



# **General Certificate of Secondary Education**

## **Science B 4462 / Biology 4411**

**BLY1F      Unit 1 Biology**

# **Mark Scheme**

*2009 examination – June series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available to download from the AQA Website: [www.aqa.org.uk](http://www.aqa.org.uk)

Copyright © 2009 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

---

## MARK SCHEME

### Information to Examiners

#### 1. General

The mark scheme for each question shows:

- the marks available for each part of the question
- the total marks available for the question
- the typical answer or answers which are expected
- extra information to help the Examiner make his or her judgement and help to delineate what is acceptable or not worthy of credit or, in discursive answers, to give an overview of the area in which a mark or marks may be awarded.

The extra information is aligned to the appropriate answer in the left-hand part of the mark scheme and should only be applied to that item in the mark scheme.

At the beginning of a part of a question a reminder may be given, for example: where consequential marking needs to be considered in a calculation; or the answer may be on the diagram or at a different place on the script.

In general the right hand side of the mark scheme is there to provide those extra details which confuse the main part of the mark scheme yet may be helpful in ensuring that marking is straightforward and consistent.

#### 2. Emboldening

- 2.1** In a list of acceptable answers where more than one mark is available ‘any **two** from’ is used, with the number of marks emboldened. Each of the following lines is a potential mark.
- 2.2** A bold **and** is used to indicate that both parts of the answer are required to award the mark.
- 2.3** Alternative answers acceptable for a mark are indicated by the use of **or**. (Different terms in the mark scheme are shown by a / ; eg allow smooth / free movement.)

#### 3. Marking points

##### 3.1 Marking of lists

This applies to questions requiring a set number of responses, but for which candidates have provided extra responses. The general principle to be followed in such a situation is that ‘right + wrong = wrong’.

Each error/contradiction negates each correct response. So, if the number of error/contradictions equals or exceeds the number of marks available for the question, no marks can be awarded.

However, responses considered to be neutral (indicated as \* in example 1) are not penalised.

Example 1: What is the pH of an acidic solution? (1 mark)

Candidate	Response	Marks awarded
1	4,8	0
2	green, 5	0
3	red*, 5	1
4	red*, 8	0

Example 2: Name two planets in the solar system. (2 marks)

Candidate	Response	Marks awarded
1	Pluto, Mars, Moon	1
2	Pluto, Sun, Mars, Moon	0

### 3.2 Use of chemical symbols / formulae

If a candidate writes a chemical symbol / formula instead of a required chemical name, full credit can be given if the symbol / formula is correct and if, in the context of the question, such action is appropriate.

### 3.3 Marking procedure for calculations

Full marks can be given for a correct numerical answer, as shown in the column 'answers', without any working shown.

However if the answer is incorrect, mark(s) can be gained by correct substitution / working and this is shown in the 'extra information' column;

### 3.4 Interpretation of 'it'

Answers using the word 'it' should be given credit only if it is clear that the 'it' refers to the correct subject.

### 3.5 Errors carried forward

Any error in the answers to a structured question should be penalised once only.

Papers should be constructed in such a way that the number of times errors can be carried forward are kept to a minimum. Allowances for errors carried forward are most likely to be restricted to calculation questions and should be shown by the abbreviation e.c.f. in the marking scheme.

### 3.6 Phonetic spelling

The phonetic spelling of correct scientific terminology should be credited **unless** there is a possible confusion with another technical term.

### 3.7 Brackets

(.....) are used to indicate information which is not essential for the mark to be awarded but is included to help the examiner identify the sense of the answer required.

**BLY1F****Question 1**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
1(a)(i)	a legal drug		1
1(a)(ii)	nicotine		1
1(a)(iii)	withdrawal symptoms		1
1(b)(i)	scattergram		1
1(b)(ii)	smoking during pregnancy often reduces the birth mass of babies		1
<b>Total</b>			<b>5</b>

**BLY1F****Question 2**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
2(a)(i)	(more) habitats / (greater) variety of habitats / range of food	allow (more) places / trees for homes <b>or</b> different places to live allow no pesticides /herbicides / chemicals sprayed allow more food allow safer / can hide allow effects of machinery	1
2(a)(ii)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• building /houses / factories / etc</li> <li>• roads</li> <li>• quarrying</li> <li>• waste dumps / landfill</li> <li>• grazing</li> </ul>	ignore timber / uses of wood	2
2(b)(i)	fertilisers		1
2(b)(ii)	pesticides		1
2(b)(iii)	pesticide / herbicide / chemicals / sprays	allow river (through farmland) polluted allow correct effect of fertilisers on river organisms	1

**Question 2 continues on the next page...**

**BLY1F****Question 2 Continued**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
<b>2(c)</b>	any <b>two</b> from <ul style="list-style-type: none"> <li>• pollution / named pollutant / combustion / cars</li> <li>• dumping waste / litter</li> <li>• raw materials used up <b>or</b> reference to quarries / mines</li> <li>• chopping down trees</li> <li>• building / houses / etc</li> <li>• global warming</li> </ul>	allow 'not recycling'	<b>2</b>
<b>Total</b>			<b>8</b>

**BLY1F****Question 3**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
3(a)(i)	receptor		1
3(a)(ii)	sensory neurone		1
3(a)(iii)	motor neurone		1
3(a)(iv)	muscle		1
3(b)(i)	eye(s)	allow retina ignore sight	1
3(b)(ii)	ear(s)	ignore hearing do <b>not</b> allow ear drum	1
3(b)(iii)	ear(s)	ignore balance	1
<b>Total</b>			<b>7</b>



**BLY1F**

**Question 4**

question	answers	extra information	mark
4(a)	killed by poachers / killed for tusks less trees / leaves to eat land available disappearing	ignore feed on lots of leaves	1 1 1
4(b)		all three correct = <b>3</b> marks two correct = <b>2</b> marks one correct = <b>1</b> mark extra line from a statement cancels the mark	max 3
<b>Total</b>			<b>6</b>

**BLY1F****Question 5**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
5(a)(i)	12	correct answer with <b>or</b> without working  if answer incorrect evidence of (number of deaths) $\times$ 6 <b>or</b> 2 seen gains <b>1</b> mark	2
5(a)(ii)	(ward 2) more deaths / infections on ward 1  <b>or</b> less deaths / infections on ward 2		1
5(b)(i)	<b>both</b> bars correctly plotted	ie plots in spaces between 2.8 and 3.2 <b>and</b> 0.8 and 1.2  ignore width and shading	1
5(b)(ii)	less deaths / infections		1
5(b)(iii)	bacteria / germs / microbes / infection killed / washed off	accept less infections <u>passed on</u>	1
<b>Total</b>			<b>6</b>

**BLY1F****Question 6**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
<b>6(a)</b>	streamlined / aerodynamic / swept-back / arrow-shaped / dart-shaped wings / tail  OR  large / long wings	allow pointed / curved wings ignore pointed tail / beak  ignore large tail	1
<b>6(b)</b>	no / fewer insects / food (in winter)	allow <b>too</b> cold  ignore not adapted to cold  ignore day length	1
<b>6(c)(i)</b>	any <b>two</b> from <ul style="list-style-type: none"> <li>• feed / hunt at different heights <b>or</b> swifts feed <u>higher</u> up</li> <li>• feed / hunt at different times <b>or</b> swifts feed at night</li> <li>• arrive / depart at different times</li> </ul>		2
<b>6(c)(ii)</b>	nesting sites / territory / habitat	allow homes / space  ignore food unqualified allow well qualified food answers eg insects / food near the ground  <b>or</b>  insects / food when it's light  <b>or</b>  insects / food between early May and early August	1
<b>Total</b>			<b>5</b>

**BLY1F****Question 7**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
7(a)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• age</li> <li>• gender</li> <li>• mass</li> <li>• number in group</li> <li>• time</li> </ul>		2
7(b)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• highest (mean) mass loss on Rosemary Conley <b>or</b> Rosemary Conley most effective</li> <li>• least (mean) mass loss in control group <b>or</b> <u>mean</u> gain in mass in control group</li> <li>• Slimfast least (mean) loss of programmes <b>or</b> Slimfast least effective</li> <li>• all diets resulted in mass loss</li> <li>• large range of mass loss</li> <li>• similar (mean) mass loss with all 4 diets</li> <li>• (mean) mass loss similar in Atkins and Weightwatchers</li> <li>• (only) in Rosemary Conley (did) all lose mass</li> </ul>		2

**Question 7 continues on next page...**

**BLY1F****Question 7 Continued**

<b>question</b>	<b>answers</b>	<b>extra information</b>	<b>mark</b>
7(c)	(Atkins) costs least  mass loss very similar to other diets <b>or</b> second highest mass loss <b>or</b> as effective as other diets		1  1
7(d)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• (exercise) increases metabolic rate / respiration</li> <li>• (exercise) needs / uses energy / calories</li> <li>• (this) energy comes from food / fat</li> <li>• less food / energy/ calories converted to fat</li> </ul>	ignore sweating  allow burns fat / calories do <b>not</b> accept energy <u>for</u> respiration	2
<b>Total</b>			<b>8</b>