

3.4 Stage 4 Unit: Fractions

3.4.1 Outcomes, Key Ideas and Content from the Syllabus

| Number - Fractions, Decimals and Percentages | | Syllabus Content p 63 | |
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| NS4.3 Operates with fractions, decimals, percentages, ratios and rates | | Key Ideas Perform operations with fractions and mixed numerals | |
| Working Mathematically Outcomes | | | |
| Questioning Asks questions that could be explored using mathematics in relation to Stage 4 content | Applying Strategies Analyses a mathematical or real-life situation, solving problems using technology where appropriate | Communicating Uses mathematical terminology and notation, algebraic symbols, diagrams, text and tables to communicate mathematical ideas | Reasoning Identifies relationships and the strengths and weaknesses of different strategies and solutions, giving reasons |
| | | Reflecting Links mathematical ideas and makes connections with, and generalisations about, existing knowledge and understanding in relation to Stage 4 content | |
| Knowledge and Skills <ul style="list-style-type: none"> finding highest common factors and lowest common multiples finding equivalent fractions reducing a fraction to its lowest equivalent form adding and subtracting fractions using written methods expressing improper fractions as mixed numerals and vice versa adding mixed numerals subtracting a fraction from a whole number eg $3 - \frac{2}{3} = 2 + 1 - \frac{2}{3} = 2\frac{1}{3}$ multiplying and dividing fractions and mixed numerals <p>This is a subset of the content for this outcome since the focus in this unit is on operations with fractions. It does not include decimals, percentages, ratios or rates.</p> | | Working Mathematically <ul style="list-style-type: none"> explain multiplication of a fraction by a fraction using a diagram to illustrate the process (Reasoning, Communicating) explain why division by a fraction is equivalent to multiplication by its reciprocal (Reasoning, Communicating) recognise and explain incorrect operations with fractions eg explain why $\frac{2}{3} + \frac{1}{4} \neq \frac{3}{7}$ (Applying Strategies, Reasoning, Communicating) question the reasonableness of statements in the media that quote fractions, decimals or percentages eg 'the number of children in the average family is 2.3' (Questioning) solve a variety of real-life problems involving fractions, decimals and percentages (Applying Strategies) use a number of strategies to solve unfamiliar problems, including: <ul style="list-style-type: none"> using a table looking for patterns simplifying the problem drawing a diagram working backwards guess and refine (Applying Strategies, Communicating) | |
| Technology Electronic calculators can be used to investigate patterns, check solutions, and convert between fractions, decimals and percentages. | | Links Fraction concepts are applied in other areas of mathematics eg simplifying algebraic expressions, Probability, Trigonometry and Measurement. | |
| Resources Fraction circles, pattern blocks Squares of paper, strips of paper Fractions mats List of References (p 48) – No.s 4, 9, 10, 11, 12, 13 | | Language Students may need assistance with the subtleties of the English language when solving word problems. Consider for example the phrases 'one third of', 'how many thirds in', and 'one third of the part remaining'. | |