



*Rewarding Learning*

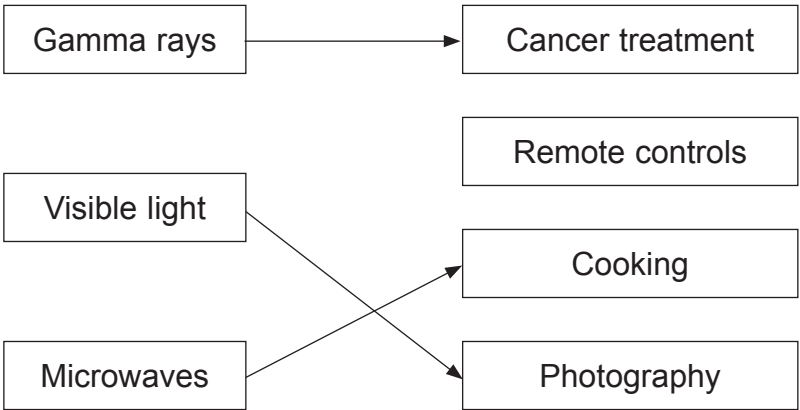
**General Certificate of Secondary Education  
2010–2011**

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**Science: Single Award (Modular)**  
Electricity, Waves and Communication  
Module 5  
Foundation Tier  
**[GSC51]**  
**THURSDAY 11 NOVEMBER 2010, AFTERNOON**

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**MARK  
SCHEME**

			AVAILABLE MARKS	
1	(a)	(i) voltmeter parallel volts series [1] each	[4]	8
		(ii) gap in circuit/circuit not complete/broke [1] electricity/current doesn't flow [1]	[2]	
	(b)	(i) S1 and S3	[1]	
		(ii) none	[1]	
2	(a)	(i) skier	[1]	7
		(ii) skin cancer	[1]	
		(iii) sun block/sun cream/extra clothing/cover up	[1]	
	(b)	(i) 		
		All lines correct [3] 2 correct [2] 1 correct [1]	[3]	
	(ii) microwaves/infrared	[1]		
3	(a)	(i) transverse	[1]	8
		(ii) vibrations energy [1] each	[2]	
		(iii) amplitude	[1]	
	(b)	(i) A = cornea [1] and B = retina [1]	[2]	
		(ii) convex/converging	[1]	
		(iii) bend	[1]	

			AVAILABLE MARKS
4	(a)	(i) $52 + 7 + 20 + 19 = 98$ [1] $100 - 98 = 2\%$ [2] [2]	
		(ii) wind/wave/biomass/geothermal/solar/tidal/sunlight [1]	
		(iii) will not run out/can be replaced/will always be there <b>not</b> can be used again [1]	
		(iv) less/no air pollution or less/no acid rain/less carbon dioxide less greenhouse effect/global warming [1] <b>not</b> saves fossil fuels	
4	(b)	energy efficient bulbs [1]	7
		lights off when no one in room/lights off during day [1] [2]	
5	(a)	no cost of buying fuel/no cost for transporting fuel solar is renewable (will not run out) less air pollution/carbon dioxide/global warming } maximum [2] [3] less greenhouse effect	6
		(b) $1 \text{ kW} = 1000 \text{ W}$ [1] $\frac{1}{250}$ [1] $1000/250$ [2] 4 [3] [3]	
6	(a)	(i) teenagers hear all frequencies/teenagers hear higher frequencies/as frequency increases, numbers stay the same/teenagers can hear higher frequency sounds than pensioners [1] none can hear 22 kHz [1] [2]	9
		(ii) ultrasound [1]	
	(b)	6 points correct [2] 5/4 points [1] [1] for correct line [3]	
		(c) (i) as we get older we can hear less well/unable to detect high frequency sounds/hearing decreases/hearing deteriorates [1] can't hear above 18 kHz [1] [2]	
	(ii) repeat/average/more people/more frequencies [1]		
<b>Total</b>			<b>45</b>