

Assessment Report

On this page

[Level 1 Technology 2020](#) ▾

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Standards [91048](#) [91049](#) [91050](#) [91053](#)

Part A: Commentary

Commentary is not provided for Technology standards, only standard-specific comments. The task does not change year on year and the external assessment is not an examination. The contexts are diverse and standard specific comments only are more appropriate.

Part B: Report on standards

91048: Demonstrate understanding of how technological modelling supports decision-making

Candidates who were awarded **Achievement** commonly:

- identified a technological outcome they had developed
- focussed the report on more than one technological outcome
- identified one or more methods of technological modelling they had undertaken

- provided some evidence of the results of the technological modelling they had undertaken
- described some basic decision(s) made as a result of reviewing the evidence of the modelling they had undertaken
- supported their writing with evidence from their portfolio.

Candidates whose work was assessed as **Not Achieved** commonly:

- identified and explained their manufacturing process only
- undertook modelling but provided no evidence of decisions that they had made
- identified advantages and disadvantages or pros and cons of the modelling without referring to any decisions that were made
- wrote generic responses that showed no evidence of what was learned when modelling
- were limited by their set question or scaffolding that did not enable them to meet the requirements of the standard
- submitted incomplete reports
- provided no supporting evidence from their portfolio.

Candidates who were awarded **Achievement with Merit** commonly:

- explained why they selected a particular method of technological modelling
- explained the relevance of a particular method of technological modelling to the developing outcome
- explained how the evidence gained from a particular method of technological modelling influenced subsequent decision(s) about the developing outcome
- provided evidence of modelling (functional modelling and/or prototyping) regarding the technical feasibility and/or social acceptability of the potential outcome
- provided relevant and curated evidence from their portfolio.

Candidates who were awarded **Achievement with Excellence** commonly:

- submitted structured reports guided by a robust and personalised brief with specification and real-world stakeholders

- focussed the report on one technological outcome
- conducted modelling that was logical, sequential and linked to the developing outcome
- justified the reason for choosing the form of modelling they used with reference to the social and physical environment
- analysed the findings from their technological modelling, to ensure appropriateness of procedures and resources used to ensure fitness for purpose (technical feasibility)
- analysed the findings from their technological modelling, to ensure appropriateness of the developing outcome in relation to social acceptability and environmental considerations
- discussed how the modelling prevented or identified potential problems in relation to how technically feasible and socially acceptable the outcome would be
- evaluated the results of both the functional modelling and prototyping that had been undertaken.

Standard specific comments

Candidates who provided relevant, sequential and legible photographic evidence from their portfolio were more likely to be successful. Those accessing higher levels of achievement had a clear authentic brief that allowed them to interact with stakeholders. Many candidates confused risk management with health and safety as opposed to how their modelling revealed and managed potential issues (risks) that could arise as the outcome was developed.

The technological modelling undertaken needs to be related to the candidate's own practice. Where students included material from case studies, it was of little benefit unless they linked it directly to decisions made in their own modelling. Candidates whose evidence was gleaned from group work were disadvantaged as they were often unable to demonstrate an independent understanding of the purpose of the modelling, the evidence gained, and the subsequent decision(s) made. Reports analysing the generic advantages and disadvantages of selected forms of modelling were disadvantaged as they were unable to present specific evidence resulting from specific modelling leading to specific decisions.

91049: Demonstrate understanding of how materials enable technological products to function

Candidates who were awarded **Achievement** commonly:

- introduced their project, and stated the required product specifications which gave purpose and context to the report
- based their report on their own technological experience i.e. linked the material(s) being used to their own project work and the product they made
- described the material(s) they had used, the performance properties of the material(s) and how these related to the product
- described the composition, structure and performance properties of their material(s), but understanding of how materials could be manipulated to allow their technological product to function was only just sufficiently demonstrated
- explained how the material(s) could be manipulated, but provided only basic information related to composition, structure and performance properties
- used diagrams or written text to describe the composition and structure of the basic material(s) being used
- presented a clearly structured report that had been scaffolded
- completed a bibliography, or referenced as appropriate, evidence that supported their project
- used student voice to demonstrate their understanding of how their chosen material(s) enabled their product to function.

Candidates whose work was assessed as **Not Achieved** commonly:

- described the performance properties of a material but did not address how the material was used or how it would be useful in the development of a technological outcome
- did not include the manipulation of material(s) in relation to their own practice
- did not explain how the material(s) used had been manipulated
- included a step by step description of how their project was made but did not cover the performance properties of the material which made it functional

- presented irrelevant material, that did not link to their project for example the history of materials; how wood is cultivated.
- identified information only, often by use of a list.

Candidates who were awarded **Achievement with Merit** commonly:

- presented clear, structured responses that explained but did not discuss
- explained a material(s) in terms of its structure and composition, and how these determine its performance properties
- explained how the performance properties allow a material(s) to be manipulated to perform its function and contribute to developing a functional product
- presented evidence of interactions with their product specifications, material(s) research, and how these related to each other
- presented examples from their own project using their own voice.

Candidates who were awarded **Achievement with Excellence** commonly:

- discussed a material(s) in terms of its properties, composition and structure and how those factors allow it to be manipulated to perform its function and contribute to developing a functional product
- included comparison with alternative methods in their discussion of how they had manipulated the material(s)
- provided a discussion, justifying material selection and how the individual properties of the material(s) combine with other materials to ensure the product functions as intended
- based the report on their own experiences whilst developing their own product
- discussed in depth the composition, structure and performance properties of the material(s) that enabled their project to function as intended, as required by the performance specifications provided
- demonstrated understanding of the material(s) they used throughout their discussion
- used complex sentence structures and synthesised the information they had discovered

- wrote clear, well-structured reports.

Standard specific comments

Candidates who provided evidence in the form of a clearly structured report related to their own practice were advantaged. These candidates often used the bullet points of the standard to structure their report.

Candidates who used their own voice in the presentation of their evidence could often demonstrate their understanding in greater depth, enabling them to access the higher bands of achievement.

Candidates can focus on one material and do not have to write about multiple materials.

Candidates are encouraged to reference their reports as instructed in the Assessment Specifications.

91050: Demonstrate understanding of the role of subsystems in technological systems

Candidates who were awarded **Achievement** commonly:

- identified subsystems in a chosen technological system
- described the role of each subsystem in the chosen technological system
- described how the subsystems worked together in the chosen technological system.

Candidates whose work was assessed as **Not Achieved** commonly:

- did not identify subsystems correctly, preferring to identify components only
- did not describe how subsystems work together
- selected a system to describe, that could not be considered a Technological system.

Candidates who were awarded **Achievement with Merit** commonly:

- showed good understanding of control and feedback in technological systems

- explained and/or discussed the advantages and disadvantages of subsystem use in a “particular” technological system.

Candidates who were awarded **Achievement with Excellence** commonly:

- discussed the implications of subsystems on the design, development and maintenance of technological systems
- often addressed these implications using systems more complex than school-based systems.

Standard specific comments

Technological systems must contain subsystems to ensure students can describe these subsystems and their roles.

Feedback Control must be explained from a systems perspective, rather than a programming perspective.

Advantages and disadvantages of subsystem use must be discussed using a particular system as an example.

Selection of a system with enough technical depth, must be used when discussing the Implications of Design, Development and Maintenance on a Technological System.

91053: Demonstrate understanding of design elements

Candidates who were awarded **Achievement** commonly:

- identified and described relevant design elements within an outcome they had designed or those of others
- included some personal voice, although evidence was often limited by limited detail
- described design elements appropriate to the outcome(s) and how they affected the quality of the outcome(s).
- identified and described both the subjective and objective considerations within a specified context

- described how the design elements contributed positively and/or negatively to the quality of the design
- selected simplistic outcomes such as a basic website, banner advertisement or magazine cover, which limited their opportunity to describe the relevant design elements
- limited their analysis to the aesthetic elements of design and did not fully explore the functional considerations.

Candidates whose work was assessed as **Not Achieved** commonly:

- used generic/prescribed design elements that showed no relationship with their specified context/technological outcome
- submitted large quantities of supplied and/or non-referenced information that they had not processed/personalised or applied to a technological outcome or context
- described poorly designed outcomes and/or products which did not give them enough scope to demonstrate understanding of design elements.
- provided design element definitions without commenting on how they had been applied within a technological outcome
- identified the relevant design elements present within a product but did not describe the effect these elements had on the quality of the specified context.

Candidates who were awarded **Achievement with Merit** commonly:

- identified, described and explained the application of design elements within the chosen context, which demonstrated an in-depth understanding
- reflected on the development of their product and supported their discussion with imagery and/or screen snips of their developing ideas (evidence of technological modelling)
- explained the 'how' and 'why' of the design elements considered in relation to the design quality within the chosen context
- explained how specific elements had been applied to improve the aesthetics and/or function of a product
- compared and contrasted existing products with their own outcomes which enabled in-depth discussion on the quality of the design(s) and underpinning design elements.

Candidates who were awarded **Achievement with Excellence** commonly:

- showed accurate and comprehensive understanding of design elements and how and why they contributed to the quality of outcome/s in their specified context
- discussed how and why design elements contributed to their own outcome
- compared, contrasted and evaluated the application of design elements related within their own practice and discussed how the interaction of different design elements impacted on the quality of the design and final outcome
- placed an emphasis on how the application of design elements impacted on their own practice and discussed how it impacted on design decisions.

Standard specific comments

Candidates were more successful when they based their reports on what they had done to consider specific design elements in relation to a technological outcome produced as part of their own technological practice. Greater diversity of evidence and increased personal voice was evident when candidates had integrated evidence from their own technological experiences into their report.

A number of candidates who were unsuccessful limited their report to identifying the existence of an element(s) within a design rather than how the design elements were applied, and did not comment on the impact (both positive and negative) that the application of design elements had on the outcome. Some candidates were disadvantaged due to different products being used to identify/describe the application of each design element. These candidates were unlikely to advance beyond an Achieved grade due to a lack of explanation and the use of a less robust compare/contrast model.

Comprehensive understanding was often characterised by candidates being able to comment on how the application of one element can impact on and influence other design elements. Candidates who used writing frameworks that promoted this integrated approach to the use and application of design elements were often advantaged.

Candidates who utilised templates often duplicated the same content and level of evidence for different products. In addition, it was often difficult to differentiate between information provided by the teacher, downloaded or resulting from group work, and that produced by the individual candidate. In cases where a candidate's

own work could not be clearly recognised, they seldom gained higher than an Achieved grade. Template-based submissions tended to show limited scope for divergent thought.

[Technology subject page](#)

Previous years' reports

[2019 \(PDF, 394KB\)](#) [2018 \(PDF, 170KB\)](#) [2017 \(PDF, 71KB\)](#) [2016 \(PDF, 241KB\)](#)