**Criterion A: Investigate**

Investigation is an essential stage in the design cycle. Students are expected to identify the problem, develop a design brief and formulate a design specification. Students are expected to acknowledge the sources of information and document these appropriately.

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| **Achievement level** | **Level descriptor** | **Task specific clarifications** |
| **0** | The student did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | The student **stated** the problem.  The student investigated the problem, collecting information from **few** sources.  The student listed some specification points. |  |
| **3–4** | The student **described** the problem, mentioning its relevance.  The student investigated the problem, selecting and analysing information from **some** acknowledged sources.  The student described a test to evaluate the product/solution against the design specification. |  |
| **5–6** | The student explained the problem, discussing its relevance.  The student critically investigated the problem, evaluating information from a **broad** **range** of appropriate, acknowledged sources.  The student described **detailed** **methods** for appropriate testing to evaluate the product/solution against the design specification. |  |

**Notes**

* Design brief: The student’s response to the challenge, showing how they intend to solve the problem they have been presented with. This will guide their investigation as they work to develop a more detailed design specification.
* Design specification: A detailed description of the conditions, requirements and restrictions with which a design must comply. This is a precise and accurate list of facts such as conditions, dimensions, materials, process and methods that are important for the designer and for the user. All appropriate solutions will need to comply with the design specification.

**Criterion B: Design**

Students are expected to generate several feasible designs that meet the design specification and to evaluate these against the design specification.

Students are then expected to select one design, justify their choice and evaluate this in detail against the design specification.

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| **Achievement level** | **Level Descriptor** | **Task Specific Clarifications** |
| **0** | The Student did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | The student generates one design, and makes some attempt to justify this against the design specification. |  |
| **3–4** | The student generates a few designs, justifying the choice of one design and fully evaluating this against the design specification. |  |
| **5–6** | The student generates a range of feasible designs, each evaluated against the design specification. The student justifies the chosen design and evaluates it fully and critically against the design specification. |  |

**Criterion C: Plan**

Students are expected to construct a plan to create their chosen product/solution that has a series of logical steps, and that makes effective use of resources and time.

Students are expected to evaluate the plan and justify any modifications to the design.

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| **Achievement level** | **Level descriptor** |  |
| **0** | The student did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | The student produced a plan that contains **some details** of the steps and/or the resources required. |  |
| **3–4** | The student produced a plan that contains a **number of logical steps** that include resources and time.  The student made **some attempt** to evaluate the plan. |  |
| **5–6** | The student produced a plan that contains a **number of detailed**, logical steps that describe the use of resources and time.  The student **critically** evaluated the plan and **justified** any modifications to the design. |  |

**Criterion D: Create**

Students are expected to document, with a series of photographs or a video and a dated record, the process of making their product/solution, including when and how they use tools, materials and techniques. Students are expected to follow their plan, to evaluate the plan and to justify any changes they make to the plan while they are creating the product/solution.

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| **Achievement level** | **Level descriptor** | **Task specific clarifications** |
| **0** | The student did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | The student considered the plan and created at least **part** of a product/solution. |  |
| **3–4** | The student used appropriate techniques and equipment.  The student followed the plan and **mentioned any modifications** made, resulting in a product/solution of **good quality**. |  |
| **5–6** | The student **competently** used appropriate techniques and equipment.  The student followed the plan and **justified any modifications** made, resulting in a product/solution of **appropriate quality** using the resources available. |  |

**Notes**

* Appropriate quality: This is the best product/solution that the student can produce, taking into account the resources available, the skills and techniques they have used, their educational development, how the product/solution addresses the identified need, and aspects of safety and ergonomics.

**Criterion E: Evaluate**

Students are expected to evaluate the product/solution against the design specification in an objective manner based on testing, and to evaluate its impact on life, society and/or the environment. They are expected to explain how the product/solution could be improved as a result of these evaluations.

Students are expected to evaluate their own performance at each stage of the design cycle and to suggest ways in which their performance could be improved.

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| **Achievement level** | **Level descriptor** |
| **0** | The student did not reach a standard described by any of the descriptors given below. |
| **1–2** | The student evaluated the product/solution **or** your performance.  The student made **some attempt** to test the product/solution. |
| **3–4** | The student evaluated the product/solution **and** your performance and suggested ways in which these could be improved.  The student **tested** the product/solution to **evaluate it** against the design specification. |
| **5–6** | The student evaluated the success of the product/solution in an **objective** manner **based on the results** of testing, and the views of the intended users.  The student provided an evaluation of their own performance **at each stage** of the design cycle and suggested improvements.  The student provided an appropriate evaluation of the **impact** of the product/solution on life, society and/or the environment. |

**Notes**

* Product testing: A stage in the design process where versions of products (for example, prototypes) are tested against the need, applied to the context and presented to the end‑user or target audience.

**Criterion F: Attitudes in technology**

This criterion refers to students’ attitudes when working in technology. It focuses on an overall assessment of two aspects:

* **personal engagement (motivation, independence, general positive attitude)**
* **attitudes towards safety, cooperation and respect for others.**

By their very nature these qualities are difficult to quantify and assess, and assessment should therefore take into account the context in which the unit of work was undertaken.

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| **Achievement level** | **Level descriptor** |
| **0** | The student did not reach a standard described by any of the descriptors given below. |
| **1–2** | The student **occasionally** displayed a satisfactory standard in one of the aspects listed above. |
| **3–4** | The student **frequently** displayed a satisfactory standard in both of the aspects listed above. |
| **5–6** | The student **consistently** displayed a satisfactory standard in both of the aspects listed above. |