

# Feeding Relationships

## Mark Scheme 2

<b>Level</b>	IGCSE(9-1)
<b>Subject</b>	Biology
<b>Exam Board</b>	Edexcel IGCSE
<b>Module</b>	Double Award (Paper 1B)
<b>Topic</b>	Ecology and the Environment
<b>Sub-Topic</b>	Feeding Relationships
<b>Booklet</b>	Mark Scheme 2

**Time Allowed:** 57 minutes

**Score:** /47

**Percentage:** /100

**Grade Boundaries:**

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

Question number	Answer	Notes	Marks
1 (a)	shape; order; names; ignore order width to scale / area to scale;	allow names or levels	4
(b)	pyramid shape;  different organisms have different masses / less mass further up pyramid / bush has greatest biomass / different bar widths / eq;	allow size	2
(c)	respiration; uneaten / not all eaten;  not digested / indigestible; death / decomposition / eq;		max 2
(d)	decrease;  less caterpillars / less food / less bush / eq;		2

**TOTAL 10 MARKS**

Question number	Answer	Notes	Marks
2 (a) (i)	thistle; song		1
(ii)	thrush;		1
(b) (i)	A iris / cornea; B pupil;		2
(ii)	1. sclera / sclerotic; 2. optic nerve; 3. lens / cornea;		3
(c) (i)	number/amount/group/all of organisms of same <u>species</u> ;	allow correct binomial name of a species  ignore type	1

(c)(ii)	<ol style="list-style-type: none"><li>1. <u>variation / variety</u>;</li><li>2. <u>mutation</u></li><li>3. (white snails) <u>survive / survival / survival of the fittest</u>;</li><li>4. not seen/camouflaged / not eaten /not killed;</li><li>5. reproduce / breed;</li><li>6. pass on gene/allele/DNA (for light shell) to offspring;</li></ol>	allow converse for black snails  ignore do not die	Max 5
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Total 13 marks

Question number	Answer	Notes	Marks
3 (a)	grass;		1
(b)	(i) 1600;;  (ii) 1. anaerobic (respiration); 2. less oxygen; 3. lactic acid / low pH; 4. affects enzymes / denatures enzymes; 5. less energy / less ATP;	allow one mark for 96 000 or 1.6 or $\div 60$ in working  ignore oxygen debt  ignore muscle fatigue / cramp / pain	2          Max 3

	<p>(c) 1. <u>variation</u> / <u>variety</u>;</p> <p>2. <u>mutation</u> <u>mutates</u>;</p> <p>3. <u>survive</u> / <u>survival</u> / <u>survival</u> of the fittest;</p> <p>4. reproduction / breed / mate /produce offspring;</p> <p>5. pass on gene / DNA / allele;</p>	<p>allow converse</p> <p>3. ignore several generations / increase in number</p> <p>4. ignore pass on mutation unless defined / characteristic</p>	<p>Max 4</p>
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<p>(d)(i)</p>	<p>light passes through retina twice / retina again / more light through retina / more detection by retina / more stimulation of retina / more retina cells stimulated / reflects back through retina / eq;</p>		<p>1</p>
<p>(ii)</p>	<p>large(r) pupil / dilated pupil / expanded pupil / <u>more</u> rods / larger hole in iris / radial muscles contract more / eq;</p>	<p>ignore more cones ignore smaller iris ignore circular muscles relax</p>	<p>1</p>
<p>(e)(i)</p>	<p>1. lion eats <u>protein</u> / meat is <u>protein</u>; 2. amylase cannot digest <u>protein</u>;</p>	<p>1. allow lion does not eat <u>starch</u> / meat has no <u>starch</u>  2. low amylase digests <u>starch</u></p>	<p>2</p>
<p>(ii)</p>	<p>1. increase surface area / increase surface area to volume ratio; 2. <u>protease</u> / <u>pepsin</u>;</p>	<p>ignore enzyme</p>	<p>2</p>

Question number	Answer	Notes	Marks												
4 (a)	<table border="1"> <thead> <tr> <th>sentence</th> <th>number</th> </tr> </thead> <tbody> <tr> <td>The number of organisms is</td> <td>(8)</td> </tr> <tr> <td>The number of different types of plant is</td> <td>2 / two;</td> </tr> <tr> <td>The number of animals is</td> <td>6 / six;</td> </tr> <tr> <td>The number of primary consumers is</td> <td>2 / two;</td> </tr> <tr> <td>The number of food chains is</td> <td>5 / five;</td> </tr> </tbody> </table>	sentence	number	The number of organisms is	(8)	The number of different types of plant is	2 / two;	The number of animals is	6 / six;	The number of primary consumers is	2 / two;	The number of food chains is	5 / five;		4
sentence	number														
The number of organisms is	(8)														
The number of different types of plant is	2 / two;														
The number of animals is	6 / six;														
The number of primary consumers is	2 / two;														
The number of food chains is	5 / five;														
(b) )	producer(s);		1												
(ii)	predator / <u>tertiary</u> consumer / carnivore;		1												
(c) (i)	decrease / fewer / less / eq;	Ignore die out / extinct	1												
(ii)	increase / more / eq;		1												

Total 8 marks