



Qualifications and  
Curriculum Authority



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



*Rewarding Learning*

# GCE A level performance descriptions for design and technology

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## Introduction

Performance descriptions have been created for all GCE subjects. They describe the learning outcomes and levels of attainment likely to be demonstrated by a representative candidate performing at the A/B and E/U boundaries for AS and A2.

In practice most candidates will show uneven profiles across the attainments listed, with strengths in some areas compensating in the award process for weaknesses or omissions elsewhere. Performance descriptions illustrate expectations at the A/B and E/U boundaries of the AS and A2 as a whole; they have not been written at unit level.

Grade A/B and E/U boundaries should be set using professional judgement. The judgement should reflect the quality of candidates' work, informed by the available technical and statistical evidence. Performance descriptions are designed to assist examiners in exercising their professional judgement. They should be interpreted and applied in the context of individual specifications and their associated units. However, performance descriptions are not designed to define the content of specifications and units.

The requirement for all AS and A level specifications to assess candidates' quality of written communication will be met through one or more of the assessment objectives.

The performance descriptions have been produced by the regulatory authorities in collaboration with the awarding bodies.

## AS performance descriptions for design and technology

	<b>Assessment objective 1</b>	<b>Assessment objective 2</b>
<b>Assessment objectives</b>	Candidates should demonstrate specific knowledge and understanding and be able to apply that knowledge and understanding in combination with appropriate skills in their designing and should communicate ideas and outcomes and demonstrate strategies for evaluation.	Candidates should be able to demonstrate and apply skills, knowledge and understanding of relevant materials, processes and techniques and use materials and equipment to produce suitable and appropriate outcomes, and should communicate ideas and outcomes and demonstrate strategies for evaluation.
<b>A/B boundary performance descriptions</b>	<p>Candidates characteristically:</p> <p>a) demonstrate specific knowledge and understanding of the working characteristics of materials, ingredients, components and their uses and/or systems and control</p> <ul style="list-style-type: none"> <li>• develop an appropriate brief and specification</li> <li>• understand quality issues</li> <li>• use correct technical language relevant to the task</li> </ul> <p>b) research and communicate a broad range of ideas and information effectively in a creative and innovative way through some recognition of values issues or uniqueness (for the candidate) or connections with other ideas</p> <ul style="list-style-type: none"> <li>• demonstrate that they understand the main features of industrial and commercial practices related to manufacturing systems including the use of ICT and stages of production</li> <li>• show that they understand health and safety issues through the regulatory and legislative framework</li> </ul> <p>c) demonstrate clear strategies for testing and evaluating by taking into account form and function of a product, trends and styles of products reflecting environmental, cultural and ethical/ moral issues as well as stylistic and engineering considerations</p> <ul style="list-style-type: none"> <li>• analyse and assess information and ideas in appropriate ways, including ICT, enabling others to interpret them.</li> </ul>	<p>Candidates characteristically:</p> <p>a) apply skills that demonstrate understanding of the working characteristics and potential application of a range of materials, ingredients, components and/or systems and control including preparation and processing</p> <ul style="list-style-type: none"> <li>• demonstrate that they understand the principles of testing materials and/or components</li> </ul> <p>b) demonstrate that they understand and can carry out appropriate making processes during product development/manufacture</p> <ul style="list-style-type: none"> <li>• understand and use safe working practices</li> <li>• use appropriate skills in the development of a practical outcome</li> </ul> <p>c) communicate ideas and outcomes</p> <ul style="list-style-type: none"> <li>• refine and/or modify products and/or manufacturing methods</li> <li>• use a range of criteria, for example social, economic, environmental, cultural, and ethical/moral considerations</li> </ul> <p>d) demonstrate clear strategies for testing and evaluating by analysing the planning, production and manufacturing methods.</p>

<p><b>E/U boundary performance descriptions</b></p>	<p>Candidates characteristically:</p> <ul style="list-style-type: none"> <li>a) demonstrate some understanding of how their knowledge and understanding of materials, ingredients, components and their uses meet general design criteria             <ul style="list-style-type: none"> <li>• develop an outline brief and specification</li> </ul> </li> <li>b) communicate ideas and information appropriately             <ul style="list-style-type: none"> <li>• demonstrate that they understand at least one feature of industrial and commercial practices, a relevant manufacturing system and some stages of production</li> </ul> </li> <li>c) demonstrate some strategies for testing and evaluating by taking into account form and function of a product and the need for appropriate modifications.</li> </ul>	<p>Candidates characteristically:</p> <ul style="list-style-type: none"> <li>a) demonstrate that they understand the application of a limited range of materials, ingredients and components including their uses             <ul style="list-style-type: none"> <li>• demonstrate some knowledge of testing a material or component</li> </ul> </li> <li>b) demonstrate that they understand and can carry out a limited range of making processes safely during product development             <ul style="list-style-type: none"> <li>• demonstrate that they understand how to plan for production</li> </ul> </li> <li>c) communicate ideas and outcomes through a suitable development process and manufacturing method</li> <li>d) demonstrate the ability to test and evaluate a limited range of manufacturing methods.</li> </ul>
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## A2 performance descriptions for design and technology

	<b>Assessment objective 1</b>	<b>Assessment objective 2</b>
<b>Assessment objectives</b>	Candidates should demonstrate specific knowledge and understanding and be able to apply that knowledge and understanding in combination with appropriate skills in their designing and should communicate ideas and outcomes and demonstrate strategies for evaluation.	Candidates should be able to demonstrate and apply skills, knowledge and understanding of relevant materials, processes and techniques and use materials and equipment to produce suitable and appropriate outcomes, and should communicate ideas and outcomes and demonstrate strategies for evaluation.

<p><b>A/B boundary performance descriptions</b></p>	<p>Candidates characteristically:</p> <p>a) demonstrate specific ability to analyse questions and/or contexts and select and explain relevant ways to proceed during in-depth study</p> <ul style="list-style-type: none"> <li>• take account of a wide range of factors and show knowledge and understanding of materials and manufacturing processes</li> <li>• combine distinct elements of technical information in their responses</li> <li>• develop an initial design brief, an outline specification and produce a design for manufacturing, considering maintenance and product life</li> <li>• clarify the task during designing and making activities identifying a wide range of user needs and carry out in-depth research including some relevant primary research</li> </ul> <p>b) originate a range of ideas and possible solutions when generating and developing proposals</p> <ul style="list-style-type: none"> <li>• apply knowledge and understanding to develop and refine their solutions, demonstrating evidence of creativity and innovation through recognition of values issues or uniqueness (for the candidate) or connections with other ideas</li> </ul> <p>c) research, analyse and communicate a broad range of ideas and information effectively</p> <ul style="list-style-type: none"> <li>• use technical language fluently and draw appropriate conclusions model aspects of their ideas when developing proposals</li> </ul> <p>d) demonstrate clear strategies for testing and evaluating by taking into account the working characteristics of materials and components; the product's impact on society; and the precise requirements of the brief and/or specification</p> <ul style="list-style-type: none"> <li>• confidently analyse ideas and outcomes and draw highly appropriate conclusions, enhancing interpretation by others.</li> </ul>	<p>Candidates characteristically:</p> <p>a) demonstrate their understanding of systems and control and/or products and applications by discriminating between aspects of a system or product that perform and those which could be improved after in-depth study</p> <ul style="list-style-type: none"> <li>• demonstrate understanding of reliable and quantifiable performances of a range of materials, components and production processes</li> <li>• demonstrate applied knowledge of the working properties and functions of materials and components</li> <li>• work safely, accurately and skilfully with materials, components, tools and processes including appropriate technologies to create high-quality products that match the specification</li> </ul> <p>b) plan, demonstrating an awareness of industrial methods and approaches during designing and making activities</p> <ul style="list-style-type: none"> <li>• select an appropriate range of tools, equipment and plan processes</li> <li>• manage time by anticipating potential problems and responding to changing circumstances</li> <li>• determine the degree of accuracy required for products to function as intended, and apply relevant external standards to their task</li> <li>• test the performance of their product against specified criteria and act on their findings by modifying their proposals if appropriate</li> </ul> <p>c) communicate ideas and outcomes using ICT appropriately for communicating, modeling, data handling, controlling or manufacture</p> <ul style="list-style-type: none"> <li>• work to devised plans and seek agreement on realistic deadlines</li> <li>• take account of the relationship between material, form and manufacturing processes</li> </ul> <p>d) demonstrate clear strategies for evaluating:</p> <ul style="list-style-type: none"> <li>• analyse information critically and objectively</li> <li>• assess the extent to which their work will meet genuine needs</li> <li>• devise quality assurance procedures and reviewing the way the work plan is followed using external sources for evaluating products.</li> </ul>
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<p><b>E/U boundary performance descriptions</b></p>	<p>Candidates characteristically:</p> <p>a) demonstrate their ability to analyse questions and/or contexts and record some relevant information during in-depth study</p> <ul style="list-style-type: none"> <li>• take account of a limited range of factors</li> <li>• take account of requirements and demonstrate some knowledge and understanding of manufacturing processes during product analysis</li> <li>• develop a design brief and specification</li> </ul> <p>b) use technical language relevant to the task</p> <ul style="list-style-type: none"> <li>• clarify the task identifying user needs and carry out research during designing and making activities</li> <li>• generate ideas based on their own knowledge and understanding, satisfying most of the specification criteria</li> <li>• show awareness of manufacturing processes</li> <li>• develop their proposals and model at least one aspect</li> <li>• indicate at least one working characteristic of a material or component</li> <li>• demonstrate some strategies for testing and evaluating that refer to products and the need for modifications</li> <li>• evaluate ideas and outcomes in an appropriate way, including ICT, and draw conclusions enabling others to understand them.</li> </ul>	<p>Candidates characteristically:</p> <p>a) demonstrate a basic understanding of systems and control and/or products and applications during in-depth study</p> <p>b) demonstrate some understanding of a limited range of materials, ingredients, components and production processes</p> <p>c) work safely with materials, ingredients and components to create a product that meets their specification</p> <p>d) plan, demonstrating some awareness of industrial methods during making activities</p> <p>e) select some appropriate tools and resources</p> <p>f) carry out at least one test of their product</p> <p>g) work to an outline plan.</p> <p>h) use ICT appropriately for communicating, modelling, data handling, controlling or manufacture</p> <p>i) demonstrate strategies for testing and evaluating:</p> <ul style="list-style-type: none"> <li>• analyse information</li> <li>• assess the extent to which the product meets its specification.</li> </ul>
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