

**YEAR 9**

Rearranging and Using Formulae

The maths inside Science trips up more students than the Science itself. Always write the formula, substitute the values, then calculate.

Section A · Rearranging

- 1 Rearrange $v = d \div t$ to make d the subject. **$d = v \times t$**
- 2 Rearrange $v = d \div t$ to make t the subject. **$t = d \div v$**
- 3 Rearrange $\rho = m \div V$ to make m the subject. **$m = \rho \times V$**
- 4 Rearrange $F = ma$ to make a the subject. **$a = F \div m$**
- 5 Rearrange $W = mg$ to make m the subject. **$m = W \div g$**

Section B · Calculations

- 1 A runner covers 150 m in 30 s. Calculate their speed. **5 m/s**
- 2 A cyclist travels at 12 m/s for 8 s. Calculate the distance travelled. **96 m**
- 3 A car travels 240 m at a steady 16 m/s. Calculate the time taken. **15 s**
- 4 A block has a mass of 90 g and a volume of 30 cm³. Calculate its density. **3 g/cm³**
- 5 A liquid has a density of 2.5 g/cm³. Calculate the mass of 40 cm³. **100 g**
- 6 A metal sample has a mass of 120 g and a density of 8 g/cm³. Calculate its volume. **15 cm³**
- 7 A trolley of mass 12 kg accelerates at 3 m/s². Calculate the resultant force. **36 N**
- 8 A force of 200 N acts on a 25 kg mass. Calculate the acceleration. **8 m/s²**
- 9 Calculate the weight of a 45 kg student. Use $g = 10 \text{ N/kg}$. **450 N**

