

# GCSE Science – Investigative Skills Assignment – Marking Guidelines

## Biology 1.1 – Fieldwork Investigation

For submission in May 2007 or May 2008

Please mark in red ink, and use one tick for one mark.

Subtotals for each part of each question should be written in the right hand margin.

Please add annotations where necessary to explain why marks have or have not been awarded.

Enter the marks for **Section 1** and **Section 2** and the **total mark** on the front cover of the answer booklet.

The teacher must sign and date the front cover of the ISA.

The papers must be kept in a secure place and must **not** be returned to candidates.

### SECTION 1

1	First (independent) variable correctly identified eg distance from path	1 mark
	Second (dependent) variable correctly identified eg number of daisies	1 mark
	NB The link between the two must be evident to be awarded both marks	
2(a)	Any idea of making it a fair comparison	1 mark
	<b>or</b> idea that area is important Do <b>not</b> accept just 'to make it a fair test' Explanation eg quadrat gives a standard area / area is a control variable	1 mark
(b)	Detailed sensible explanation eg so that quadrat could be put at regular intervals	2 marks
	Simple sensible explanation eg so as to know where to put the quadrat for 1 mark only	
3(a)	Correct number of quadrats stated	1 mark
(b)	No mark for YES or NO Mark is for an appropriate explanation YES – because a pattern could be seen	1 mark
	<b>or</b> it gave a good range of results <b>or</b> NO – because there was no pattern <b>or</b> little difference between the results	
(c)	Get <b>others</b> to repeat the measurements <b>or</b> compare your results with those of others <b>or</b> repeat using different technique <b>or</b> carry out more repeats <b>and</b> calculate a new mean	1 mark

4	<p>Amplified correct statement eg the more acidic the soil, the fewer the daisies</p> <p>Simple correct statement eg acidity affects the number of daisies</p> <p>for 1 mark only</p>	2 marks
5	<p>No mark for YES or NO Mark is for an appropriate explanation</p> <p>YES – with simple statement that identifies the uncertainty in any part of the transect</p> <p><b>or</b></p> <p>NO – with simple statement that identifies that there is a clear pattern, or class results are all similar</p>	1 mark
6	<p><b>Table:</b></p> <p>Suitable table of results with all relevant data included</p> <p>Columns and rows correctly labelled with quantities and units</p>	1 mark 1 mark
	<p><b>Graph/chart:</b></p> <p>X axis: suitable scales chosen and labelled with quantity and units (no mark if bars are not the same width)</p> <p>Y axis: suitable scales chosen and labelled with quantity and units</p> <p>Points or bars plotted correctly to within <math>\pm 1\text{mm}</math> Allow <b>one</b> plotting error</p> <p>Suitable line drawn on graph or bars correctly labelled on bar chart (allow error carried forward from incorrect plots)</p>	1 mark 1 mark 1 mark 1 mark

**Max 18 marks**

## SECTION 2

7(a)	33 (unit not required)	1 mark
(b)	30 to 36	1 mark
8	Bar chart	1 mark
9	<p>Greatest leaf area from hedge facing North</p> <p><b>or</b></p> <p>lowest leaf area from hedge facing South</p> <p>Intermediate leaf area for hedges facing East and West</p>	1 mark  1 mark
10	Sensible suggestion eg could be different ages / could have grown in the shade / could have grown in a windy position	1 mark
11	Reliable	1 mark
12	<p>Use smaller squares on graph paper</p> <p>Method of dealing with partly covered squares</p>	1 mark 1 mark

13	<p>Any <b>two</b> from:</p> <ul style="list-style-type: none"> <li>• second set of data matched the first set</li> <li>• increased reliability with more results</li> <li>• greater precision with second set</li> </ul>	2 marks
14	<p>Grow plants in different light intensities</p> <p>Idea of control</p> <p><b>or</b></p> <p>repeats / number of plants mentioned</p> <p>Measure leaf areas</p> <p><b>Quality of written communication</b></p> <p>The mark is to be awarded for the correct sequence of these three</p> <p>Annotate below candidate's answer with <i>Q✓</i> for mark given or <i>QX</i> for mark not given.</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>
15	In a North-facing direction / in shade / not in direct sunlight	1 mark
		<b>Max 16 marks</b>
<b>ISA Total 34 Marks</b>		