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| **F Unit 14: Multiplicative Reasoning** | **Road Map** |
| In this unit you will learn about number and measures. The aims are as follows:**LG1**: Knowledge**LG2**: Application**LG3**: Skills | Assessment Grades |  |  |
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| **Themes** | **Learning Goals/Outcomes/Content** |  |  |  |
| 14 Multiplicative Reasoning | Understand and use compound measures: |  |  |  |
| density; pressure; speed |  |  |  |
| convert between metric speed measures; |  |  |  |
| read values in km/h and mph from a speedometer; |  |  |  |
| calculate average speed, distance, time – in miles per hour as well as metric measures; |  |  |  |
| use kinematics formulae from the formulae sheet to calculate speed, acceleration (with variables defined in the question); |  |  |  |
| change d/t in m/s to a formula in km/h, i.e. d/t × (60 × 60)/1000 – with support; |  |  |  |
| Express a given number as a percentage of another number in more complex situations;  |  |  |  |
| Calculate percentage profit or loss; |  |  |  |
| Make calculations involving repeated percentage change, not using the formula; |  |  |  |
| Find the original amount given the final amount after a percentage increase or decrease; |  |  |  |
| Use compound interest; |  |  |  |
| Use a variety of measures in ratio and proportion problems: currency conversion; rates of pay; best value; |  |  |  |
| Set up, solve and interpret the answers in growth and decay problems; |  |  |  |
| Understand that *X* is inversely proportional to *Y* is equivalent to *X* is proportional to ;  |  |  |  |
| Interpret equations that describe direct and inverse proportion.  |  |  |  |

**Links:**

LG1: You will calculate speed, distance, time, density, mass, volume and pressure, area, mass. You will also calculate a percentage profit or loss, percentage increase and decrease and compound interest.

LG2: You will apply your knowledge of multiplicative reasoning to solve problems involving mixed unit.

LG3: You will solve complex problems including those that link multiplicative reasoning to work on area or volume of shapes.