

Assessment Report

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Part A: Commentary

Commentary is not provided for Technology standards.

Report on Standards

91612: Demonstrate understanding of how technological modelling supports technological development and implementation

Examinations

Candidates should identify their context early to provide coherence to the marker. If using case studies, these need to be relatable to the modelling in the report otherwise they confuse rather than reinforce the candidate's submission.



Competing and contestable factors must be the focus of the modelling to enable defensible decisions to be made.

Candidates should adhere to the report specifications of 10 pages, size 12 font and 25mm borders. Where small font /stretched borders and/or additional pages have been used, then the equity and validity of the entirety of the report are questionable at level 3 and marking will stop at the specified page length.

Templating at level 3 should be minimal so that the submitted report is an accurate representation of the candidate's knowledge and as such candidates using templates are not able to demonstrate comprehensive understanding in their report.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- differentiated between functional modelling and prototyping
- explained competing and contestable factors
- explained how their modelling influenced their decision making during the making and implementation of an outcome.

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

- did not explain or explained superficially how modelling informed their decision making for an outcome
- described some modelling undertaken but did not mention/highlighted minimal competing and contestable factors
- included sketches, diagrams, photos, or screenshots of modelling but did not refer to these to help explain modelling choices
- described technological modelling without identifying how it was used to address competing and / or contestable factors in relation to their outcome
- explained how modelling can manage and mitigate risk in technological development without explaining, or often even mentioning contestable and competing factors.

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

- provided detail about how relevant competing and contestable factors were addressed by technological modelling

- explained the changes that took place during the development stage of their technological outcome due to the results from functional modelling
- reflected on what was changed in their development due to prototyping.

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

- discussed comprehensively and reflectively how technological modelling can be used to defend and validate decisions made during their own technological development at certain stages
 - displayed with clarity how key factors were resolved through evidence gained from modelling processes and a clear understanding of the difference between competing and contestable factors
 - presented reports that were well-organised and structured.
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91613: Demonstrate understanding of material development

Examinations

This standard requires candidates to demonstrate understanding of the relationship between the material, the enhancement to the product / material and the product functionality. Candidates who clearly linked the material, the specific enhancement and the performance of the product performed well. Candidates who compared a variety of products and materials did not gain the higher grades.

Successful candidates provided well-structured reports that used referenced and processed technical data, charts and diagrams from relevant and credible sources to explain the concepts and processes that were related to the specific material development.

Candidates who were left to research without any intervention or guidance often used materials that were inappropriate, advertorial, or so highly technical that the candidate could not interpret these to show their own understanding.

Where candidates are given templates, care must be taken not to detract from the criteria of the standard. Candidates using templates who did not achieve focussed on questions that misdirected them or were incorrect. This could be seen at all levels of achievement to varying degrees.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- clearly described a material and its properties
- described the enhancement of the product in terms of characteristics such as washability, tensile strength, durability, flexibility, weight in relation to enhancement of speed, general speed enhancement, viscosity, taste, flavour, texture, preservative action and extension of shelf life, nutritional value as outlined in EN 3
- clearly related the material to a product/s and described how it enhanced the product
- clearly related the material properties to how the product functions and the contexts in which it is used
- described how the product would need to be maintained
- described how the product or the material can be disposed of at the end of the product life cycle.

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

- focussed on the development of the product without focussing on the material aspect of the product
- described a very broad generic product or group of products rather than a specific product - this made it more difficult for candidates to describe the enhancements in a specific context
- described the development of their own product and practices rather than referring to material development or enhancements
- described the product or material's sustainability rather than maintenance and disposal
- described why materials and or products in general are developed (generic)
- used internal assessment evidence as the basis of their report without addressing the criteria of this standard
- used significant downloaded material that was unprocessed and showed limited understanding or links to product enhancement
- identified a material but did not describe the development or enhancement

- described the application of a material in practice but did not describe the enhancement in relation to the product
- described their own product, material(s) used and processes, which did not address the issues of material properties, enhancements, or maintenance and / or the design, development, production, ongoing maintenance and end of life disposal of the product
- provided evidence of the construction and issues encountered when developing a project that the candidate had made, without describing the development of the materials used, their impact on the product's performance or the implications of the material chosen in relation to a specific enhancement
- described the packaging material as the disposal issues when this had not been the focus of the material design, development, and production focus.

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

- related the material(s) properties to the chosen product functionality and context
- explained how the properties enhance the product to enable it to function
- gave examples that explained how the material enabled the product to function as intended when in use, in the contexts it is used within
- explained how the material influenced all aspects of the product from the design of the product; production of the product; maintenance of the product and the disposal options for the product. This may have included things such as shelf life of food products and ultimate disposal of foods, life cycle of garments or other artefacts.

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

- explained the material(s) composition and how the material is developed from its natural or raw state into the material used within the product in detail
- explained possible future developments for the materials and or wider and further uses for it
- synthesised the information and wrote a well-structured report using their own voice

- made synthesised statements and relational links between the product, material and performance enhancement
 - described the concepts and processes underpinning the development of a specific material and could distinguish between concepts of development and the processes used; then explained the concepts and processes used in the manufacturing and development of the material in detail with valid evidence derived from a range of credible sources including technical data
 - explained how the enhancements in material have led to the development of products and explained how these products have significantly enhanced things such as sports performance, market performance, health safety performance, speed, durability, life cycle
 - provided evidence when describing the material development e.g. explained the molecular structure and the impact of the structure on the performance of a material and its enhancement of the end product
 - explained and provided sufficient evidence to show how the properties of a material have been developed over time to enhance a product
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91617: Undertake a critique of a technological outcome's design

Examinations

Whilst there are three distinct bullet points that are required to be met to achieve the standard, it is important that the report content should reflect and have emphasis on the critique of a technological outcome.

At this level, a compare and contrast model are often used by candidates. Those that discuss different designers' views and/or perspectives for one technological outcome are often more successful. Candidates that rated two similar products head-to-head focussed on specifications or design details that did not demonstrate understanding or an in-depth critique of a technological outcome.

The design judgement criteria chosen should reflect the technological and societal environment that the outcome was designed to fulfil. The judgement criteria must be chosen by the student. User expectations and interpretations can vary significantly between different versions of a product.

Candidates should ensure that the criteria selected are a good fit for the outcome being critiqued. Often contemporary judgment criteria were discussed but not used, instead other judgment criteria were used in place of the contemporary judgment criteria, limiting the candidate's ability to reach the higher grades.

Excellence candidates often justified their selection of certain criteria over others and why these were relevant to the product, context, target market, and provided an in-depth and balanced critique.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- structured their report to reflect all the requirements of the standard, including the use of good headings relating to the Explanatory Notes
- explained the concept of good design
- explained different recognised designer views of design using two designers or design groupings
- explained judgement criteria used to determine the quality of the design of technological outcomes
- recognised that different judgement criteria can be used to judge good design depending on time, tastes and societal values and used contemporary judgment criteria
- explained how ideas about good design have shifted to cater to new societal demands, for example, sustainable products and social benefit
- critiqued the design of a technological outcome
- selected and used recognised and appropriate design judgement criteria to a level that reflected appraisal.
- chose to critique a technological outcome of which they had personal experience and knowledge

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

- did not appraise a specific technological outcome but rather a generic product type
- focussed on what is good design and design eras but did not complete the critique in enough depth or detail

- misinterpreted appraisal to be broadly describing and explaining the function and/or appearance of a technological outcome rather than judging it against recognised judgement criteria (refer to Explanatory Note 3)
- omitted to include evidence that related to one or more of the assessment criteria for Achievement
- chose a technological outcome that had limited scope
- chose a technological outcome that was overly complex
- chose to critique the use of design elements within an outcome rather than using recognised design judgement criteria.
- applied established judgment criteria to a technological outcome as well as a limited critique rather than choosing contemporary judgment criteria to make the critique
- chose design judgment criteria that did not allow them to demonstrate their understanding of the application of the chosen criteria.

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

- discussed why contemporary judgement criteria are important for design decision making
- evaluated the quality of a selected technological outcome using judgement criteria chosen based on relevance to the technological outcome
- proportioned evidence within the report to ensure that the critique was the main focus of the report.

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

- selected judgement criteria that were appropriate to the technological outcome and the reasons for their choice of their selected judgement criteria was clearly individually articulated
- explored and discussed the impact of utilizing specific judgment criteria
- explored how design decisions were a compromise to determine whether a technological outcome was a good design using their selected design judgement criteria
- personalised the judgement criteria to be used which promoted greater levels of personal voice.

- justified the evaluation of a technological outcome's design
 - identified areas where future enhancements to a technological outcome may be possible.
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Previous years' reports

[2020 \(PDF, 236KB\)](#)

[2019 \(PDF, 491KB\)](#)

[2018 \(PDF, 187KB\)](#)

[2017 \(PDF, 75KB\)](#)

[2016 \(PDF, 265KB\)](#)