Version1.0:10/01/08

ASSESSMENT and QUALIFICATIONS ALLIANCE

**GCSE**

# Science A 4461

*Physics 4451*

**PHY1AP F & H**

**PHY1AS F & H**

# Mark Scheme

*2007 examination - November series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.



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# PHY1A (Energy and Electricity)

Foundation Tier

| Question | Key | | |
|---|---|---|---|
| One | **A** | chemical energy to heat | **3** |
| | **B** | electrical energy to heat | **4** |
| | **C** | light energy to electrical energy | **1** |
| | **D** | kinetic energy to electrical energy | **2** |
| | | | |
| Two | **A** | conduction | **3** |
| | **B** | convection | **4** |
| | **C** | insulation | **1** |
| | **D** | radiation | **2** |
| | | | |
| Three | **A** | nuclear | **3** |
| | **B** | solar | **4** |
| | **C** | tides | **2** |
| | **D** | wind | **1** |
| | | | |
| Four | **A** | the method that costs most to install | **3** |
| | **B** | the method that conserves most energy | **1** |
| | **C** | the method that pays for itself in less than one year | **2** |
| | **D** | the method that takes five years to pay for itself | **4** |
| | | | |
| Five | **A** | 0.05 | **4** |
| | **B** | 5 | **2** |
| | **C** | 95 | **3** |
| | **D** | 100 | **1** |
| | | | |
| Six | **A** | gravitational potential energy | **1** |
| | **B** | kinetic energy | **2** |
| | **C** | light energy | **4** |
| | **D** | thermal energy | **3** |

| | A | B | C | D |
|---|---|---|---|---|
| Seven | **4** | **4** | **1** | **3** |
| Eight | **1** | **1** | **1** | **4** |
| Nine | **2** | **1** | **1** | **4** |

# PHY1A (Energy and Electricity)

Higher Tier

| Question | Key | | |
|---|---|---|---|
| One | **A** | gravitational potential energy | **1** |
| | **B** | kinetic energy | **2** |
| | **C** | light energy | **4** |
| | **D** | thermal energy | **3** |
| | | | |
| Two | **A** | battery | **4** |
| | **B** | buoy | **1** |
| | **C** | generator | **3** |
| | **D** | turbine | **2** |

| | A | B | C | D |
|---|---|---|---|---|
| Three | **1** | **1** | **1** | **4** |
| Four | **2** | **1** | **1** | **4** |
| Five | **2** | **3** | **2** | **4** |
| Six | **1** | **3** | **1** | **1** |
| Seven | **4** | **4** | **1** | **1** |
| Eight | **3** | **3** | **2** | **1** |
| Nine | **4** | **1** | **3** | **3** |