Commentary on candidate 1 evidence

Salinity

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Mark available	Mark awarded		Comments
1. Aim	1	1		Two aims have been stated which clearly describe the purpose of the investigation.
2. Underlying environmental science	3	3		Holistically, a good understanding of the underlying environmental science is demonstrated, at a depth appropriate to at least Higher level. This includes discussion of chemical weathering, variation in salinity around the globe, and factors responsible for these variations.
3. Data collection and handling	5	a	0	The mark is not awarded because neither description includes the measuring instrument.
		b	1	The raw data from both experiments is sufficient, with repeated measurements. In experiment 2, titrations were repeated until concordance was achieved.
		c	1	Data, including derived values, are presented in a correctly produced table with appropriate column headings and units.
		d	1	Data relevant to the investigation has been obtained from two experiments.
		e	1	The sources of internet information supporting the underlying environmental science is clearly cited within the report, and correctly referenced later in the report with a full URL and access date.

Section	Mark available	Mark awarded		Comments
4. Graphical presentation	4	a	1	The graph produced is based on the experimental data. A bar graph is used, which is an appropriate format for this type of data.
		b	1	The axes of the graph have appropriate scales. Categories are used on the x-axis in place of a scale.
		c	0	The y-axis has an appropriate label and unit, but the x-axis label for the beach sample does not match the table.
		d	1	Plotting of the data is accurate, with minor gridlines included on the computer-generated graph.
5. Analysis	2	a	1	Comparison of the salinity of samples from each location (experiment 1), and with the global average is demonstrated. The concentration of chloride in the seawater sample is compared with the global average. Either of these analyses would achieve the mark.
		b	1	Calculating the concentration of chloride in the seawater sample is an appropriate extended calculation, and has been calculated correctly.
6. Conclusion	1	1		Valid conclusions relating to the aims are made and are supported by all the data in the report.
7. Evaluation	3	2		Three evaluative statements are made, but two relate to ensuring that no salt was lost while drying the samples (experiment 1), and are therefore regarded as one issue.
8. Structure	1	1		The report is clear and concise and has an informative title.
Total	**20**	**17**		

Commentary on candidate 2 evidence

Pleurococcus

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Mark available	Mark awarded		Comments
1. Aim	1	1		The aim describes clearly the purpose of the investigation.
2. Underlying environmental science	3	2		A reasonable understanding of relevant environmental science is demonstrated by the description of Pleurococcus and how it attaches itself to a tree trunk, and that light is a limiting factor for photosynthesis and therefore, for distribution and abundance of Pleurococcus. A description of photosynthesis is included but is not at a level appropriate to at least Higher level.
3. Data collection and handling	5	a	1	The data collection process can be visualised from the summary provided. Pleurococcus frequency is being assessed at two heights, and light intensity at the midpoint, at eight compass points, on six trees.
		b	1	Sufficient raw data from the field work is included and is appropriate to the aim. Replicates are included (for two of the three data sets), which is appropriate.
		c	0	The field work data is appropriately tabulated, but the Pleurococcus frequency tables lack reference to whether the data are counts or % cover – the introductory information only states that they were measured. In addition, average frequencies are incorrectly calculated in rows where no Pleurococci were recorded; in each case it looks as though trees with a 0 frequency have been disregarded in the calculation.

Section	Mark available	Mark awarded		Comments
		d	1	Data relevant to the aim are included from a second field work investigation, and are appropriately presented (including the unit).
		e	1	Sources of information from the internet/literature have been cited within the body of the text and referenced at the end of the report.
4. Graphical presentation	4	a	1	Two graphs are included for identification of a relationship between the two variables. The frequency graph is marked first, and attention only turns to the light intensity graph if errors are found in the first graph. However, marks can only be awarded for one graph, as it is not a 'mix and match' approach between both. In this case, marks are awarded for the frequency graph.
		b	1	The frequency graph has a suitable scale on the y-axis and appropriate bar labels on the x-axis.
		c	0	The frequency graph y-axis label does not indicate that the plotted data are calculated averages, nor do they include any reference to Pleurococcus. The second graph is in a correct format and has suitable axes scale/labels, but also lacks reference to Pleurococcus, so this mark is not awarded, and marking continues on the first graph.
		d	1	The frequency data is accurately plotted using a computer package and minor gridlines are included.

Section	Mark available	Mark awarded		Comments
5. Analysis	2	a	1	A relationship between Pleurococcus frequency and distribution and light intensity is identified.
		b	1	% changes between the two heights assessed at each compass point is correctly calculated.
6. Conclusion	1	0		The aim was to find out if light intensity affects the distribution and abundance of Pleurococcus on tree trunks. While the conclusion provided does relate to the impact of light intensity on where Pleurococcus is found, the *distribution* is not in sufficient detail and *abundance* is not mentioned in the conclusion (nor is there any linkage between frequency and abundance anywhere in the report).
7. Evaluation	3	3		Three valid evaluative statements are provided relating to: ♦ planning ♦ data not meeting the overall trend ♦ potential for error
8. Structure	1	1		The report is clear and concise with an informative title.
Total	**20**	**16**		