

Commentary on candidate 4 evidence

UV light exposure on growth in yeast

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 of the investigation is clearly stated.	
2 Underlying biology	4	2	<p>Two expanded descriptions/explanations, that are relevant to the aim, are given at a depth appropriate to Higher level:</p> <ul style="list-style-type: none"> ◆ 1 mark (lines 7 – 10) – ‘When a mutation occurs... no protein at all.’ ◆ 1 mark (lines 14 – 20) – ‘Single gene mutations... removal of a nucleotide.’ <p>No marks were awarded for the following descriptions/explanations:</p> <ul style="list-style-type: none"> ◆ Lines 1 – 6 and 10 – 13, as this is mainly National 5 content. ◆ Lines 22 – end, as the reference to changes at nucleotide level are incorrect for chromosome mutations. 	
3 Data collection and handling	5	a	0	<p>A brief summary of the approach used to collect experimental data has not been provided in sufficient detail to allow the nature of the experiment to be visualised.</p> <p>No indication of what is being changed (exposure time) or how the dependent variable is measured (counting the number of colonies) has been provided.</p> <p>In this investigation counting the number of colonies would be regarded as the instrument of measurement.</p>

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		b 1	Repeated measurements are included and the raw (unprocessed) data is sufficient ie, 4 different exposure times over a suitable range of values (0 to 180 seconds).
		c 1	The experimental data is presented in a table with correct headings and units. 'Avg' is accepted as an abbreviation for average. The mean values (averages) are calculated correctly and included in the table. The heading of 'group data' is suitable to indicate results were gathered from four different groups.
		d 1	A line graph is included with headings and values which clearly link to the aim of the investigation.
		e 0	Although there is a citation beside the internet source, the date accessed has not been provided with the reference at the end of the report.
4 Graphical presentation	4	a 1	The graph produced is based on the candidate's experimental data. A line graph has been selected which is the appropriate format for this data.
		b 1	Both axes have suitable scales.
		c 0	The positioning of the label 'Average number of yeast colonies grown' implies a title rather than a y-axis label.
		d 1	All points are plotted accurately and lines drawn to link each of them.
5 Analysis	1	0	A full comparison of the data has not been provided. No indication of trend has been described. The differences in exposure time have not been highlighted.
6 Conclusion	1	0	Although the conclusion relates to the aim of the investigation, it is not supported by all of the data in the report. The conclusion does not consider the fluctuation in the candidate's own experimental results.

Section	Mark available	Mark awarded	Comments
7 Evaluation	3	0	No marks are awarded for the following reasons: <ul style="list-style-type: none">◆ The point about length of exposure time is incorrect due to the use of 'accurate' when it should be 'valid'.◆ The candidate has not fully described the issue of positioning of the plates in relation to the UV light, or explained how using more UV lights would address this issue.
8 Structure	1	1	An informative title is given and the report flows in a logical manner.
Total	20	10	