



*Rewarding Learning*

**General Certificate of Secondary Education  
2012**

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**Science: Single Award (Modular)**

Road Safety, Radioactivity  
and Earth in Space  
Module 6

Foundation Tier

[GSC61]

**WEDNESDAY 14 NOVEMBER 2012**

**2.30 pm–3.15 pm**

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**MARK  
SCHEME**

- 1 (a) Mars [1]  
Jupiter [1] [2]
- (b) Hydrogen [1]  
pulled [1]  
fusion [1] [3]
- (c) E [1]
- (d) Extra-terrestrial [1]
- 2 (a) C & D [2]
- (b) Advantage – provides jobs for those close to mine [1]  
Disadvantage – dust pollution/noise pollution/visual eyesore/  
destroys habitats [1] [2]
- (c) Oil  
gas  
coal (any 2) [2]
- 3 (a) (i) steady speed [1]  
(ii) A → B [1]  
(iii) 100/20 [1]  
5 [2] [2]
- (b) (i) 4 bars correct [2]  
2–3 bars correct [1] [2]
- (ii) Donna [1]
- (c) 23 m [1]  
12 m [1] [2]
- (d) (i) Friction [1]  
(ii) Heat/Sound [1]
- (e)
- |                   | Decrease | No change | Increase |
|-------------------|----------|-----------|----------|
| Reaction time     |          |           | ✓        |
| Thinking distance |          |           | ✓        |
| Braking distance  |          | ✓         |          |
- [3]

AVAILABLE  
MARKS

7

6

14

			AVAILABLE MARKS
<b>4</b>	<b>(a)</b> A – neutron [1]		
	B – electron [1]	[2]	
<b>(b)</b>	<b>(i)</b> Buildings/medical/nuclear power/food and drink	[1]	
	<b>(ii)</b> Background	[1]	4
<b>5</b>	<b>(a) (i)</b> Battery [1]		
	Petrol [1]	[2]	
	<b>(ii)</b> It uses less fossil fuel [1]		
	Less carbon dioxide produced [1]		
	Less global warming [1]	[3]	
<b>(b)</b> How good a device is at transferring energy	[1]		
<b>(c)</b>	<b>(i)</b> 800 J	[1]	
	<b>(ii)</b> 1200/4000 [1]		
	0.3/30% [2]	[2]	9
<b>6</b>	<b>(a)</b> Aluminium stops (alpha and) beta [1]		
	Paper stops alpha [1]		
	Lead stops all; three/gamma [1]		
	keep counter/source same distance from material [1] <i>any 3</i>	[3]	
<b>(b)</b> Kills bacteria/fungus [1]			
longer shelf life [1]	[2]	5	
		<b>Total</b>	<b>45</b>