



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

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**Science: Single Award**

Unit 1 (Biology)

Foundation Tier

**[GSS11]**

**WEDNESDAY 7 NOVEMBER 2018, MORNING**

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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.

			AVAILABLE MARKS							
1	(a)	Producer [1] primary consumer [1]	[2]	4						
	(b)	Flow of energy	[1]							
	(c)	The Sun	[1]							
2	(a)	Arrow from the right towards the plant	[1]	4						
	(b)	(i)	Phototropism		[1]					
		(ii)	Plant gets <b>more</b> light [1] more photosynthesis/more growth [1]		[2]					
3	(a)	Flu [1] athlete's foot [1]	[2]	4						
	(b)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Method</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">passive immunity</td> <td style="text-align: center;">antibodies produced by the patient's body</td> </tr> <tr> <td></td> <td style="text-align: center;">antibodies injected into the patient</td> </tr> <tr> <td style="text-align: center;">phagocytosis</td> <td style="text-align: center;">phagocytes surround, engulf and destroy microorganisms</td> </tr> </tbody> </table>	Method		Description	passive immunity	antibodies produced by the patient's body		antibodies injected into the patient	phagocytosis
Method	Description									
passive immunity	antibodies produced by the patient's body									
	antibodies injected into the patient									
phagocytosis	phagocytes surround, engulf and destroy microorganisms									
4	(a)	Helps red blood cells carry oxygen	[1]	4						
	(b)	Less energy/kJ/only 270 kJ of energy [1] less fat/only 2.1 g of fat [1]	[2]							
		(c)	Protein		[1]					

			AVAILABLE MARKS
<b>5</b>	<b>(a) (i)</b> 1	[1]	5
	<b>(ii)</b> 4	[1]	
<b>(b)</b>	<b>(i)</b> Condom	[1]	
	<b>(ii)</b> It is not permanent/is temporary [1] can have a baby in the future [1]	[2]	
<b>6</b>	<b>(a)</b> Change [1] in the structure or number of genes/chromosomes [1]	[2]	
	<b>(b)</b> Any <b>two</b> from:		
	• More people got skin cancer/rate of skin cancer is increasing, from 1995 to 2010/over time		
	• more females get skin cancer than males		
	• rapid increase in skin cancer from 2005	[2]	
	<b>(c) (i)</b> To reduce skin cancer	[1]	
	<b>(ii)</b> Wear sunscreen/avoid going out in the midday sun/cover up in the sun	[1]	
	<b>(d) (i)</b> Nuala 45 mins [1] Jane 0 mins [1]	[2]	
	<b>(ii)</b> 60/120 [1] 50% [1]	[2]	
	<b>(iii)</b> 5 bars correct [2] 4 bars correct [1]	[2]	
<b>7</b>	<b>(a)</b> Increasing levels of CO <sub>2</sub> in the atmosphere [1] forms a barrier in atmosphere/forms a greenhouse layer [1] more heat trapped/more heat reflected back to Earth [1]	[3]	7
	<b>(b)</b> More fossil fuels/petrol/diesel burned [1] deforestation [1]	[2]	
	<b>(c) (i)</b> Non-living factors	[1]	
	<b>(ii)</b> If size of ice field is decreasing (then global warming is increasing)	[1]	

- 8 (a) Recessive trait only shows if there are 2 copies of the recessive alleles/  
does not show if there is one dominant and one recessive allele [1]

(b) (i)

	A	
	AA	Aa
a	Aa	aa

[1] mark for gametes  
[1] mark for offspring

[2]

- (ii) aa (2 small letters)

[1]

- (iii) 75%/3:1/ $\frac{3}{4}$

[1]

5

- 9 (a) (i) It outcompetes other (native) species/it was brought from another  
country/reproduces rapidly [1]

- (ii) Extinction is the loss of all members of that species/none of the  
species are left alive [1]

- (b) (i) Poison kills foxes but leaves the native animals alive [1]

- (ii) Dingos may kill farm animals (such as lambs and calves) [1]  
fences exclude foxes without harming farm animals [1] [2]

5

AVAILABLE  
MARKS

- 10 (a) Water [1]  
 carbon dioxide [1]  
 oxygen [1] [3]
- (b) Produces oxygen/food [1]
- (c) **Indicative content**
- place leaf in boiling water
  - remove and place it in a test tube of ethanol
  - heat the ethanol
  - in a water bath/in boiling water
  - rinse the leaf in warm water to soften the leaf
  - (place leaf on a white tile) and cover with iodine
  - leaf will change blue/black if starch is present/if photosynthesis has occurred

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe and explain the stages of the investigation using <b>6 or 7</b> points, 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 the investigation using <b>4 or 5</b> points, 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 the investigation using <b>1, 2 or 3</b> points, 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**

10

**60**