

# Planning grids

## Year 6 scope and sequence

The following grid shows the concepts and objectives that are covered within each *Rising Stars Mathematics* Year 6 unit and provides page references to each of the various components.

Unit	Concept	Objectives	Textbook	Teacher's Guide	Practice Book	Homework Sheets
1	1a Place value	<ul style="list-style-type: none"> <li>Identify the value of each digit in numbers given to two decimal places, and multiply and divide numbers by 10 and 100 giving answers up to two decimal places.</li> <li>Solve problems that involve number and place value.</li> <li>Use, read, write and convert between standard units, converting measurements of mass from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to two decimal places.</li> </ul>	12–13	26–7	4–7	198
	1b Comparing, ordering and rounding numbers	<ul style="list-style-type: none"> <li>Read, write, order and compare whole numbers to at least 5 000 000.</li> <li>Round any whole number to a required degree of accuracy.</li> <li>Solve problems that involve number and place value.</li> <li>Use, read, write and convert between standard units, converting measurements of mass from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to two decimal places.</li> </ul>	14–15	28–9	8–10	199
	1c Comparing, ordering and simplifying fractions	<ul style="list-style-type: none"> <li>Compare and order fractions.</li> <li>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</li> <li>Solve number and practical problems that involve fractions.</li> </ul>	16–17	30–1	11–14	200
	1d Equivalences	<ul style="list-style-type: none"> <li>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>	18–19	32–3	15–17	201
2	2a Calculating mentally with 3- and 4-digit numbers	<ul style="list-style-type: none"> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li>Solve problems involving addition, subtraction; use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Interpret line graphs and use these to solve problems.</li> </ul>	26–7	40–1	18–24	202
	2b Using the order of operations	<ul style="list-style-type: none"> <li>Use knowledge of the order of operations to carry out calculations involving the four operations.</li> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate.</li> </ul>	28–9	42–3	25–7	203
	2c Using formulae	<ul style="list-style-type: none"> <li>Use simple formulae.</li> <li>Find pairs of numbers that satisfy an equation with two unknowns.</li> </ul>	30–1	44–5	28–30	204
3	3a Using long multiplication	<ul style="list-style-type: none"> <li>Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal method of long multiplication.</li> <li>Solve problems involving multiplication.</li> </ul>	38–9	52–3	31–4	205
	3b Calculating mentally with large numbers	<ul style="list-style-type: none"> <li>Perform mental calculations with large numbers.</li> <li>Give reasons for choosing a particular method.</li> </ul>	40–1	54–5	35–8	206
	3c Multiply and divide up to 2 decimal places	<ul style="list-style-type: none"> <li>Multiply single-digit numbers with up to two decimal places by whole numbers.</li> <li>Use written division methods in cases where the answer has up to two decimal places.</li> <li>Calculate and interpret the mean as an average.</li> </ul>	42–3	56–7	39–41	207
	3d Solving problems with ratio and proportion	<ul style="list-style-type: none"> <li>Solve problems involving the relative sizes of two quantities, where missing values can be found by using integer multiplication and division facts.</li> <li>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>	44–5	58–9	42–4	208
4	4a Areas and properties of 2-D shapes	<ul style="list-style-type: none"> <li>Draw 2-D shapes, using given dimensions and angles.</li> <li>Recognise that shapes with the same areas can have different perimeters and vice versa.</li> <li>Calculate the area of parallelograms and triangles.</li> <li>Recognise when it is possible to use the formulae for area.</li> <li>Express missing number problems algebraically.</li> </ul>	52–3	66–7	45–9	209
	4b Finding angles	<ul style="list-style-type: none"> <li>Draw 2-D shapes, using given dimensions and angles.</li> <li>Compare and classify geometric shapes based on their properties and sizes and find unknown angles.</li> <li>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> <li>Express missing number problems algebraically and find pairs of numbers that satisfy an equation with two unknowns.</li> </ul>	54–5	68–9	50–3	210
	4c Describing 3-D shapes and making nets	<ul style="list-style-type: none"> <li>Recognise, describe and build simple 3-D shapes, including making nets.</li> <li>Recognise when it is possible to use formulae for finding the volume of shapes.</li> </ul>	56–7	70–1	54–7	211
5	5a Negative numbers in real life	<ul style="list-style-type: none"> <li>Use negative numbers in context, and calculate intervals across zero.</li> <li>Solve problems that involve number and place value.</li> <li>Interpret and construct line graphs and use these to solve problems.</li> </ul>	64–5	78–9	58–60	212
	5b Decimals in context	<ul style="list-style-type: none"> <li>Identify the value of each digit in numbers given to three decimal places, and multiply and divide numbers by 1000 giving answers up to three decimal places.</li> <li>Solve number and practical problems that involve all of the above.</li> </ul>	66–7	80–1	61–3	213

# Introduction

Unit	Concept	Objectives	Textbook	Teacher's Guide	Practice Book	Homework Sheets
6	6a Calculating mentally to solve problems	<ul style="list-style-type: none"> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Solve problems involving addition and subtraction; use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Use negative numbers in context and calculate intervals across zero.</li> </ul>	74–5	88–9	64–7	214
	6b Solving multi-step problems	<ul style="list-style-type: none"> <li>Solve addition and subtraction multi-step problems in context deciding which operations and methods to use and why.</li> <li>Solve problems involving addition and subtraction; use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>	76–7	90–1	68–71	215
	6c Rounding to solve problems	<ul style="list-style-type: none"> <li>Solve problems which require answers to be rounded to specified degrees of accuracy.</li> <li>Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate.</li> </ul>	78–9	92–3	72–4	216
	6d Describing number sequences	<ul style="list-style-type: none"> <li>Use simple formulae; generate and describe linear number sequences.</li> <li>Express missing number problems algebraically.</li> </ul>	80–1	94–5	75–9	217
7	7a Fraction equivalences	<ul style="list-style-type: none"> <li>Use common multiples to express fractions in the same denominator.</li> <li>Compare and order fractions, including fractions greater than one.</li> <li>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li> </ul>	88–9	102–3	80–4	218
	7b Fraction, decimal and percentage equivalences	<ul style="list-style-type: none"> <li>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> <li>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.25) for a simple fraction (e.g. <math>\frac{1}{4}</math>).</li> </ul>	90–1	104–5	85–7	219
	7c Formulae	<ul style="list-style-type: none"> <li>Use simple formulae.</li> <li>Recognise when it is possible to use formulae for area and volume of shapes.</li> <li>Calculate the area of parallelograms and triangles.</li> </ul>	92–3	106–7	88–93	220
	7d Missing number statements	<ul style="list-style-type: none"> <li>Express missing number problems algebraically.</li> </ul>	94–5	108–9	94–6	221
8	8a Identifying common factors, multiples and prime numbers	<ul style="list-style-type: none"> <li>Identify common factors, common multiples and prime numbers.</li> <li>Solve problems involving addition, subtraction, multiplication and division.</li> </ul>	102–3	116–17	97–9	222
	8b Multiplying and dividing decimal numbers	<ul style="list-style-type: none"> <li>Multiply and divide numbers by 10, 100 and 1000, giving answers up to three decimal places.</li> <li>Multiply and divide numbers, giving answers up to three decimal places.</li> </ul>	104–5	118–19	100–3	223
	8c Solving problems with percentages	<ul style="list-style-type: none"> <li>Calculating percentages of amounts.</li> <li>Calculating what percentage one amount is of another.</li> </ul>	106–7	120–1	104–7	224
	8d Solving equations	<ul style="list-style-type: none"> <li>Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>Enumerate possibilities of combinations of two variables.</li> </ul>	108–9	122–3	108–9	225
9	9a Circles and scaling	<ul style="list-style-type: none"> <li>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</li> </ul>	116–17	130–1	110–12	226
	9b Finding missing values	<ul style="list-style-type: none"> <li>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.</li> <li>Calculate, estimate and compare volume of cubes and cuboids, using standard units, including cubic centimetres (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units.</li> </ul>	118–19	132–3	113–17	227
	9c Translation over four quadrants	<ul style="list-style-type: none"> <li>Describe positions on the full coordinate grid (all four quadrants) and draw and translate simple shapes.</li> </ul>	120–1	134–5	118–21	228
10	10a Unknowns and variables	<ul style="list-style-type: none"> <li>Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>Enumerate possibilities of combinations of two variables.</li> <li>Interpret and construct pie charts and use these to solve problems.</li> </ul>	128–9	142–3	122–3	229
	10b Linear number sequences	<ul style="list-style-type: none"> <li>Generate and describe linear number sequences.</li> <li>Interpret and construct line graphs and use these to solve problems.</li> </ul>	130–1	144–5	124–6	230
11	11a Solving multi-step problems	<ul style="list-style-type: none"> <li>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>	138–9	152–3	127–8	231
	11b Solving problems involving fractions	<ul style="list-style-type: none"> <li>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li> <li>Interpret and construct pie charts and use these to solve problems.</li> <li>Calculate and interpret the mean as an average.</li> </ul>	140–1	154–5	129–32	232
	11c Finding possible solutions for equations	<ul style="list-style-type: none"> <li>Use simple formulae.</li> <li>Express missing number problems algebraically.</li> <li>Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>Enumerate possibilities of two variables.</li> <li>Interpret and construct line graphs and use these to solve problems.</li> </ul>	142–3	156–7	133–5	233

Unit	Concept	Objectives	Textbook	Teacher's Guide	Practice Book	Homework Sheets
12	12a Equivalences	<ul style="list-style-type: none"> <li>Associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375) for a simple fraction (<math>\frac{3}{8}</math>).</li> <li>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> <li>Interpret and construct pie charts and use these to solve problems.</li> </ul>	150–1	164–5	136–41	234
	12b Formulae and sequences	<ul style="list-style-type: none"> <li>Use simple formulae.</li> <li>Generate and describe linear number sequences.</li> </ul>	152–3	166–7	142–6	235
	12c Unknowns	<ul style="list-style-type: none"> <li>Express missing number problems algebraically.</li> <li>Find pairs of numbers that satisfy an equation with two unknowns.</li> </ul>	154–5	168–9	147–9	236
13	13a Using long division	<ul style="list-style-type: none"> <li>Divide numbers up to four digits by a 2-digit number using the formal written method of long division.</li> <li>Interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context.</li> </ul>	162–3	176–7	150–2	237
	13b Choosing operations to solve problems	<ul style="list-style-type: none"> <li>Solve problems involving addition, subtraction, multiplication and division.</li> </ul>	164–5	178–9	153–4	238
	13c Multiplying and dividing fractions	<ul style="list-style-type: none"> <li>Multiply simple pairs of proper fractions, writing the answer in its simplest form.</li> <li>Divide proper fractions by whole numbers.</li> </ul>	166–7	180–1	155–7	239
14	14a Making and measuring 3-D shapes	<ul style="list-style-type: none"> <li>Recognise, describe and build simple 3-D shapes, including making nets.</li> <li>Calculate, estimate and compare volumes of cubes and cuboids using standard units, including cubic centimetres (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>) and extending to other units, e.g. <math>\text{mm}^3</math> and <math>\text{km}^3</math>.</li> </ul>	174–5	188–9	158–62	240
	14b Drawing shapes and finding angles	<ul style="list-style-type: none"> <li>Draw 2-D shapes using given dimensions and angles, including using compasses to construct triangles.</li> <li>Find unknown angles in triangles, quadrilaterals and regular polygons.</li> </ul>	176–7	190–1	163–6	241
	14c Reflections and equations	<ul style="list-style-type: none"> <li>Describe positions on the full coordinate grid (all four quadrants) and draw and reflect simple shapes.</li> <li>Use simple formulae and find pairs of numbers that satisfy an equation with two unknowns.</li> </ul>	178–9	192–3	167–72	242