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.

Strategies being developed	Problem progression	References	Knowledge being developed	Resources
Find fractions of a set using multiplication and division, e.g. $\frac{1}{3}$ of 21 is 7 ($\frac{1}{3}$ × 21 = 7)	Jelly beans on a birthday cake: $\frac{1}{4}$ of 24 is 6 ($\frac{1}{4}$ × 24 = 6) $\frac{1}{5}$ of 40 is 8 ($\frac{1}{5}$ × 40 = 8) $\frac{1}{3}$ of 27 is 9 ($\frac{1}{3}$ × 27 = 9) $\frac{3}{4}$ of 20 is 15 ($\frac{3}{4}$ × 20 =15) $\frac{2}{5}$ of 30 is 12 ($\frac{2}{5}$ × 30=12) $\frac{3}{10}$ of 100 is 30 ($\frac{3}{10}$ × 100 = 30)	***Teaching Fractions, Decimals and Percentages (Book 7)*** Introduction (25-26) Birthday Cakes (26-28) ***Figure It Out*** N2.1 Cooking Up a Storm (20) N3.1 Sweet As (12) N3.2 Saving Up (5) N3.2 On the Trail (23) N7/8 L1 Piece of Cake (20) N7/8 L1 Bits and Pieces (24) NS7/8 L2 (21) Helping the Hāngi N7/8 4.2 (21) Mystery Fractions	Identify decimals to three places	***Teaching Number Knowledge (Book 4)*** Number Fans (4) Place Value Houses (5) Number Hangman (5) Reading Decimals Fractions (8) More Reading of Decimal Fractions (9) Linking Money and Decimal Fractions (9) Arrow Cards (13) Number Line Flips (15) Squeeze – Guess My Number (15) ***Figure It Out*** N 2-3 (24) Job Sharing

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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 tenth One sixth then one twelfth of a rectangle or length	***Teaching Fractions, Decimals and Percentages (Book 7)*** Fractional Blocks (28-30) ***Figure It Out*** N2.1 Fun Folding (22) N 2-3 Don't Ditch the Boat (23) N 2-3 Dividing Dough (22) N7/8 L1 All Bottled Up (23)	Identify symbols for any fraction, including tenths, hundredths, thousandths, and those greater than 1	***Teaching Number Knowledge (Book 4)*** Fraction Pieces (6) Creating Fractions (6) More Geoboard Fractions (7) Non-Unit Fractions (7) Packets of Lollies (8) Bead Strings (17)
Solve division problems that have fraction answers using halving.	5 cakes shared among 2 people, i.e. $5 \div 2 = \frac{5}{2} = 2\frac{1}{2}$ $3 \div 4 = \frac{3}{4}$ $6 \div 8 = \frac{6}{8} = \frac{3}{4}$ $7 \div 4 = \frac{5}{4} = 1\frac{3}{4}$ $2 \div 3 = \frac{2}{3}$	***Figure It Out*** N2-3 Job Sharing (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 (11) Beep (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 (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? ($5 \div \frac{1}{4} = 20$)	Lolly snakes cut into parts How many halves are in three (ones)? $3 \div \frac{1}{2} = 6$ $2 \div \frac{1}{5} = 10$ $4 \div \frac{1}{3} = 12$ $5 \div \frac{1}{10} = 50$ $10 \div \frac{1}{8} = 80$ $7 \div \frac{1}{100} = 700$		Order unit fractions for halves, quarters, thirds, fifths, and tenths	***Teaching Number Knowledge (Book 4)*** Who Has More Cake? (18) Super Liquorice (19) Card Ordering (12) ***Figure It Out*** N7/8 L1 Chocolate Chip Feast (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. $\frac{11}{2} = 5\frac{1}{2}$, $\frac{9}{4} = 2\frac{1}{4}$, $\frac{20}{5} = 4$, $\frac{17}{3} = 5\frac{2}{3}$, $\frac{11}{8} = 1\frac{3}{8}$, $\frac{28}{12} = 2\frac{4}{12}$, $\frac{7}{3} = 2\frac{1}{3}$ $\frac{99}{4} = 24\frac{3}{4}$, $\frac{1003}{10} = 100\frac{3}{10}$.	***Teaching Fractions, Decimals and Percentages (Book 7)*** Trains (32-34) ***Figure It Out*** N2.2 Hot Stuff! (21)	Recall the number of tenths and hundredths in decimals to two places	***Teaching Number Knowledge (Book 4)*** Reading Decimal Fractions (8) ***Figure It Out*** N 7/8 4.2 Getting the Point (20) N3.1 Dealing With Decimals (16)
			Round decimals with up to two places to the nearest whole number	***Figure It Out*** N3.1 Rounding Up and Down (17)

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