

**Paper Reference(s) 1SC0/1PH**  
**Pearson Edexcel Level 1/Level 2 GCSE (9–1)**

**Combined Science**  
**PAPER 3**  
**Higher Tier**

**Thursday 25 May 2023 – Morning**

**Formulae Booklet**

**DO NOT RETURN THIS BOOKLET WITH  
THE QUESTION PAPER.**

**(final velocity)<sup>2</sup> – (initial velocity)<sup>2</sup> = 2 × acceleration × distance**

$$v^2 - u^2 = 2 \times a \times x$$

**force = change in momentum ÷ time**

$$F = \frac{(mv - mu)}{t}$$

**energy transferred = current × potential difference × time**

$$E = I \times V \times t$$

**force on a conductor at right angles to a magnetic field carrying a current = magnetic flux density × current × length**

$$F = B \times I \times l$$

**$\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \frac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}$**

$$\frac{V_p}{V_s} = \frac{N_p}{N_s}$$

**potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil**

$$V_p \times I_p = V_s \times I_s$$

**change in thermal energy = mass × specific heat capacity × change in temperature**

$$\Delta Q = m \times c \times \Delta \theta$$

**thermal energy for a change of state = mass × specific latent heat**

$$Q = m \times L$$

**to calculate pressure or volume for gases of fixed mass at constant temperature**

$$P_1 V_1 = P_2 V_2$$

**energy transferred in stretching = 0.5 × spring constant × (extension)<sup>2</sup>**

$$E = \frac{1}{2} \times k \times x^2$$

**pressure due to a column of liquid = height of column × density of liquid × gravitational field strength**

$$P = h \times \rho \times g$$