AS91173
Demonstrate understanding of electricity and electromagnetism
Level 2 Credits 6

This achievement standard involves demonstrating understanding of electricity and electromagnetism.

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of electricity and electromagnetism.	Demonstrate in-depth understanding of electricity and electromagnetism.	Demonstrate comprehensive understanding of electricity and electromagnetism.

Written statements include mathematical solutions and/or descriptions. Descriptions may include graphs or diagrams.

STATIC ELECTRICITY

- ❒ Uniform electric field
- ❒ Electric field strength
- ❒ Force on a charge in an electric field
- ❒ Electric potential energy
- ❒ Work done on a charge moving in an electric field

DC ELECTRICITY

- ❒ Drawing circuit diagrams
- ❒ Interpreting circuit diagrams
- ❒ Series circuits
- ❒ Parallel circuits (with resistive component(s) in series with the source)
- ❒ Complex circuits
- ❒ Voltage
- ❒ Current
- ❒ Resistance in series and in parallel
- ❒ Energy
- ❒ Power

ELECTROMAGNETISM

- ❒ Force on a current carrying conductor in a magnetic field
- ❒ Force on charged particles moving in a magnetic field
- ❒ The DC motor
- ❒ Induced voltage generated across a straight conductor moving in a uniform magnetic field
- ❒ The simple generator.

SKILLS

- ❒ The appropriate use of significant figures
- ❒ The appropriate use of units
- ❒ Negative index (e.g. ms^{-2}) notation or slash notation (e.g. m/s^2)

Notes:

RELATIONSHIPS:

$$E=\frac{V}{d} \qquad F=Eq \qquad \Delta E_p = Eqd \qquad E_k = \tfrac{1}{2}mv^2$$

$$F=BIL \qquad F=Bqv \qquad V=BvL$$

$$I=\frac{q}{t} \qquad V=\frac{\Delta E}{q} \qquad V=IR \qquad P=IV \qquad P=\frac{\Delta E}{t}$$

$$R_T = R_1 + R_2 + \ldots \qquad \frac{1}{R_T}=\frac{1}{R_1}+\frac{1}{R_2}+\ldots$$

Demonstrate understanding involves writing statements that show an awareness of how simple facets of phenomena, concepts or principles relate to a described situation.

Demonstrate in-depth understanding involves writing statements that give reasons why phenomena, concepts or principles relate to a described situation. For mathematical solutions, the information may not be directly usable or immediately obvious.

Demonstrate comprehensive understanding involves writing statements that demonstrate understanding of connections between concepts.

This achievement standard replaced AS90257.