\*Mandatory for prize winners

| **Level** | **Description** |
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| **5** |  The student has provided **clear and convincing evidence** that they:* completed a **valid** scientific investigation**\***
* had **well-defined** aims and **clearly expressed** the subject of the investigation\*
* formulated a **testable** **hypothesis** based on prior research and/or previous observations\*
* identified **independent** and **dependent variables** (or **two variables** for correlation) and took deliberate steps to regulate and keep **controlled variables** constant\*
* made relevant observations using appropriately **replicated trials** or **gathered relevant secondary data\***
* demonstrated **deep knowledge** and **understanding** of related science concepts\*
* used **critical thinking** to synthesise information and construct **evidence-based arguments\***
* based their explanations on **plausible** scientific processes or causes\*
* addressed an issue of **social** or **scientific significance\***
* have been **innovative** or **creative** in their approach, content, methodology or communication to the audience\*
* included a **concise** and **comprehensive** summary of relevantresearch in the field and its **reliability** assessed
* accurately **identified** and took steps to **minimise** potential investigative risks and ethical problems.
* **identified** and **assessed** a range of procedures and provided **convincing** **arguments** for the procedure selected
* **justified** the selection of equipment, technologies and/or secondary data to optimise the **accuracy** of the collected data
* recorded data in an **organised, sequential** and **logical** manner using correct units
* used **analytical tools** to **evaluate** trends, patterns and relationships in collected data
* suggested **creative** and **worthwhile** directions for future research in a succinct way
* **developed, proposed** and **evaluated** inquiry questions to identify an issue or phenomenon that could be investigated scientifically
* included a **comprehensive** logbook detailing the investigative process, from brainstorming, through data collection and analysis to the final conclusion
* comprehensively **acknowledged** the **nature** of all assistance
* used **clear, concise and consistent** scientific language and terminology that is **meaningful** for the intended audience or purpose
* selected and used **suitable** forms of **visual, written** **and/or digital** forms of communication
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|  **4** | The student has provided **substantial evidence** that they:* completed a **well-planned** scientific investigation
* **proposed** and **developed** inquiry questions that could be investigated scientifically
* had **realistic** aims and **well-described** the subject of the scientific investigation
* included a **summary** of relevantinformationand checked its **reliability**
* proposed a **hypothesis** based on prior research or previous observations
* had a **detailed knowledge** and **understanding** of the science concepts used in the investigation
* conducted a carefully **considered** risk assessment prior to investigation.
* selected equipment and technologies to improve the **accuracy** of the collected data
* had been **innovative** or **creative** in content or methodology
* gathered experimental data over a **number of trials** using appropriate technologies or gathered relevant secondary data
* recorded data in a **systematic** manner using **correct units**
* identified **independent** and **dependent variables** and worked to control them
* **analysed** and **explained** trends, patterns and relationships in the data collected
* synthesised collected data and constructed **evidence-based arguments**
* used **critical thinking** to derive conclusions, suggesting ideas for future research
* included a log book **detailing** the different stages of the investigative process
* **acknowledged** and provided details of any assistance given
* communicated the report with **effective** use of language, visuals and sequencing
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| **3** |  The student has provided **evidence** that they:* completed a scientific investigation that shows evidence of **careful** planning
* **proposed** relevantinquiry questions that could be investigated scientifically
* had **measurable** aims and the subject of the investigation was **clearly** described
* collectedbackground research with **some relevance** to the subject of investigation
* proposed a **relevant** **hypothesis**
* demonstrated **good knowledge** and **understanding** of the science concepts used in the investigation
* had some **innovative** or **creative** ideas but did not develop them
* conducted a **risk assessment** prior to any first-hand experimentation
* used appropriate equipment and technologies for better **accuracy**
* gathered first-hand data **with replication**
* used thorough scientific methodology including the **control** of **variables**
* identified **obvious** trends, patterns and relationships in the data
* used critical thinking to formulate conclusions that were **supported** by data
* provided **supporting** documentation in the accompanying logbook
* put forward some **good** and **practical** ideas for future improvements
* **acknowledged** any assistance given
* communicated the report with **good** use of language, visuals and sequencing appropriate to the intended audience
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| **2** |  The student has provided **evidence** that they:* completed a scientific investigation with **moderate** planning
* launched into the investigation without a **clear inquiry question** to drive the project
* had some **tentative** aims and the subject of the investigation was **adequately** described
* performed **limited** or **general** background research
* had **minimal** understanding of the science concepts used in the investigation
* lacked **innovative** or **creative** ideas
* considered **experimental risks** but did not conduct a formal **risk assessment**
* used equipment and technologies without considering **accuracy**
* gathered **some** first-hand data **without** **replication**
* **controlled** some **variables**
* identified **limited** trends, patterns and relationships in the data
* formulated conclusions that were **not fully supported** by gathered data
* provided **limited** or **disorganised** documentation in the accompanying logbook
* put forward **some** ideas for future improvements
* received some assistance but **did not provide details** of the assistance recieved
* communicated the report with **adequate** use of language, visuals and sequencing
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| **1** |  The student has provided **evidence** that they:* submitted a project with **limited** planning
* had no **clear** aim and the subject of the investigation was **vaguely** described
* performed **nominal** or **irrelevant** background research
* had an **inadequate** understanding of the science concepts used in the investigation
* selected equipment and technologies that were **inaccurate**
* **failed** to recognise or control **variables**
* **failed** to identify trends, patterns and relationships in the data
* manufactured conclusions **lacking** supporting information and scientific accuracy
* **neglected** to include a logbook
* **neglected** to acknowledge the assistance given
* communicated the report with **poor expression** and **inadequate** use of visuals
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