**Investigation 7: Moderator comments**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Personal engagement  x/2** | **Exploration  x/6** | **Analysis  x/6** | **Evaluation  x/6** | **Communication  x/4** | **Total  x/24** |
| 2 | 5 | 6 | 5 | 3 | 21 |

**Personal engagement**

|  |  |
| --- | --- |
| **Mark** | **Descriptor** |
| 2 | * The justification given for choosing the research question and/or the topic under investigation demonstrates **personal significance, interest or curiosity**. 2 * There is evidence of **personal input and initiative** in the designing, implementation or presentation of the investigation. 2 |
| **Moderator’s award**  2 | **Moderator’s comment**  Though there is only a little indication of personal significance, there is clear evidence of personal input during the design and implementation. |

**Exploration**

|  |  |
| --- | --- |
| **Mark** | **Descriptor** |
| 3–4 | * The topic of the investigation is identified and a relevant but not fully focused research question is described. 4 * The report shows evidence of some awareness of the significant **safety,** ethical or environmental issues that are **relevant to the methodology of the investigation\*. 4** |
| 5–6 | * The background information provided for the investigation is entirely appropriate and relevant and enhances the understanding of the context of the investigation. 6 * The methodology of the investigation is highly appropriate to address the research question because it takes into consideration all, or nearly all, of the significant factors that may influence the relevance, reliability and sufficiency of the collected data. 5 |
| **Moderator’s award**  5 | **Moderator’s comment**  The aim is focused but there is no direct link established between the resting position of the moths discussed in the introduction and the light levels varied in the experiment.  The scientific context is established.  The method is straightforward with good control of variables. Some additional information on the simulation would be helpful but the screen shots are useful.  There are no safety, ethical or environmental issues. |

**Analysis**

|  |  |
| --- | --- |
| **Mark** | **Descriptor** |
| 5–6 | * The report includes sufficient relevant quantitative and qualitative raw data that could support a detailed and valid conclusion to the research question. 5 * Appropriate and sufficient data processing is carried out with **the accuracy** required to enable a conclusion to the research question to be drawn that is fully **consistent** with the experimental data. 6 * The report shows evidence of full and appropriate consideration of the impact of measurement uncertainty on the analysis. 6 * The processed data is correctly interpreted so that a completely valid and detailed conclusion to the research question can be deduced. 6 |
| **Moderator’s award**  6 | **Moderator’s comment**  Sufficient raw data is collected. Some qualitative observations appear in the discussion (for example, fingerprints on the screens).  The processing is sufficient, appropriate and accurately carried out.  There is appropriate consideration of uncertainties in the calculation of the standard deviations.  The interpretations of the graphs and t-tests are correct. |

**Evaluation**

|  |  |
| --- | --- |
| **Mark** | **Descriptor** |
| 5–6 | * A conclusion is **described and justified** which is relevant to the research question and supported by the data presented. 5 * A conclusion is correctly **described and justified** through relevant comparison to the accepted scientific context. 6 * Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are **discussed** and provide evidence of a clear understanding of the **methodological issues** involved in establishing the conclusion. 6 * The student has **discussed** realistic and relevant suggestions for the improvement and extension of the investigation. 5 |
| **Moderator’s award**  5 | **Moderator’s comment**  Several conclusions are made that are relevant and supported by the data though it could be more fully explained.  The conclusions are supported by reference to accepted scientific context.  Strengths and weaknesses of the investigation are considered with respect to the capacity of the simulation to mimic a natural event.  The observed superior performance of the melanic form suggests this simulation is biased; this should lead to a suggested improvement. |

**Communication**

|  |  |
| --- | --- |
| **Mark** | **Descriptor** |
| 3–4 | * The report is well structured and clear: the necessary information on focus, process and outcomes is present and presented in a coherent way. 3 * The report is relevant and concise thereby facilitating a ready understanding of the focus, process and outcomes of the investigation. 3 * The use of subject specific terminology and conventions is appropriate and correct. Any errors do not hamper understanding. 4 |
| **Moderator’s award**  3 | **Moderator’s comment**  The report is generally well structured and relevant though it could be clearer in places and more concise.  The terminology and conventions are appropriate and correct. |