



Rewarding Learning

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

Science: Single Award (Modular)

Staying Alive
Module 1

Higher Tier

[GSC12]

**TUESDAY 15 MAY 2012
9.15 am–10.00 am**

**MARK
SCHEME**

| | | | AVAILABLE MARKS | | | | | | | | | | |
|---|-------|--|---|---------|---|---|---|---|----|----|---|----|----|
| 1 | (a) | all plots correct smooth curve | 2 4/5 correct – 1 mark 1 – must not be through origin | [3] | 7 | | | | | | | | |
| | (b) | (i) | more active needs increase | [1] | | | | | | | | | |
| | | (ii) | older they get needs increase, older adults get needs decrease | [2] | | | | | | | | | |
| | (iii) | gender/pregnancy | [1] | | | | | | | | | | |
| 2 | (a) | eating too much constantly, intake exceeds energy needs eating more than need, excess stored as fat | | [3] | 7 | | | | | | | | |
| | (b) | (i) | no one under age of 30/all older/no one born with | [1] | | | | | | | | | |
| | | (ii) | 6 + 14 + 18 + 50 + 68 + 46 202 If one reading from graph incorrect – 1 mark | [2] | | | | | | | | | |
| | (iii) | only 1 GP/location/only type 2 shown/low numbers | [1] | | | | | | | | | | |
| 3 | (a) | Food/fat/glucose store, respired, for energy, produces water, not being used/ builds up. | | Any [4] | 8 | | | | | | | | |
| | (b) | (i) | <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td></td> <td>E</td> <td>e</td> </tr> <tr> <td>E</td> <td>EE</td> <td>Ea</td> </tr> <tr> <td>e</td> <td>Ee</td> <td>ee</td> </tr> </table> | | | E | e | E | EE | Ea | e | Ee | ee |
| | E | e | | | | | | | | | | | |
| E | EE | Ea | | | | | | | | | | | |
| e | Ee | ee | | | | | | | | | | | |
| | (ii) | 1 : 3 | | [1] | | | | | | | | | |
| 4 | (a) | destarched plant, variegated leaf, expose to light test for starch Any 2 steps | 3 marks 1 mark 2 marks Any 4 | [4] | 9 | | | | | | | | |
| | (b) | 1 – cells more area, more tightly packed, so more chloroplasts, close to light/ sites of photosynthesis/ photosynthesis needs light | Any 3 | [3] | | | | | | | | | |
| | (c) | C photosynthesis = respiration, carbon dioxide in = carbon dioxide out | 1 1 | [2] | | | | | | | | | |

| | | | AVAILABLE MARKS |
|----------|--|---|-----------------|
| 5 | (a) quantitative analysis – Chargaff, same amounts of A and T/C and G modelling – Watson and Crick, A links T/C links G | | [4] |
| | (b) sequence of 3 bases, codes for 1 type of amino acid | | [2] |
| 6 | A 2 – Labour saving/environmentally friendly/financial (if not in 6/3) | 2 | |
| | 6/3 – Financial saving | 2 | [4] |
| | B 1 – environmental damage/superweeds | 2 | |
| | 4 – health/environmental concerns/not natural | 2 | |
| | Do not accept 5 – more expensive food | | [4] |
| | | | Total |
| | | | 45 |