\*Mandatory for prize winners

| Level | Description |
| --- | --- |
| 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 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 **replicated trials** or gathered **relevant secondary data**\*
* demonstrated a **deep understanding** of related science concepts\*
* used **critical thinking** to synthesise information and **argue the merits** of conclusions\*
* based their explanations on **plausible** scientific processes and causes\*
* accurately **identified** and took steps to **minimise** potential investigative risk
* addressed an issue of **social** or **scientific significance\***
* have been **innovative** or **creative** in their approach, content, methodology or communication to the audience
* **identified** and **assessed** a range of procedures and provided **convincing** **arguments** for the procedure and technology selected
* recorded data in an **organised, sequential** and **logical** manner using correct units
* used **analytical tools** to **evaluate** trends, patterns and relationships in collected data
* included a **concise** and **comprehensive** summary of **relevant** prior research in the field and its **reliability** assessed
* suggested **creative** and **worthwhile** directions for future research in a succinct way
* included a **comprehensive** logbook, detailing the investigative process, from brainstorming, through data collection, to the final conclusion
* comprehensively **acknowledged** the **nature** of all assistance
* used **clear, concise, consistent** and **meaningful** language, visuals and sequencing to **effectively** communicate to the intended audience
 |
|  4 | The student has provided **substantial evidence** that they:* completed a **well-planned** scientific investigation
* had **realistic** aims and **well-described** the subject of the scientific investigation
* included a **summary** of current **relevant** informationand checked its **reliability**
* proposed a **hypothesis** based on prior research or previous observations
* had a **detailed understanding** of the science concepts used in the investigation
* conducted a carefully **considered** risk assessment prior to experimentation
* had been **innovative** or **creative** in content or methodology
* gathered experimental or secondary data over a **number of trials** using appropriate technologies
* 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
* used **critical thinking** to derive conclusions, suggesting ideas for future research
* included a logbook **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
 |
| 3 | The student has provided **evidence** that they:* completed a scientific investigation that shows evidence of **careful** planning
* had some **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**
* had a **good** **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 experimentation
* gathered primary or secondary data with **replication**
* used thorough scientific methodology including the **control** of **variables**
* identified **obvious** trends, patterns and relationships in the data
* formulated conclusions that were **supported** by experimental 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
 |
| 2 | The student has provided **evidence** that they:* completed a scientific investigation with **moderate** planning
* 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**
* 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 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 given
* communicated the report with **adequate** use of language, visuals and sequencing
 |
| 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
* **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 assistance given
* communicated the report with **poor expression** and **inadequate** use of visuals
 |