



*Rewarding Learning*

**General Certificate of Secondary Education  
2011–2012**

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**Science: Single Award (Modular)**

Human Activity and Health

Module 2

Foundation Tier

[GSC21]

**MONDAY 27 FEBRUARY**

**11.00 am – 11.45 am**

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**MARK  
SCHEME**

			AVAILABLE MARKS	
1	(a)	acid rain – filters on factory chimneys household waste – recycling	[2]	4
	(b)	nitrate – untreated sewage	[2]	
2	(a)	(i) two	[1]	4
		(ii) height	[1]	
	(b)	(i) 47	[1]	
		(ii) mutations	[1]	
3	(a)	(i) causes emphysema; causes cancer	[2]	6
		(ii) breathing other people's smoke	[1]	
	(b)	(i) wait until legal age/mature; drink on fewer occasions; drink less on each occasion/do not binge drink; drink low alcohol drinks; stick to recommended limits; do not drink drive; do not drink when pregnant/when on medication (any two)	[2]	
		(ii) slower drinking/no need to rush before "closing time"/everyone not on street at same time	[1]	
4	(a)	(i) 100	[1]	10
		(ii) all plots correct = 2; 3–4 correct = 1 [bar chart – 1]	[2]	
		(iii) (average) mass	[1]	
		(iv) competition between plants; for water; compost; light; space (any two)	[2]	
	(b)	15 plants per pot	[1]	
	(c)	(i) same light; temperature; water; same type of plant; left for same time; same compost/volume of compost/type/size of pots (any two)	[2]	
		(ii) reliability/to obtain an average [not valid]	[1]	

			AVAILABLE MARKS	
5	(a) (i)	more combustion; deforestation/fewer trees	[2]	6
	(ii)	global warming/greenhouse effect	[1]	
	(b) (i)	photosynthesis longer; more CO <sub>2</sub> taken in <b>or</b> increased area of forests; more photosynthesis/more CO <sub>2</sub> taken in/saves natural forests	[2]	
	(ii)	less light reaching forest floor/unable to photosynthesise	[1]	
6	(a) (i)	length of time to produce (enough) antibodies/reach immunity	[1]	9
	(ii)	number remains constant/no or very small reduction with time/lasts months/stays above line	[1]	
	(b)	modified (flu-causing) microbes; antibodies produced by body; combine/complementary to antigen/microbe/attach; form clumps of microbes/immobilisation; phagocytosis; memory cells remain (any four)	[4]	
	(c) (i)	new microbes/antigens/diseases; no antibodies to combat/new antibodies needed	[2]	
	(ii)	active	[1]	
	(b) (i)	spread by boats or other acceptable method	[1]	
7	(ii)	rhododendron/grey squirrel	[1]	6
	(iii)	non-native/introduced by man; spread/number rising/grow quickly/reproduce fast; damage habitats/native species/more successful/dominant than native species (any two)	[2]	
	(b) (i)	living/plant and animal	[1]	
	(ii)	lichens	[1]	
	<b>Total</b>			