupils check their ability to solve equations. This ability to use different representations to check their understanding is a valuable generic skill.
16 Comparing data	16.1 Grouped frequency tables	1	• To create a grouped frequency table from raw data	Encourage pupils to think about how statistics are used. Pupils need to consider how to present information.

	16.2 Drawing frequency diagrams	1	• To interpret frequency diagrams • To draw a frequency diagram from a grouped frequency table	Pupils also 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.
	16.3 Comparing data	2	• To use mean and range to compare data from two sources	
	16.4 Which average to use?		• To understand when each different type of average is most useful	
	Problem solving – Technology questionnaire	1		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.
Chapter 14–16 assessment on Collins Connect				
End of year assessment on Collins Connect				

2-year scheme of work

The following scheme of work provides a suggestion for teaching Pupil Book 2.2 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-term 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 Working with numbers	1.1 Multiplying and dividing negative numbers	1	• To carry out multiplications and divisions involving negative numbers	Much of this material with be new to Year 8 pupils. Pupils can leave out questions 1 and 2 of Exercise 1A, which was covered in Year 7. If pupils are grasping the concepts in this chapter they can move swiftly through the exercises, leaving out some of the questions.
	1.2 Factors and highest common factors (HCF)	1	• To understand and use highest common factors	
	1.3 Lowest common multiple (LCM)		• To understand and use lowest common multiples	
	1.4 Powers and roots	1	• To understand and use powers and roots	
	1.5 Prime factors	1	• To understand what prime numbers are • To find the prime numbers of an integer	
	Challenge – Blackpool Tower	1		This activity is designed to give pupils the opportunity to apply their learning to a real-life multi-step problem.
2 Geometry	2.1 Angles in parallel lines	1	• To calculate angles in parallel lines	Much of the material in this chapter will be familiar to learners. Use the activities and challenges at the end of each lesson to check understanding. If this is secure, move straight to Lesson 2.5.
	2.2 The geometric properties of quadrilaterals	1	• To know the geometric properties of quadrilaterals	
	2.3 Rotations	1	• To understand how to rotate a shape	
	2.4 Translations	1	• To understand how to translate a shape	
	2.5 Constructions	1	• To construct the mid-point and the perpendicular bisector of a line • To construct an angle bisector	
	Challenge – More constructions	1		This challenge gives pupils the opportunity to extend their learning to more complex constructions. They need to be able to reproduce a set of instructions that extend what they have already done in the lesson.
Chapters 1–2 assessment on Collins Connect				
3 Probability	3.1 Probability scales	1	• To use a probability scale to represent a chance	Much of this material will be new. Pupils may be familiar with Lesson 3.1 from Year 7 and can move to the activity question at the end if this is the case.
	3.2 Mutually exclusive events	1	• To recognise mutually exclusive events	
	3.3 Using a sample space to calculate probabilities	1	• To use sample spaces to calculate probabilities	
	3.4 Experimental probability	1	• To calculate probabilities from experiments	

	Financial skills – Fun in the fairground	1		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.
Half-term				
Half-term / Term 2				
4 Percentages	4.1 Calculating percentages	1	• To write one quantity as a percentage of another • To use percentages to compare quantities	Although pupils have met percentages before there are some important and quite challenging concepts in this chapter. The idea of percentages as a multiplier and the use of multiplicative reasoning is very important to pupils' confidence and fluency with percentages. Therefore, while you may be able to leave out some of the earlier questions in each section, be careful about leaving out too much or moving on too fast.
	4.2 Calculating percentage increases and decreases	1	• To use a multiplier to calculate a percentage change	
	4.3 Calculating a change as a percentage	1	• To work out a change in value as a percentage increase or decrease	
	Challenge – Changes in population	1		This activity is designed to give pupils the opportunity to demonstrate their understanding of percentage change to a real-life situation. All the information they need is provided but they will need to read the question carefully to decide which information they need and what mathematical skills to use.
5 Sequences	5.2 The *n*th term of a sequence	1	• To use the *n*th term of a sequence	Pupils can jump to the investigation on the *n*th term if they have met this in Year 7.
	5.3 Working out the *n*th term of a sequence	1	• To work out the *n*th term of a sequence	
	5.4 The Fibonacci sequence	1	• To know and understand the Fibonacci sequence	
	Investigation – Pond borders	1		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.
Chapters 3–5 assessment on Collins Connect				
6 Area of 2D and 3D shapes	6.1 Area of a triangle 6.2 Area of a parallelogram	1	• To work out the area of a triangle • To work out the area of a parallelogram	Pupils should be familiar with many of the concepts in this chapter. Check their understanding with a couple of examples and the move to the MR, PS and challenge or investigation questions in each lesson. You may want to combine lessons 1 to 3.
	6.3 Area of a trapezium	1	• To work out the area of a trapezium	
	6.4 Surface areas of cubes and cuboids	1	• To find the surface areas of cubes and cuboids	
	Investigation – A cube investigation	2		Pupils apply their understanding of area to a more complex problem. They will need to work methodically and be able to explain their solutions. Ask more able pupils to justify any rules by revisiting the structure of the problem.
7 Graphs	7.1 Graphs from linear equations	1	• To recognise and draw the graph of a linear equation	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 to complete.
	7.2 Gradient (steepness) of a straight line	1	• To work out the gradient in a graph from a linear equation • To work out an equation of the form $y = mx + c$ from the graph	
	7.3 Graphs from simple quadratic equations	1	• To recognise and draw the graph from a simple quadratic equation	

	7.4 Real-life graphs	1	• To draw graphs from real-life situations to illustrate the relationship between two variables	
	Challenge – The M25	1		A common response to algebra is to ask how it can be used. This activity provides an everyday use of algebra in terms of graphical representation of algebraic relationships set in real-life contexts. Encourage pupils to suggest possible questions.
Holidays				
Half-term / Term 3				
8 Simplifying numbers	8.1 Powers of 10	1	• How to multiply and divide by powers of 10	There are new ideas in all these lessons, which build on pupils' existing knowledge of rounding and the number system. Check understanding by doing a couple of examples as a class; then ask pupils to focus on the PS and MR questions, activities and investigations.
	8.2 Large numbers and rounding	1	• How to round large numbers	
	8.3 Significant figures	1	• To round to one or more significant figures	
	8.4 Standard form with large numbers	1	• To write a large number in standard form	
	8.5 Multiplying with numbers in standard form	1	• To multiply with numbers in standard form	
	Challenge - Space – to see where no one has seen before	1		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.
Chapters 6–8 assessment on Collins Connect				
9 Interpreting Data	9.1 Pie charts 9.2 Creating pie charts	1	• To work out the sectors in pie charts by their angles at the centre • To use a scaling method to draw pie charts	
	9.3 Scatter graphs and correlation	1	• To read scatter graphs • To understand correlation	Much of the material in lessons 9.3 and 9.4 will be new to pupils. However, the material could again be combined. Make certain that pupils have a good grasp of correlation before moving on.
	9.4 Creating scatter graphs	1	• To create scatter graphs	
	Challenge - Football attendances	2		This activity consolidates the previous work on statistics.
10 Algebra	10.1 Algebraic notation 10.2 Like terms	1	• To simplify algebraic expressions involving the four basic operations • To simplify algebraic expressions by combining like terms	Pupils should have met the concepts in lessons 1 and 2 before. Work through a couple of examples to check understanding and then move on to Lesson 3.
	10.3 Expanding brackets	1	• To remove brackets from an expression	
	10.4 Using algebraic expressions	1	• To manipulate algebraic expressions • To identify equivalent expressions	
	10.5 Using index notation	1	• To write algebraic expressions involving powers	
	Mathematical reasoning – Writing in algebra	2		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.
11 Congruence and scaling	11.1 Congruent shapes	1	• To recognise congruent shapes	Pupils will have met some of the basic concepts in this chapter. If they can demonstrate that they are confident and fluent with these basic concepts,
	11.2 Enlargements	1	• To enlarge a 2D shape by a scale factor	

	11.3 Shape and ratio	1	• To use ratio to compare lengths, areas and volumes of 2D and 3D shapes	pupils can move on to the more challenging questions at the end of each exercise in the Pupil Book.
	11.4 Scales	1	• To understand and use scale drawings • To know how to use map ratios	
	Problem solving – Photographs	2		This activity consolidates topics previously covered on extracting data, area and ratio.
Chapter 9–11 assessment on Collins Connect				
Half-term				
Half-term / Term 4				
12 Fractions and decimals	12.1 Adding and subtracting fractions	1	• To add and subtract fractions and mixed numbers	Much of the material in this chapter will be unfamiliar to pupils. Make sure that all pupils fully understand each concept before moving on to the MR and PS questions in the exercises in the Pupil Book.
	12.2 Multiplying fractions and integers	1	• To multiply a fraction and an integer	
	12.3 Dividing with integers and fractions	1	• To divide a fraction or a mixed number by an integer • To divide an integer by a unit fraction	
	12.4 Multiplication with large and small numbers	1	• To multiply with combinations of large and small numbers mentally	
	12.5 Division with large and small numbers	1	• To divide combinations of large and small numbers mentally	
	Challenge – Guesstimates	1		This activity gives pupils the opportunity to practise their mental strategies in some real-life contexts. It also encourages them to make links to the use of estimation as well as the need to make assumptions when tackling real-life problems.
13 Proportion	13.1 Direct proportion	1	• To understand the meaning of direct proportion • To find missing values in problems involving proportion	Much of this material in this chapter will be unfamiliar to pupils. Make sure that each concept is fully understood by all pupils before moving on to the MR and PS questions in the exercises.
	13.2 Graphs and direct proportion	1	• To represent direct proportion graphically and algebraically	
	13.3 Inverse proportion	1	• To understand what inverse proportion is • To use graphical and algebraic representations of inverse proportion	
	13.4 Comparing direct proportion and inverse proportion	1	• To recognise direct and inverse proportion and work out missing values	
	Challenge – Planning a trip	1		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.
Chapter 12–13 assessment on Collins Connect				

14 Circles	14.1 The circle and its parts 14.2 Circumference of a circle	1	• To know the definition of a circle and the names of its parts • How to work out the relationship between the circumference and diameter of a circle	Pupils may be familiar with the contents of lessons 1 and 2. Check understanding with a couple of example and if pupils are confident and fluent move straight on to lessons 3 and 4.
	14.3 Formula for the circumference of a circle	1	• To calculate the circumference of a circle	
	14.4 Formula for the area of a circle	1	• To calculate the area of a circle	
	Financial skills – Athletics stadium	2		This activity is designed to give pupils the opportunity to apply their knowledge to a multi-step real-life problem. The context is common, but is presented in a slightly more complex way than pupils are used to.
15 Equations and formulae	15.1 Equations with brackets 15.2 Equations with the variable on both sides	1	• To solve equations involving brackets • To solve equations with the variable on both sides	Much of this chapter will be new material. However, pupils who are familiar with multiplying brackets and solving simple equations can quickly complete Exercise 15A or move straight on to exercise15B.
	15.3 More complex questions	1	• To solve equations with fractional coefficients • To solve equations with brackets and fractions	
	15.4 Rearranging formulae	1	• To change the subject of a formula	
	Mathematical reasoning – Using graphs to solve equations	1		In this activity pupils use mathematical reasoning to make links between equations and formula and their graphical representation. By comparing graphical and algebraic representations pupils check their ability to solve equations. This ability to use different representations to check their understanding is a valuable generic skill.
16 Comparing data	16.1 Grouped frequency tables 16.2 Drawing frequency diagrams	1	• To create a grouped frequency table from raw data • To interpret frequency diagrams • To draw a frequency diagram from a grouped frequency table	Use one or two examples to check understanding from lessons 1 and 2, and if pupils are fluent and confident with the concepts, move straight to lessons 3 and 4. Compare and make decisions on the most appropriate statistical measures.
	16.3 Comparing data 16.4 Which average to use?	1	• To use mean and range to compare data from two sources • To understand when each different type of average is most useful	
	Problem solving – Technology questionnaire	1		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.
Chapter 14–16 assessment on Collins Connect				
End of year assessment on Collins Connect				
Holidays				
Half-term / Term 5				
Work continues with Pupil Book 3.2				
Half-term				
Half-term / Term 6				
Work continues with Pupil Book 3.2				

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