

# CONTENTS

## MODULE 1

|      |  |    |
|------|--|----|
| 1.1  | Reviewing the Relationship Between Decimal and Common Fractions                    | 8  |
| 1.2  | Regrouping Tenths, Hundredths and Thousandths                                      | 10 |
| 1.3  | Reading and Writing Decimals   | 12 |
| 1.4  | Rounding Thousandths   | 14 |
| 1.5  | Rounding Decimal Fractions   | 16 |
| 1.6  | Adding Tenths  | 18 |
| 1.7  | Adding Hundredths  | 20 |
| 1.8  | Adding Tenths and Hundredths   | 22 |
| 1.9  | Solving Word Problems Involving Decimal Fractions                                  | 24 |
| 1.10 | Revising the Partial-Products Strategy for Multiplication                          | 26 |
| 1.11 | Revising the Formal Algorithm for Multiplication                                   | 28 |
| 1.12 | Extending the Formal Algorithm to Multiply Two-Digit Numbers by Four-Digit Numbers | 30 |

## MODULE 2

|      |   |    |
|------|---|----|
| 2.1  | Using Mental Strategies to Add and Subtract Whole Numbers     | 32 |
| 2.2  | Adding and Subtracting Four- and Five-Digit Whole Numbers     | 34 |
| 2.3  | Adding Decimal Fractions                                      | 36 |
| 2.4  | Adding Decimal Fractions (with Regrouping)                    | 38 |
| 2.5  | Using the Formal Algorithm to Add Two Decimal Fractions       | 40 |
| 2.6  | Using a Compensation Strategy to Add Dollars and Cents        | 42 |
| 2.7  | Using a Written Method to Add More Than Two Decimal Fractions | 44 |
| 2.8  | Estimating Total Cost   | 46 |
| 2.9  | Solving Addition Problems Involving Decimal Fractions         | 48 |
| 2.10 | Interpreting Information in Timetables                        | 50 |
| 2.11 | Using a Timetable Involving 24-Hour Time                      | 52 |
| 2.12 | Calculating Elapsed Time                                      | 54 |

## MODULE 3

|      |  |    |
|------|--|----|
| 3.1  | Multiplying Decimal Fractions (Tenths)                                       | 56 |
| 3.2  | Using a Partial-Products Strategy to Multiply Decimal Fractions (Tenths)     | 58 |
| 3.3  | Multiplying Decimal Fractions (Hundredths)                                   | 60 |
| 3.4  | Using a Partial-Products Strategy to Multiply Decimal Fractions (Hundredths) | 62 |
| 3.5  | Multiplying Whole Numbers and Decimal Fractions (Hundredths)                 | 64 |
| 3.6  | Identifying Prime and Composite Numbers                                      | 66 |
| 3.7  | Investigating Square Numbers   | 68 |
| 3.8  | Investigating Oblong Numbers   | 70 |
| 3.9  | Investigating Triangular Numbers   | 72 |
| 3.10 | Creating and Interpreting Two-Way Tables                                     | 74 |
| 3.11 | Interpreting Side-by-Side Column Graphs                                      | 76 |
| 3.12 | Comparing Different Displays of the Same Data                                | 78 |

## MODULE 4

|      |   |     |
|------|---|-----|
| 4.1  | Subtracting Decimal Fractions (Tenths or Hundredths)                    | 80  |
| 4.2  | Subtracting Decimal Fractions (Tenths and Hundredths)                   | 82  |
| 4.3  | Using Written Methods to Subtract Decimal Fractions                     | 84  |
| 4.4  | Subtracting Decimal Fractions Involving Tenths (Decomposing Ones)       | 86  |
| 4.5  | Subtracting Decimal Fractions Involving Hundredths (Decomposing Tenths) | 88  |
| 4.6  | Subtracting Decimal Fractions (Decomposing Multiple Places)             | 90  |
| 4.7  | Consolidating Strategies to Subtract Decimal Fractions                  | 92  |
| 4.8  | Calculating Change  | 94  |
| 4.9  | Exploring the Relationship Between Kilograms and Grams                  | 96  |
| 4.10 | Converting Between Grams and Kilograms                                  | 98  |
| 4.11 | Working with Thousandths of a Kilogram                                  | 100 |
| 4.12 | Solving Multi-Step Word Problems Involving Conversions of Mass          | 102 |

## MODULE 5

|      |  |     |
|------|--|-----|
| 5.1  | Introducing Integers   | 104 |
| 5.2  | Working with Integers  | 106 |
| 5.3  | Solving Problems Involving Integers                                    | 108 |
| 5.4  | Revising Partitioning to Divide Mentally                               | 110 |
| 5.5  | Extending Partitioning to Divide Mentally                              | 112 |
| 5.6  | Using the Formal Division Algorithm (Dividing Before Regrouping)       | 114 |
| 5.7  | Using the Formal Division Algorithm (Regrouping Before Dividing)       | 116 |
| 5.8  | Solving Division Problems Involving Remainders                         | 118 |
| 5.9  | Solving Division Problems  | 120 |
| 5.10 | Exploring the Relationship Between Metres and Millimetres              | 122 |
| 5.11 | Exploring the Relationship Between Metres, Centimetres and Millimetres | 124 |
| 5.12 | Solving Word Problems Involving Length                                 | 126 |

## MODULE 6

|      |   |     |
|------|---|-----|
| 6.1  | Identifying and Describing Geometric Patterns                             | 128 |
| 6.2  | Identifying and Describing Number Patterns                                | 130 |
| 6.3  | Identifying Relationships Between Two Numerical Patterns                  | 132 |
| 6.4  | Creating Number Patterns Involving Decimal Fractions and Common Fractions | 134 |
| 6.5  | Using Mental Strategies to Multiply Two-Digit Numbers                     | 136 |
| 6.6  | Comparing Mental Strategies for Multiplication                            | 138 |
| 6.7  | Using a Double-and-Halve Strategy to Multiply Dollars and Cents           | 140 |
| 6.8  | Using Multiplication Strategies with Decimal Fractions                    | 142 |
| 6.9  | Estimating and Measuring Angles   | 144 |
| 6.10 | Examining Angles Around a Point   | 146 |
| 6.11 | Exploring Angles in Right Angles and on Straight Lines                    | 148 |
| 6.12 | Investigating Vertically Opposite Angles                                  | 150 |

## MODULE 7

|      |  |     |
|------|--|-----|
| 7.1  | Identifying Equivalent Fractions                               | 152 |
| 7.2  | Using Multiplication to Find Equivalent Fractions              | 154 |
| 7.3  | Reinforcing Mental Strategies for Finding Equivalent Fractions | 156 |
| 7.4  | Writing Common Fractions in Their Simplest Form                | 158 |
| 7.5  | Comparing Common Fractions (Related Denominators)              | 160 |
| 7.6  | Ordering Common Fractions (Related Denominators)               | 162 |
| 7.7  | Identifying Misleading Data                                    | 164 |
| 7.8  | Investigating Misleading Data                                  | 166 |
| 7.9  | Exploring the Connection Between Perimeter and Area            | 168 |
| 7.10 | Relating Perimeter and Area                                    | 170 |
| 7.11 | Investigating Area of Right Triangles                          | 172 |
| 7.12 | Developing a Rule to Calculate Area of Triangles               | 174 |

## MODULE 8

|      |   |     |
|------|---|-----|
| 8.1  | Using Partial Quotients with Decimal Fractions                    | 176 |
| 8.2  | Extending the Partial-Quotients Strategy with Decimal Fractions   | 178 |
| 8.3  | Solving Division Problems Involving Dollars and Cents             | 180 |
| 8.4  | Calculating Unit Costs (Whole Dollars)                            | 182 |
| 8.5  | Calculating Unit Costs (Dollars and Cents)                        | 184 |
| 8.6  | Working with Speed (Kilometres per Hour)                          | 186 |
| 8.7  | Multiplying and Dividing by 10, 100 and 1000                      | 188 |
| 8.8  | Comparing Multiplication and Division Involving Decimal Fractions | 190 |
| 8.9  | Analysing Diagonals of 2D Shapes                                  | 192 |
| 8.10 | Identifying Parts of a Circle                                     | 194 |
| 8.11 | Interpreting a Timeline and Working with Elapsed Time             | 196 |
| 8.12 | Drawing and Interpreting a Timeline                               | 198 |

## MODULE 9

|      |   |     |
|------|---|-----|
| 9.1  | Converting Mixed Numerals to Improper Fractions           | 200 |
| 9.2  | Converting Improper Fractions to Mixed Numerals           | 202 |
| 9.3  | Revising Addition of Common Fractions (Same Denominators) | 204 |
| 9.4  | Adding Common Fractions (Related Denominators)            | 206 |
| 9.5  | Adding Mixed Numerals (with Bridging)                     | 208 |
| 9.6  | Adding Mixed Numerals (Related Denominators)              | 210 |
| 9.7  | Converting Between Centimetres and Metres                 | 212 |
| 9.8  | Converting Between Millimetres and Centimetres            | 214 |
| 9.9  | Converting Between Millimetres and Metres                 | 216 |
| 9.10 | Converting Between Metres and Kilometres                  | 218 |
| 9.11 | Developing a Formula to Calculate Volume of Prisms        | 220 |
| 9.12 | Finding the Dimensions of Prisms with a Given Volume      | 222 |

## MODULE 10

|       |  |     |
|-------|--|-----|
| 10.1  | Introducing and Interpreting Percentage as Hundredths of One                   | 224 |
| 10.2  | Interpreting Percentage as an Amount Per Hundred                               | 226 |
| 10.3  | Relating Percentage to Common Fractions and Decimal Fractions (Area Model)     | 228 |
| 10.4  | Relating Percentage to Common Fractions (Linear Model)                         | 230 |
| 10.5  | Using Common Fractions, Decimal Fractions and Percentages in Everyday Contexts | 232 |
| 10.6  | Relating Fractions and Percentages Greater Than 100%                           | 234 |
| 10.7  | Working with Reflections   | 236 |
| 10.8  | Working with Multiple Transformations  | 238 |
| 10.9  | Exploring Tessellations  | 240 |
| 10.10 | Working with Units of Capacity   | 242 |
| 10.11 | Adding Mixed Units of Capacity   | 244 |
| 10.12 | Connecting Volume and Capacity   | 246 |

## MODULE 11

|       |   |     |
|-------|---|-----|
| 11.1  | Subtracting Common Fractions (Same Denominators)    | 248 |
| 11.2  | Subtracting Common Fractions (Related Denominators) | 250 |
| 11.3  | Subtracting Mixed Numerals (Same Denominators)      | 252 |
| 11.4  | Subtracting Mixed Numerals (Related Denominators)   | 254 |
| 11.5  | Finding a Unit Fraction of a Quantity               | 256 |
| 11.6  | Finding Simple Fractions of Quantities              | 258 |
| 11.7  | Working with Fractions of Money                     | 260 |
| 11.8  | Working with Percentages of Money                   | 262 |
| 11.9  | Using Percentage to Find Discounts                  | 264 |
| 11.10 | Applying Discounts to Calculate Selling Price       | 266 |
| 11.11 | Examining Nets                                      | 268 |
| 11.12 | Creating Nets                                       | 270 |

## MODULE 12

|              |  |     |
|--------------|--|-----|
| 12.1         | Investigating Order with One Operation                             | 272 |
| 12.2         | Investigating Order with Multiple Operations                       | 274 |
| 12.3         | Consolidating Order with Multiple Operations (without Parentheses) | 276 |
| 12.4         | Introducing Parentheses  | 278 |
| 12.5         | Consolidating Order with Multiple Operations (with Parentheses)    | 280 |
| 12.6         | Investigating Order with Multiple Grouping Symbols                 | 282 |
| 12.7         | Introducing Coordinates  | 284 |
| 12.8         | Exploring the Coordinate Plane                                     | 286 |
| 12.9         | Exploring Shapes on All Four Quadrants                             | 288 |
| 12.10        | Using Fractions to Describe Probabilities                          | 290 |
| 12.11        | Conducting Chance Experiments                                      | 292 |
| 12.12        | Working with Probability   | 294 |
| <b>Index</b> |  | 296 |