

**Data Sheet**  
**GCSE (9-1) Physics B (Twenty First Century Science)**  
**(J259/01-04)**

The information in this sheet is for the use of candidates following GCSE (9-1) Physics B (J259/01-04)

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

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

$\text{change in internal energy} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$

$\text{energy to cause a change of state} = \text{mass} \times \text{specific latent heat}$

$\text{energy stored in a stretched spring} = \frac{1}{2} \times \text{spring constant} \times (\text{extension})^2$

$\text{potential difference across primary coil} \times \text{current in primary coil} =$   
 $\text{potential difference across secondary coil} \times \text{current in secondary coil}$

for gases:  $\text{pressure} \times \text{volume} = \text{constant}$  (for a given mass of gas and at a constant temperature)

### **Higher tier only –**

**$\text{force} = \text{magnetic flux density} \times \text{current} \times \text{length of conductor}$**

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

**$\text{pressure due to a column of liquid} = \text{height of column} \times \text{density of liquid} \times g$**

**$\text{change in momentum} = \text{resultant force} \times \text{time for which it acts}$**