



*Rewarding Learning*

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

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**Science: Single Award (Modular)**

Human Activity and Health  
Module 2

Higher Paper

**[GSC22]**

**THURSDAY 11 NOVEMBER 2010, AFTERNOON**

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**MARK  
SCHEME**

			AVAILABLE MARKS	
1	(a) (i)	reduction in number of children vaccinated	[1]	8
	(ii)	more catching measles/numbers went up	[1]	
	(iii)	vaccine proved to be safe/link with autism not proven	[1]	
	(b) (i)	antibiotic not specific/combats range of bacteria; antibiotic faster acting	[2]	
	(ii)	development of antibiotic resistance/"superbugs"	[1]	
	(c) (i)	bacteria inside white blood cell/phagocyte engulfing	[1]	
2	(ii)	phagocytosis	[1]	6
	(a)	fast growing/short life cycle; never runs out/renewable/regrows	[2]	
	(b)	link between climate change and global warming; carbon dioxide both produced and used; equal amounts	[3]	
3	(c)	subsidy <b>or</b> implied	[1]	6
	(a)	better diet; hygiene/sanitation; health care Any <b>two</b>	[2]	
	(b) (i)	fewer ill animals; growth promoter/faster growth; can be farmed at higher densities; Any <b>two</b> <b>not</b> just antibiotics kills bacteria	[2]	
4	(ii)	ethical issues; bacterial resistance	[2]	7
	(a) (i)	larger nucleus; smaller cells	[2]	
	(ii)	UV light; mutations/damage to chromosomes; cells divide uncontrollably/multiply rapidly/form tumour	[3]	
	(b)	different/foreign/new diseases/antigens; don't have corresponding antibodies/memory cells	[2]	

			AVAILABLE MARKS
<b>5</b>	<b>(a) (i)</b>	98–95–95–45–5	[1]
	<b>(ii)</b>	axis labels; all points correct; correct line	[3]
	<b>(iii)</b>	decrease; by predation; camouflage	[3]
	<b>(b)</b>	select <b>named</b> desirable qualities (e.g. more seeds/same size plants); many generations/breed; easier to harvest/greater yield/more profit/less wind damage	[3]
	<b>(c)</b>	Charles Darwin	[1]
<b>6</b>	<b>(a) (i)</b>	trampling/picking flowers/clearing for paths/damage animals' habitat	[1]
	<b>(ii)</b>	divide into part access, part no access; time; measure species number	[3]
	<b>(b)</b>	slurry needs to be safely stored; no fertiliser in winter/when plants can't use it; less run off/fewer nutrients enter water	[3]
<b>Total</b>			<b>7</b>
			<b>45</b>