



Qualifications and  
Curriculum Authority



# GCE A level performance descriptions for physics

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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 physics

	Assessment objective 1	Assessment objective 2	Assessment objective 3
<b>Assessment objectives</b>	<p><b>Knowledge and understanding of science and of How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>recognise, recall and show understanding of scientific knowledge</li> <li>select, organise and communicate relevant information in a variety of forms.</li> </ul>	<p><b>Application of knowledge and understanding of science and of How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>analyse and evaluate scientific knowledge and processes</li> <li>apply scientific knowledge and processes to unfamiliar situations including those related to issues</li> <li>assess the validity, reliability and credibility of scientific information.</li> </ul>	<p><b>How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>demonstrate and describe ethical, safe and skilful practical techniques and processes, selecting appropriate qualitative and quantitative methods</li> <li>make, record and communicate reliable and valid observations and measurements with appropriate precision and accuracy</li> <li>analyse, interpret, explain and evaluate the methodology, results and impact of their own and others' experimental and investigative activities in a variety of ways.</li> </ul>
<b>A/B boundary performance descriptions</b>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>demonstrate knowledge of most principles, concepts and facts from the AS specification</li> <li>show understanding of most principles, concepts and facts from the AS specification</li> <li>select relevant information from the AS specification</li> <li>organise and present information clearly in appropriate forms using scientific terminology.</li> </ol>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>apply principles and concepts in familiar and new contexts involving only a few steps in the argument</li> <li>describe significant trends and patterns shown by data presented in tabular or graphical form and interpret phenomena with few errors and present arguments and evaluations clearly</li> <li>explain and interpret phenomena with few errors and present arguments and evaluations clearly</li> <li>carry out structured calculations with few errors and demonstrate good understanding of the underlying relationships between physical quantities.</li> </ol>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>devise and plan experimental and investigative activities, selecting appropriate techniques</li> <li>demonstrate safe and skilful practical techniques</li> <li>make observations and measurements with appropriate precision and record these methodically</li> <li>interpret, explain, evaluate and communicate the results of their own and others experimental and investigative activities, in appropriate contexts.</li> </ol>

<b>E/U boundary performance descriptions</b>	Candidates characteristically: a) demonstrate knowledge of some principles and facts from the AS specification b) show understanding of some principles and facts from the AS specification c) select some relevant information from the AS specification d) present information using basic terminology from the AS specification.	Candidates characteristically: a) apply a given principle to material presented in familiar or closely related contexts involving only a few steps in the argument b) describe some trends or patterns shown by data presented in tabular or graphical form c) provide basic explanations and interpretations of some phenomena, presenting very limited evaluations d) carry out some steps within calculations.	Candidates characteristically: a) devise and plan some aspects of experimental and investigative activities b) demonstrate safe practical techniques c) make observations and measurements, and record them d) interpret, explain and communicate some aspects of the results of their own and others experimental and investigative activities, in appropriate contexts.
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## A2 performance descriptions for physics

	Assessment objective 1	Assessment objective 2	Assessment objective 3
<b>Assessment objectives</b>	<p><b>Knowledge and understanding of science and of How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>recognise, recall and show understanding of scientific knowledge</li> <li>select, organise and communicate relevant information in a variety of forms.</li> </ul>	<p><b>Application of knowledge and understanding of science and of How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>analyse and evaluate scientific knowledge and processes</li> <li>apply scientific knowledge and processes to unfamiliar situations including those related to issues</li> <li>assess the validity, reliability and credibility of scientific information.</li> </ul>	<p><b>How science works</b> Candidates should be able to:</p> <ul style="list-style-type: none"> <li>demonstrate and describe ethical, safe and skilful practical techniques and processes, selecting appropriate qualitative and quantitative methods</li> <li>make, record and communicate reliable and valid observations and measurements with appropriate precision and accuracy</li> <li>analyse, interpret, explain and evaluate the methodology, results and impact of their own and others' experimental and investigative activities in a variety of ways.</li> </ul>
<b>A/B boundary performance descriptions</b>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>demonstrate detailed knowledge of most principles, concepts and facts from the A2 specification</li> <li>show understanding of most principles, concepts and facts from the A2 specification</li> <li>select relevant information from the A2 specification</li> <li>organise and present information clearly in appropriate forms using scientific terminology.</li> </ol>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>apply principles and concepts in familiar and new contexts involving several steps in the argument</li> <li>describe significant trends and patterns shown by complex data presented in tabular or graphical form, interpret phenomena with few errors, and present arguments and evaluations clearly and logically</li> <li>explain and interpret phenomena effectively, presenting arguments and evaluations</li> <li>carry out extended calculations, with little or no guidance, and demonstrate good understanding of the underlying relationships between physical quantities</li> <li>select a wide range of facts, principles and concepts from both AS and A2 specifications</li> <li>link together appropriate facts principles and concepts from different areas of the specification.</li> </ol>	<p>Candidates characteristically:</p> <ol style="list-style-type: none"> <li>devise and plan experimental and investigative activities, selecting appropriate techniques</li> <li>demonstrate safe and skilful practical techniques</li> <li>make observations and measurements with appropriate precision and record these methodically</li> <li>interpret, explain, evaluate and communicate the results of their own and others' experimental and investigative activities, in appropriate contexts.</li> </ol>

<b>E/U boundary performance descriptions</b>	Candidates characteristically: <ul style="list-style-type: none"> <li>a) demonstrate knowledge of some principles and facts from the A2 specification</li> <li>b) show understanding of some principles and facts from the A2 specification</li> <li>c) select some relevant information from the A2 specification</li> <li>d) present information using basic terminology from the A2 specification.</li> </ul>	Candidates characteristically: <ul style="list-style-type: none"> <li>a) apply given principles or concepts in familiar and new contexts involving a few steps in the argument</li> <li>b) describe, and provide a limited explanation of, trends or patterns shown by complex data presented in tabular or graphical form</li> <li>c) provide basic explanations and interpretations of some phenomena, presenting very limited arguments and evaluations</li> <li>d) carry out routine calculations, where guidance is given</li> <li>e) select some facts, principles and concepts from both AS and A2 specifications</li> <li>f) put together some facts, principles and concepts from different areas of the specification.</li> </ul>	Candidates characteristically: <ul style="list-style-type: none"> <li>a) devise and plan some aspects of experimental and investigative activities</li> <li>b) demonstrate safe practical techniques</li> <li>c) make observations and measurements and record them</li> <li>d) interpret, explain and communicate some aspects of the results of their own and others experimental and investigative activities, in appropriate contexts.</li> </ul>
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