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| **H Unit 4: Fractions, ratio and percentages** | **Road Map** | | | | | |
| In this unit you will learn about number. The aims are as follows:  **LG1**: Knowledge  **LG2**: Application  **LG3**: Skills | Assessment Grades |  |  | | | |
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| **Themes** | **Learning Goals/Outcomes/Content** | | |  |  |  |
| 4a Fractions | Express a given number as a fraction of another; | | |  |  |  |
| Find equivalent fractions and compare the size of fractions; | | |  |  |  |
| Write a fraction in its simplest form, including using it to simplify a calculation,  e.g. 50 ÷ 20 =  =  = 2.5; | | |  |  |  |
| Find a fraction of a quantity or measurement, including within a context; | | |  |  |  |
| Convert a fraction to a decimal to make a calculation easier; | | |  |  |  |
| Convert between mixed numbers and improper fractions; | | |  |  |  |
| Add, subtract, multiply and divide fractions; | | |  |  |  |
| Multiply and divide fractions, including mixed numbers and whole numbers and vice versa; | | |  |  |  |
| Add and subtract fractions, including mixed numbers; | | |  |  |  |
| Understand and use unit fractions as multiplicative inverses; | | |  |  |  |
| By writing the denominator in terms of its prime factors, decide whether fractions can be converted to recurring or terminating decimals; | | |  |  |  |
| Convert a fraction to a recurring decimal; | | |  |  |  |
| Convert a recurring decimal to a fraction; | | |  |  |  |
| Find the reciprocal of an integer, decimal or fraction. | | |  |  |  |
| 4b Percentages | Convert between fractions, decimals and percentages; | | |  |  |  |
| Express a given number as a percentage of another number; | | |  |  |  |
| Express one quantity as a percentage of another where the percentage is greater than 100% | | |  |  |  |
| Find a percentage of a quantity; | | |  |  |  |
| Find the new amount after a percentage increase or decrease; | | |  |  |  |
| Work out a percentage increase or decrease, including: simple interest, income tax calculations, value of profit or loss, percentage profit or loss; | | |  |  |  |
| Compare two quantities using percentages, including a range of calculations and contexts such as those involving time or money; | | |  |  |  |
| Find a percentage of a quantity using a multiplier; | | |  |  |  |
| Use a multiplier to increase or decrease by a percentage in any scenario where percentages are used; | | |  |  |  |
| Find the original amount given the final amount after a percentage increase or decrease (reverse percentages), including VAT; | | |  |  |  |
| Use calculators for reverse percentage calculations by doing an appropriate division; | | |  |  |  |
| Use percentages in real-life situations, including percentages greater than 100%; | | |  |  |  |
| Describe percentage increase/decrease with fractions, e.g. 150% increase means  times as big; | | |  |  |  |
| Understand that fractions are more accurate in calculations than rounded percentage or decimal equivalents, and choose fractions, decimals or percentages appropriately for calculations. | | |  |  |  |
| 4c Ratio and proportion | Express the division of a quantity into a number of parts as a ratio | | |  |  |  |
| Write ratios in the form 1:m or m:1 and to describe a situation | | |  |  |  |
| Write ratios in their simplest form, including three-part ratios | | |  |  |  |
| Divide a given quantity into two or more parts in a given part: part or part : whole ratio | | |  |  |  |
| Use a ratio to find one quantity when the other is known | | |  |  |  |
| Write a ratio as a fraction | | |  |  |  |
| Write a ratio as a linear function | | |  |  |  |
| Identify direct proportion from a table of values, by comparing ratios of values | | |  |  |  |
| Use a ratio to compare a scale model to real-life object | | |  |  |  |
| Use a ratio to convert between measures and currencies, e.g. £1.00 = €1.36 | | |  |  |  |
| Scale up recipes | | |  |  |  |
| Convert between currencies | | |  |  |  |

**Links:**

LG1: You will use the processes that you learn in this topic as the building blocks of all future work involving proportions.

LG2: You will apply the processes from this topic to real-life situations, such as questions about compound interest and depreciation.

LG3: You will use your problem-solving skills and mastery of fractions and percentages to solve complex Mathematical problems such as problems linking interest with algebra.