



Rewarding Learning

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

Science: Single Award (Modular)

Staying Alive

Module 1

Higher Tier

[GSC12]

MONDAY 27 FEBRUARY 2012

9.30 am–10.15 am

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a)	number of people tested, any info to ensure representative of whole population e.g. ages, who conducted the tests [3]	
	(b)	ascending line labelled CCEA, steady/descending line labelled TASTY [2]	
	(c)	lubricant/solvent/transport [1]	6
2	(a)	1. overall numbers reduced, [1] 2. reduction very small/no reduction last year [2] [3]	
	(b)	compare figures, secondary sources – medical/internet, pro rata [3]	6
3	(a)	Increases in all cases [1] Demand for more energy/food and oxygen [1] Sprinting uses most/walking uses least/biggest increase data quoted/smallest data quoted. [1]	
	(b)	resting increases 'after' increases, heart muscle weaker, output decreases when not exercising (any three) [3]	6
	(a) (i)	oviduct, ovary, uterus, cervix $\frac{1}{2}$ mark each [2]	
4	(a) (ii)	1. triggers secondary sexual characteristics, any example [2] 2. highest level causes ovulation, lowest causes menstruation [2] [4]	
	(b)	leaves testes, travels along sperm duct, passes prostate, down urethra/through penis (any three) [3]	9

		AVAILABLE MARKS										
5	(a) correct location, association/connector neurone	[2]										
	(b) arm muscle	[1]										
	(c) upward arrow	[1]										
	(d) speed, pathway/coordinator	[2]										
	(e) examples/improvements of technology	[1]										
		7										
6	(a) (i)											
	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td></td> <td>T</td> <td>t</td> </tr> <tr> <td>T</td> <td>TT</td> <td>Tt</td> </tr> <tr> <td>t</td> <td>Tt</td> <td style="border: 1px solid black; border-radius: 50%; text-align: center;">tt</td> </tr> </table>		T	t	T	TT	Tt	t	Tt	tt	1 mark both parents 1 mark F1 tt circled 1 mark	[1] [1] [1]
	T	t										
T	TT	Tt										
t	Tt	tt										
	(ii) Outward appearance caused by genes	[3]										
	(iii) 270, base triplet hypothesis/explained	[1]										
	(b) double helix	[2]										
		7										
7	Inserting genes/DNA, into patients cells, Any 2											
	relieves symptoms, prolongs life, Any 1											
	harm to normal cells, short term effect Any 1	[4]										
		4										
	Total	45										