



Rewarding Learning

General Certificate of Secondary Education
2011–2012

Science: Single Award (Modular)

Road Safety, Radioactivity
and Earth in Space

Module 6

Foundation Tier

[GSC61]

WEDNESDAY 29 FEBRUARY 2012

11.00 am–11.45 am

**MARK
SCHEME**

- 1 (a) Mercury
Earth [2]
- (b)
-
- 1 mark for each correct line, – 1 for each extra line [3]
- (c) Earth and Moon [1]
- (d) The Moon orbits the Earth [1] 7
- 2 (a) (i) 2 marks for 3 correct bars
1 mark for 1–2 correct bars [2]
- (ii) Increases/longer [1]
- (b) The distance travelled during the driver's thinking/reaction time [1]
- (c) Braking distance increases/longer
Thinking distance stays the same 1 mark each [2]
- (d) (i) Stopped [1]
- (ii) 10 miles [1] 8
- 3 (a) $50 + 11.5 + 0.5 + 14 + 14 = 90$ [1]
 $100 - 90 = 10$ [1] [2]
- (b) background [1]
- (c) (i) Cosmic rays/radon gas [1]
- (ii) Cancer (named) [1]
- (d) Beta
Gamma
Alpha
1 correct 1 mark [2] 7

			AVAILABLE MARKS	
4	(a) (i)	They slow cars down; less chance of a serious accident if a pedestrian is hit	[2]	9
	(ii)	increase/implied	[1]	
	(b)	The air bag inflates; Prevents driver's head hitting the steering wheel/windscreen/ reduces drivers impact/absorbs energy	[2]	
	(c) (i)	Car B: The highest number of safety stars for impact and child protection	[2]	
	(ii)	Car B	[1]	
	(d)	Wear bright coloured clothing/use crossings/face on-coming traffic/use footpath	[1]	
5	(a)	Heat/thermal/sound	[1]	5
	(b) (i)	600/2400 [1] 0.25/25%/1/4	[2]	
	(ii)	Engines use less fossil fuels; less carbon dioxide produced/less greenhouse gases	[2]	
6	(a)	Hydrogen gas; Pulled together by gravity: Fusion begins	[3]	9
	(b)	Radio telescopes/light telescopes/satellites/probes <i>any 1</i>	[1]	
	(c)	The distance: travelled by light in 1 year	[2]	
	(d)	Minimum 24 year round trip; large supply of food would be difficult to carry; large supply of oxygen required; difficult to cope with major illnesses over such a distance; larger spaceship so more fuel technical failure/astronauts stranded (any three)	[3]	
Total				45