

**Data Sheet**  
**GCSE (9–1) Physics A (Gateway Science)**  
**(J249/01–04)**

The information in this sheet is for the use of candidates following GCSE (9–1) Physics A (J249/01–04)

A copy of this sheet will be provided as an insert within the question paper for each component.

Copies of this sheet may be used for teaching.

SPECIMEN

## **Equations in physics**

change in thermal energy = mass x specific heat capacity x change in temperature

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

for gases: pressure x volume = constant (for a given mass of gas and at a constant temperature)

$(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$

energy transferred in stretching =  $0.5 \times \text{spring constant} \times (\text{extension})^2$

potential difference across primary coil x current in primary coil = potential difference across secondary coil x current in secondary coil

**Higher tier only -**

**pressure due to a column of liquid = height of column x density of liquid x g**

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

**potential difference across primary coil  $\div$  potential difference across secondary coil = number of turns in primary coil  $\div$  number of turns in secondary coil**