**Transition: Early Additive to Advanced Additive Domain: Ratios and Proportions**

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| **Achievement Objectives** | **Number: Levels 3 and 4** |
| **Level 3**Number Strategies AO1:Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, & percentages. Number Knowledge AO3:Know how many tenths, tens, hundreds, and thousands are in whole numbers. Number Knowledge AO4:Know fractions and percentages in everyday use. **Level 4**Number Knowledge AO6:Know the relative size and place value structure of positive & negative integers & decimals to three decimal places. |

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| **Strategies being developed** | **Problem progression** | **References** | **Knowledge being developed** | **Resources** |
| Find fractions of a set using multiplication and division, e.g.  of 21 is 7 ( × 21 = 7) | Jelly beans on a birthday cake: of 24 is 6 ( × 24 = 6) of 40 is 8 ( × 40 = 8) of 27 is 9 ( × 27 = 9) of 20 is 15 (× 20 =15) of 30 is 12 ( × 30=12) of 100 is 30 ( × 100 = 30) | ***Teaching Fractions, Decimals and Percentages (Book 7)***Introduction (25-26)[Birthday Cakes](https://nzmaths.co.nz/node/948) (26-28)***Figure It Out***N2.1 [Cooking Up a Storm](https://nzmaths.co.nz/node/3073) (20)N3.1 [Sweet As](https://nzmaths.co.nz/node/3159)  (12)N3.2 [Saving Up](https://nzmaths.co.nz/node/3204) (5)N3.2 [On the Trail](https://nzmaths.co.nz/node/3219) (23)N7/8 L1 [Piece of Cake](https://nzmaths.co.nz/node/3364) (20)N7/8 L1 [Bits and Pieces](https://nzmaths.co.nz/node/3369) (24)NS7/8 L2 (21) [Helping the Hāngi](https://nzmaths.co.nz/node/3365)N7/8 4.2 (21) [Mystery Fractions](https://nzmaths.co.nz/node/3415) | Identify decimals to three places | ***Teaching Number Knowledge (Book 4)***[Number Fans](https://nzmaths.co.nz/node/1039) (4)[Place Value Houses](https://nzmaths.co.nz/node/1042) (5)[Number Hangman](https://nzmaths.co.nz/node/1043) (5)[Reading Decimals Fractions](https://nzmaths.co.nz/node/1048) (8)[More Reading of Decimal Fractions](https://nzmaths.co.nz/node/1051) (9)[Linking Money and Decimal Fractions](https://nzmaths.co.nz/node/1052) (9)[Arrow Cards](https://nzmaths.co.nz/node/1058) (13) [Number Line Flips](https://nzmaths.co.nz/node/1061) (15)[Squeeze – Guess My Number](https://nzmaths.co.nz/node/1064) (15)***Figure It Out***N 2-3 (24) [Job Sharing](https://nzmaths.co.nz/node/3137) |

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| Use symmetry to find fractions of continuous shapes like lengths, circles, and rectangles. | Find:One quarter of a length or area, e.g. circle, length rectangle, one eighth, one sixteenth.One third then one sixth, One fifth then one tenthOne sixth then one twelfth of a rectangle or length  | ***Teaching Fractions, Decimals and Percentages (Book 7)***[Fractional Blocks](https://nzmaths.co.nz/node/947) (28-30)***Figure It Out***N2.1 [Fun Folding](https://nzmaths.co.nz/node/3096) (22)N 2-3 [Don’t Ditch the Boat](https://nzmaths.co.nz/node/3136) (23)N 2-3 [Dividing Dough](https://nzmaths.co.nz/node/3135) (22)N7/8 L1 [All Bottled Up](https://nzmaths.co.nz/node/3367) (23) | Identify symbols for any fraction, including tenths, hundredths, thousandths, and those greater than 1 | ***Teaching Number Knowledge (Book 4)***[Fraction Pieces](https://nzmaths.co.nz/node/1044) (6)[Creating Fractions](https://nzmaths.co.nz/node/1045) (6)[More Geoboard Fractions](https://nzmaths.co.nz/node/1046) (7)[Non-Unit Fractions](https://nzmaths.co.nz/node/1047) (7)[Packets of Lollies](https://nzmaths.co.nz/node/1049) (8)[Bead Strings](https://nzmaths.co.nz/node/1066) (17) |
| Solve division problems that have fraction answers using halving. | 5 cakes shared among 2 people, i.e. 5 ÷ 2 =  = 23 ÷ 4 = 6 ÷ 8 =  = 7 ÷ 4 =  = 12 ÷ 3 =  | ***Figure It Out***N2-3 [Job Sharing](https://nzmaths.co.nz/node/3137) (24) | Say the forwards and backwards word sequences for halves, quarters, thirds, fifths, and tenths | ***Teaching Number Knowledge (Book 4)***[Skip-counting on the Number Line](https://nzmaths.co.nz/node/1055) (11)[Beep](https://nzmaths.co.nz/node/1056) (12) |
| Create equivalent ratios by repeated copying. | Boys:Girls or Blue:Yellow 1:2 so 🞏:10 so 8:🞏2:3 so 🞏:12 so 20:🞏3:1 so 🞏:7 so 30:🞏2:5 so 🞏:25 so 40:🞏3:4 so 🞏:16 so 33:🞏 5:3 so 🞏:15 so 100:🞏 | ***Teaching Fractions, Decimals and Percentages (Book 7)***[Seed Packets](https://nzmaths.co.nz/node/1020) (30-32) | Say the decimal number word sequences, forwards and backwards, in tenths and hundredths |  |

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| Measure how many times a unit fraction goes into a whole number, e.g. How many quarters are in five? (5 ÷  = 20) | Lolly snakes cut into partsHow many halves are in three (ones)? 3 ÷  = 62 ÷  = 104 ÷  = 125 ÷  = 5010 ÷  = 807 ÷  = 700 |  | Order unit fractions for halves, quarters, thirds, fifths, and tenths | ***Teaching Number Knowledge (Book 4)***[Who Has More Cake?](https://nzmaths.co.nz/node/1068) (18)[Super Liquorice](https://nzmaths.co.nz/node/1070) (19)[Card Ordering](https://nzmaths.co.nz/node/1057) (12)***Figure It Out***N7/8 L1 [Chocolate Chip Feast](https://nzmaths.co.nz/node/3366) (22) |
| Rename improper fractions as mixed numbers using materials with multiplication, and position improper fractions on a number line. | How big are these fractions?Put them on a number line. = 5,  = 2, = 4,  = 5, = 1,  = 2, = 2 = 24,  = 100. | ***Teaching Fractions, Decimals and Percentages (Book 7)***[Trains](https://nzmaths.co.nz/node/953) (32-34)***Figure It Out***N2.2 [Hot Stuff!](https://nzmaths.co.nz/node/3095) (21) | Recall the number of tenths and hundredths in decimals to two places | ***Teaching Number Knowledge (Book 4)***[Reading Decimal Fractions](https://nzmaths.co.nz/node/1048) (8)***Figure It Out***N 7/8 4.2 [Getting the Point](https://nzmaths.co.nz/node/3414) (20)N3.1 [Dealing With Decimals](https://nzmaths.co.nz/node/3189) (16) |
|  |  |  | Round decimals with up to two places to the nearest whole number | ***Figure It Out***N3.1 [Rounding Up and Down](https://nzmaths.co.nz/node/3190) (17) |