



Rewarding Learning

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

Science: Single Award (Modular)

Staying Alive

Module 1

Higher Tier

[GSC12]

TUESDAY 9 NOVEMBER 2010, AFTERNOON

**MARK
SCHEME**

			AVAILABLE MARKS										
1	(a)	brain/spinal cord; muscle; any correct example of receptor	[3]	8									
	(b)	brain not control/spinal cord is, faster, shorter pathway	[2]										
	(c) (i)	3	[1]										
	(ii)	Connor 2 mins whereas Gill is 3 mins	[1]										
	(iii)	Gill gets shorter and Connor's increases in length	[1]										
2	(a) (i)	had a meal	[1]		7								
		(ii) insulin; causes <u>liver</u> ; to <u>absorb</u> glucose; <u>stores</u> as <u>glycogen</u> ; increases respiration	[3]										
	(b) (i)	Any two : more processed/junk food; more obesity; less exercise	[2]										
		(ii) age of onset/treatment	[1]										
3	(a) (i)	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td></td> <td></td> <td>b</td> </tr> <tr> <td></td> <td>Bb</td> <td>bb</td> </tr> <tr> <td>b</td> <td>Bb</td> <td>bb</td> </tr> </table> <p style="display: inline-block; vertical-align: middle; margin-left: 10px;">parent correct – [1] F1 – [1](sequential)</p> <p style="display: inline-block; vertical-align: middle; margin-left: 10px;">50% brown</p>				b		Bb	bb	b	Bb	bb	[2]
			b										
		Bb	bb										
	b	Bb	bb										
		(ii)	brown	[1]									
		(iii)	50% (sequential)	[1]									
	(b)	Early treatment/parents can be prepared/will know parental dilemma/safety	[2]										
4	(a) (i)	correct scaling of each axis $[1] \times 2 = [2]$ all bars correct [1]	[3]	8									
		(ii) amount of chloroplasts decrease as layers increase	[1]										
		(iii) less sunlight, less chlorophyll/more chlorophyll, traps more light	[2]										
		(b) carbon dioxide + water \longrightarrow sugar + oxygen $[\frac{1}{2}]$ each ([–1] if No/incorrect + and arrows)	[2]										

			AVAILABLE MARKS
5	(a) (i) food provides energy; growth needs energy; energy from respiration (two from three); needs more energy	[2]	8
	(ii) easier/cheaper to process/more meat/more money/quicker process	[2]	
	(iii) ethical reason/safety fears	[1]	
	(b) genetic engineering or G.M., disease could be prevented/desirable characteristics selected/increased genetic diversity/crop example	[3]	
6	(a) Watson + Crick, modelling, double helix/base links	[3]	8
	(b) correct drawing + labels	[3]	
	(c) 3 bases, code for one amino acid	[2]	
		Total	45