**Transition: Advanced Additive to Advanced Multiplicative Domain: Addition and Subtraction**

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| **Achievement Objectives** | **Number and Algebra: Level Four**  |
| Number Strategies and Knowledge:* Use a range of multiplicative strategies when operating on whole numbers.
* Understand addition and subtraction of fractions, decimals, and integers.
* Apply simple linear proportions, including ordering fractions.
* Know the relative size and place value structure of positive and negative integers and decimals to three decimals.
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| **Key Teaching Ideas** | **Problem Progression** | **References** | **Knowledge being developed** | **Resources** |
| To add or subtract fractions, they must be renamed to have a common denominator(Key Idea #1) | 1/2 + 1/4 = 2/4 + 1/42/3 – 1/6 = 4/6 - 1/63/4 + 1/5 = 15/20 + 4/207/8 – 5/6 = 21/24 – 20/24 | ***Teaching Fractions Decimals and Percentages (Book 7)***[Comparing Apples With Apples](https://nzmaths.co.nz/node/967) (65) | Say the forwards and backwards decimal word sequences by thousandths, hundredths, tenths, ones, tens, etc, starting at any whole number. | ***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)[Skip-counting on the Number Line](https://nzmaths.co.nz/node/1055) (11)[Hundreds Boards And Thousands Book](https://nzmaths.co.nz/node/1065) (16)***Figure It Out***N 3-4 [Changes, Highs and Lows](https://nzmaths.co.nz/node/3254)  (6) |
| Decimal fractions arise out of division(Key Idea #2) | 8 ÷ 5 = ☐ wholes + ☐ tenths4 ÷ 10 = ☐ wholes + ☐ tenths | ***Teaching Addition and Subtraction (Book 5)***[Introducing Decimal Fraction Place Value](https://nzmaths.co.nz/node/1105) (69) | Say the number one-thousandth, one-hundredth, one-tenth, one, and ten, etc, before and after any given whole number. | ***Teaching Number Knowledge (Book 4)***[Number Fans](https://nzmaths.co.nz/node/1039) (4)[Skip-counting on the Number Line](https://nzmaths.co.nz/node/1055) (11)[Lucky Dip](https://nzmaths.co.nz/node/873) (13) |

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| **Key Teaching Ideas** | **Problem Progression** | **References** | **Knowledge being developed** | **Resources** |
| The “ten for one” and “one for ten” canons apply when adding and subtracting with decimal fractions (one-decimal-place-fractions)(Key Idea #3) | 1.8 + 2.70.4 + 20.81.3 – 0.916 – 3.9 | ***Teaching Addition and Subtraction (Book 5)***[Adding With Decimal Fractions](https://nzmaths.co.nz/node/1107) (71)[Subtraction with tenths](https://nzmaths.co.nz/node/1108) (71)***Teaching Addition and Subtraction (Book 7)***[How Can Two Decimals So Ugly Make One So Beautiful?](https://nzmaths.co.nz/node/1113) (45) | Recall the number of groupings of tens, hundred, and thousands that can be made from a number of up to seven digits. | ***Teaching Number Knowledge (Book 4)*** [Number Hangman](https://nzmaths.co.nz/node/1043) (5)[Tens in Hundreds and More](https://nzmaths.co.nz/node/1082) (27)[Estimating](https://nzmaths.co.nz/node/1080) (25)***Figure It Out***N 7/8 4.2 [A Million Grains of Rice](https://nzmaths.co.nz/node/3372) (4) |
| Subtraction can produce negative numbers.(Key Idea #4) | +5 - +7+1 - +32-2 + +5-99 + +102+5 - -7-99- -1 1/4 | ***Teaching Addition and Subtraction (Book 5)***[Dollars and Bills](https://nzmaths.co.nz/node/1028) (73)[Dropping and Rising Temperatures](https://nzmaths.co.nz/node/25704) (73)[Bucket Balance](https://nzmaths.co.nz/node/25705) (74)***Teaching Algebraic Thinking and Number Sense (Book 8)***[6 Minus 8 Does Work!](https://nzmaths.co.nz/node/999) (31)***Figure It Out***N3-4.1 [Walking the Plank](https://nzmaths.co.nz/node/3270) (23)N3-4.3 [The Volcanoes Erupt](https://nzmaths.co.nz/node/3326) (20)N3-4.3 [Chilly Heights](https://nzmaths.co.nz/node/3327) (22)N7/8 4.4 [It’s a Try](https://nzmaths.co.nz/node/3472) (8)N7/8 4.4 [Lifting Weights](https://nzmaths.co.nz/node/3473) (9)N7/8 4.4 [Integer Zap](https://nzmaths.co.nz/node/3475) (10)N7/8 4.4 [Shifty Subtraction](https://nzmaths.co.nz/node/3480) (15)N7/8 4.6 [Judo Competition](https://nzmaths.co.nz/node/3570) (14) | Order decimals to three places. | ***Teaching Number Knowledge (Book 4)***[Reading Decimal Fractions](https://nzmaths.co.nz/node/1048) (8)[Card Ordering](https://nzmaths.co.nz/node/1057) (12)[Arrow Cards](https://nzmaths.co.nz/node/1058) (13)[Rocket - where will I fit?](https://nzmaths.co.nz/node/1060) (15)[Squeeze - Guess My Number](https://nzmaths.co.nz/node/1064) (15)[Bead Strings](https://nzmaths.co.nz/node/1066) (17)[Who wins?](https://nzmaths.co.nz/node/1071) (20)***Figure It Out*** N 7/8 4.3 [Going for Gold!](https://nzmaths.co.nz/node/3429) (12)L7/8 L.1 [Up the Ladder](https://nzmaths.co.nz/node/4195) (15)  |

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| **Knowledge being developed** | **Resources** |
| Round whole numbers and decimals, with up to two places, to the nearest whole number, or tenth. | ***Teaching Number Knowledge (Book 4)***[Swedish Rounding](https://nzmaths.co.nz/node/1083) (28)[Sensible Rounding](https://nzmaths.co.nz/node/1084) (28)***Figure It Out***NS 7/8 [Number Scavenge](https://nzmaths.co.nz/node/10793) (6)NS 7/8 2 [Time Versus Money](https://nzmaths.co.nz/node/4216) (7) |
| Carry out column addition and subtraction for whole numbers and decimals. | ***Figure It Out*** Ns 7/8 2 [Same Answer Every Time!](https://nzmaths.co.nz/node/4220) (11) |