\*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 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 |
| **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 |
| **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 |
| **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 |
| **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 |