



Rewarding Learning

**General Certificate of Secondary Education
2010–2011**

Science: Single Award (Modular)

Road Safety, Radioactivity
and Earth in Space
Module 6

Foundation Tier

[GSC61]

FRIDAY 25 FEBRUARY 2011, MORNING

**MARK
SCHEME**

			AVAILABLE MARKS	
1	(a) (i)	The Solar System	[1]	8
	(ii)	A – Neptune B – Mercury	[2]	
	(b)	orbit; same; Milky Way	[3]	
	(c) (i)	Asteroid accept meteor/comet/meteorite	[1]	
	(ii)	Become extinct/die out	[1]	
2	(a)	C A B	[1]	6
	(b)	1400 + 700 + 100 + 400 = 2600 [1] 3000 – 2600 = 400 [1]	[2]	
	(c)	Coal/gas/lignite accept brown coal no derivatives (X)	[1]	
	(d)	Lignite	[1]	
	(e)	Non-renewable/less CO ₂ /less global warming/fossil fuels last longer	[1]	
3	(a) (i)	1.6N	[1]	4
	(ii)	Friction	[1]	
	(b)	tennis shoe [1] more grip/highest friction/less chance of slipping [1] maximum [2] must have tennis shoe to get 2nd mark	[2]	
4	(a) (i)	36m	[1]	12
	(ii)	3 bars correct [2]/or 2 bars correct [1]	[2]	
	(iii)	No effect	[1]	
	(b)	Air bags: prevent driver hitting wheel/windscreen. Seat belt; prevent driver/passenger hitting windscreen. Crumple zone; absorbs the (kinetic) energy on impact. } Any two [1] for the measure [1] for the reason, maximum [2]	[4]	
	(c)	Any two from ● Bright coloured clothing ● use zebra crossing/pelican crossing ● face oncoming traffic ● use green cross code ● use footpath ● use right hand side of road	[2]	
	(d)	Slow the car down/reduces breaking distance; less chance of a serious accident/injury.	[2]	

5 (a) speed =140/14 or 20/2; 10 m/s	[2]	AVAILABLE MARKS
(b) Increasing ; the dots are further apart.	[2]	4
6 (a) Radiation that is always around us.	[1]	
(b) The combinations of neutrons and protons; are unstable.	[2]	
(c) (i) Test more houses	[1]	
(ii) Derry + Fermanagh	[1]	
(iii) Radiation can harm/damage/change/kill living tissue/cell; which causes cancer (allow only lung cancer).	[2]	
(d) Measure the radioactivity levels when sheets of thick lead, aluminium and paper are placed consecutively in front of source; Lead stops alpha, beta and gamma; Aluminium stops alpha and beta; Paper stops alpha. Any three [1] each maximum [3]	[3]	
Same distance from source → sheet/source → detector or materials same thickness	[1]	11
	Total	45