



*Rewarding Learning*

**General Certificate of Secondary Education  
2017–2018**

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**Science: Single Award**

Unit 1 (Biology)

Foundation Tier

**[GSS11]**

**TUESDAY 15 MAY 2018, AFTERNOON**

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**MARK  
SCHEME**

## General Marking Instructions

### Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

### The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

- 1 (a) (i) 5 [1]  
(ii) Centipede [1]  
(iii) Has no legs [1]  
has a shell [1] [2]  
(b) To identify a new animal/to aid conservation/to aid study [1]

AVAILABLE  
MARKS

5

2 (a)

Statements	Nervous system	Hormone system
(message is slow)		(✓)
message travels along neurones	✓	
message travels in the blood		✓
message is electrical	✓	
message is chemical		✓

4 correct = [2] marks

3 or 2 correct = [1] mark

[2]

- (b) (i) Pancreas [1]  
(ii) Damage to eyes [1]  
damage to kidneys [1]  
(or any other suitable response) [2]

5

- 3 (a) Vitamin C ————— oranges [1]  
vitamin D ————— oily fish [1] [2]

- (b) 4 bars correct [2]  
(3 bars correct [1]) [2]

- (c) Red meat [1]

- (d) (i)  $200 \div 1000 (\times 100)$  [1]  
= 20% [1] [2]

- (ii) Healthy bones/teeth [1]

8

- 4 (a) (i) The flow of energy through the food chain [1]  
(ii) Field mouse [1]
- (b) (i) More food sources/continued food supply [1]  
(ii) Increase [1]  
there are fewer shrews to feed on them [1] [2]
- (c) Owls feed on field mice/voles [1]  
fewer field mice/voles/leads to fewer crops being eaten [1]  
more crops to sell [1] [3]
- 5 (a) (i) The allele that will always be expressed [1]  
(ii) Heterozygous [1]
- (b) (i)
- |   |    |    |
|---|----|----|
|   |    | t  |
| t |    | tt |
|   | Tt | tt |
- gametes [1]  
offspring [1] [2]
- (ii) 50% [1]
- (c) To avoid **producing** a cat with genotype TT [1]  
this genotype is lethal/will die in the uterus [1] [2]
- 6 (a) Respiration [1]
- (b) There is more CO<sub>2</sub> going into atmosphere than coming out [1]  
more combustion than photosynthesis/thicker combustion arrow than  
photosynthesis arrow [1] [2]
- (c) (i) The warming of the planet [1]  
(ii) Melting polar ice caps/rising sea levels/more extreme  
weather/climate change [1]
- (d) (i) Photosynthesis [1]  
(ii) Rise in oxygen levels [1]  
fall in carbon dioxide levels [1] [2]

AVAILABLE  
MARKS

8

7

8

			AVAILABLE MARKS	
7	(a)	The range of species in an area	[1]	7
	(b)	The number of bees has decreased from 1968 to 2008	[1]	
	(c)	The number of wild flowers has decreased [1] which means the bees have less food/nectar [1]	[2]	
	(d)	A line sloping upwards from 1968 to 2008 (does not need to be a straight line)	[1]	
	(e)	Plant more (nectar rich) flowers [1] do not use insecticides [1]	[2]	
8	(a)	(i) Left in the dark for 24 hours	[1]	6
		(ii) To remove/use any stored starch	[1]	
		(iii) Any <b>two</b> from: • same <b>type</b> of plant • same temperature • same length of time	[2]	
	(b)	B changes blue-black [1] starch made/photosynthesis occurred [1]	[2]	

**9 Indicative content**

- measure a fixed amount of water into the test-tube
- measure temperature of the water at the start
- measure a fixed amount of pasta using the balance
- hold it in the flame until it starts to burn
- hold the burning pasta under the test tube of water
- record the temperature of the water when the pasta stops burning
- calculate the temperature difference
- repeat the method with the potato
- the food with the greatest temperature increase has the most energy

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe and explain the stages in comparing the energy content of the two foods using <b>7 or more points</b> , in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	[5]–[6]
B	Candidates must use appropriate specialist terms throughout to describe and explain the stages in comparing the energy content of the two foods using <b>4, 5 or 6 points</b> , in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
C	Candidates describe and explain how to compare the energy content of the two foods using <b>1, 2 or 3 points</b> , however these are not presented in a logical sequence. They use limited spelling, punctuation and grammar and the form and style are of a limited standard.	[1]–[2]
D	Response not worthy of credit.	[0]

[6]

**Total**

**AVAILABLE MARKS**

6

**60**