\*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 |