

GCSE Subject Level Guidance for Astronomy

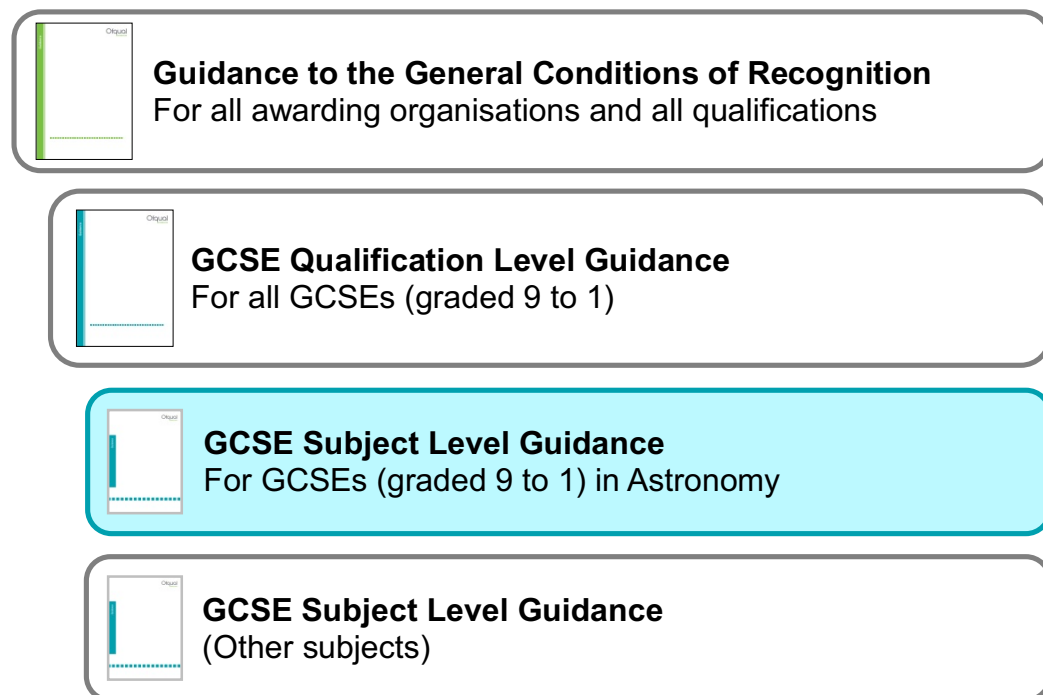
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Introduction

This document (highlighted in the figure below) is part of a suite of documents which outlines our guidance for awarding organisations offering GCSE qualifications (graded from 9 to 1).



This document sets out guidance which applies to all GCSE Qualifications (graded from 9 to 1) in Astronomy. It supports the *GCSE Subject Level Conditions and Requirements for Astronomy*.¹

This document constitutes guidance for the purposes of section 153 of the Apprenticeships, Skills, Children and Learning Act 2009 (the ‘2009 Act’) and Condition GCSE(Astronomy)¹.

An awarding organisation has a legal obligation under the 2009 Act to have regard to this guidance, where relevant, in relation to each GCSE Qualification in Astronomy that it makes available or proposes to make available. Condition GCSE(Astronomy)¹ imposes the same obligation in respect of the guidance below which is issued under that Condition.

¹ www.gov.uk/government/publications/gcse-9-to-1-subject-level-conditions-and-requirements-for-astronomy

An awarding organisation should use the guidance in this document to help it understand how to comply with the *GCSE Subject Level Conditions and Requirements for Astronomy*.

Guidance set out in this document

This document provides guidance on assessment objectives for GCSE Qualifications (graded 9 to 1) in Astronomy.
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Guidance on assessment objectives for GCSE Qualifications in Astronomy

Condition GCSE (Astronomy) 1.2 allows us to specify requirements and guidance relating to assessment objectives for GCSE Qualifications in Astronomy.

We published our requirements in relation to assessment objectives in *GCSE Subject Level Conditions and Requirements for Astronomy*, and reproduce them in the table below.

	Objective	Weighting
AO1	Demonstrate knowledge and understanding of: <ul style="list-style-type: none"> ■ scientific ideas ■ scientific techniques and procedures 	40%
AO2	Apply knowledge and understanding of: <ul style="list-style-type: none"> ■ scientific ideas ■ scientific techniques and procedures 	40%
AO3	Analyse information and ideas to: <ul style="list-style-type: none"> ■ interpret and evaluate astronomical observations, data and methods ■ make judgements and draw conclusions ■ develop and improve observational procedures 	20%

We set out below our guidance for the purposes of Condition GCSE (Astronomy) 1.2. This guidance explains how we expect awarding organisations to interpret these assessment objectives in terms of:

- the different ‘strands’ within each of the assessment objectives;
- the discrete ‘elements’ within each assessment objective and its strands that questions and tasks could target and/or seek to credit – our expectation is that each and every question/task should target or seek to credit at least one of these elements, and may target or seek to credit multiple elements across one or more assessment objectives;
- the coverage expectations, such as in relation to the different elements within each assessment objective and how those elements should be sampled over time; and

- the key areas of emphasis in each assessment objective and the particular meaning for the subject of any key terms and phrases used; defined terms are shown in bold text, followed by their definitions.

In line with the obligations set out in Condition GCSE (Astronomy) 1.2, we expect awarding organisations to be able to demonstrate how they have had regard to this guidance. For example, an awarding organisation could map how it has regard to the guidance as it:

- develops its sample assessment materials;
- delivers the qualification;
- develops and applies its approach to sampling the elements into which the assessment objectives are divided; and
- monitors the qualification to make sure it addresses all elements appropriately.

AO1: Demonstrate knowledge and understanding of:			40%
<ul style="list-style-type: none"> ▪ scientific ideas ▪ scientific techniques and procedures 			
Strands	Elements	Coverage	Interpretations and definitions
1 – Demonstrate knowledge and understanding of scientific ideas	This strand is a single element.	<ul style="list-style-type: none"> ▪ Full coverage in each set of assessments² (but not in every assessment). ▪ A reasonable balance between the strands in each set of assessments (but not every assessment). ▪ Awarding organisations should justify the balance between the strands in their assessment strategies. 	<ul style="list-style-type: none"> ▪ Scientific ideas are aspects of the subject content. They include the subject-specific requirements and the requirements for Working Scientifically as set out in the document published by the Secretary of State entitled ‘Astronomy GCSE subject content’⁴, document reference DFE-00202-2015 (the ‘Content Document’) – for example theories, models, methods and how these develop over time as well as the recall of units and simple mathematical processes. ▪ Scientific techniques and procedures encompasses, but is broader than, knowledge and understanding of the identified aided and non-aided observational activities. In the context of this assessment objective, it involves the knowledge and understanding of such techniques and procedures.
2 – Demonstrate knowledge and understanding of scientific techniques and procedures	This strand is a single element.		

² For the purposes of this guidance, a ‘set of assessments’ means the assessments to be taken by a particular Learner for a GCSE Qualification in Astronomy. For clarity, the assessments taken by Learners may vary, depending on any possible routes through the qualification.

⁴ www.gov.uk/government/publications/gcse-astronomy

AO1: Demonstrate knowledge and understanding of:			40%
<ul style="list-style-type: none"> ▪ scientific ideas ▪ scientific techniques and procedures 			
Strands	Elements	Coverage	Interpretations and definitions
		<ul style="list-style-type: none"> ▪ No more than 20% of the total marks for the qualification should reward demonstrating knowledge in isolation.³ 	<ul style="list-style-type: none"> ▪ The emphasis in this assessment objective is on Learners recalling and communicating relevant familiar knowledge and understanding from the course of study, for example, through the provision of facts, definitions, and explanations of how to do something and why it should be done in a particular way.

³ Marks which 'reward demonstrating knowledge in isolation' means any mark awarded solely for recalling facts or other knowledge. It does not include marks awarded for selecting appropriate knowledge (for example, to evidence an argument).

AO2: Apply knowledge and understanding of:			40%
<ul style="list-style-type: none"> ▪ scientific ideas ▪ scientific techniques and procedures 			
Strands	Elements	Coverage	Interpretations and definitions
1 – Apply knowledge and understanding of scientific ideas	This strand is a single element.	<ul style="list-style-type: none"> ▪ Full coverage in each set of assessments (but not in every assessment). ▪ A reasonable balance between the strands in each set of assessments (but not every assessment). 	<ul style="list-style-type: none"> ▪ Scientific ideas are aspects of the subject content. They include the subject-specific requirements and the requirements for Working Scientifically as set out in the Content Document – for example applying theories, models (including mathematical models), methods and the use of relevant mathematics, including to understand and solve problems. ▪ Scientific techniques and procedures encompasses, but is broader than, knowledge and understanding of the identified aided and non-aided observational activities. In the context of this assessment objective, it involves applying knowledge and understanding of a variety of observational methods, as specified in the Content Document, to appropriate contexts. ▪ The emphasis in this assessment objective is on Learners applying their knowledge and understanding to provide meaning or explanation – for instance, to connect theory with particular contexts, stimuli or materials. This application should relate principally to developing further material that is covered in the specification by: <ul style="list-style-type: none"> □ exploring contexts and situations that are not explicitly indicated in the specification; and □ making links between types of material which are not explicitly indicated in the specification.
2 – Apply knowledge and understanding of scientific techniques and procedures	This strand is a single element.	<ul style="list-style-type: none"> ▪ Awarding organisations should justify the balance between the strands in their assessment strategies. 	

AO2: Apply knowledge and understanding of: <ul style="list-style-type: none"> ▪ scientific ideas ▪ scientific techniques and procedures 			40%
Strands	Elements	Coverage	Interpretations and definitions
			<ul style="list-style-type: none"> ▪ Application of knowledge should also involve determining how to make sense of connections and linkages within data, information and detail – although not to the extent of drawing conclusions or making judgements.

AO3: Analyse information and ideas to:			20%
<ul style="list-style-type: none"> ▪ interpret and evaluate astronomical observations, data and methods ▪ make judgements and draw conclusions ▪ develop and improve observational procedures 			
Strands	Elements	Coverage	Interpretations and definitions
1 – Analyse information and ideas to interpret and evaluate astronomical observations, data and methods	1a – Analyse information and ideas to interpret and evaluate astronomical observations and data	<ul style="list-style-type: none"> ▪ Full coverage in each set of assessments (but not in every assessment). ▪ A reasonable balance between the strands and between the elements within each strand in each set of assessments (but not every assessment). 	<ul style="list-style-type: none"> ▪ Develop and improve covers a range of approaches to assessment, including questions which relate to describing, designing, adapting, modifying and enhancing observational procedures. Observational procedures encompasses, but is broader than, observational activities. ▪ In the context of this assessment objective, questions/tasks should take an analytical form such as suggesting the limitations of a particular method. ▪ The emphasis here is on the outcome that Learners produce through the analysis of information – for instance, the interpretation, evaluation, judgement, conclusion or modification/improvement of procedures that stems from their reasoning and synthesis of skills.
	1b – Analyse information and ideas to interpret and evaluate astronomical methods		
2 – Analyse information and ideas to make judgements and draw conclusions	This strand is a single element.	<ul style="list-style-type: none"> ▪ Awarding organisations should justify the balance between strands and between elements within each strand in their assessment strategy. 	

AO3: Analyse information and ideas to:			20%
<ul style="list-style-type: none"> ▪ interpret and evaluate astronomical observations, data and methods ▪ make judgements and draw conclusions ▪ develop and improve observational procedures 			
Strands	Elements	Coverage	Interpretations and definitions
3 – Analyse information and ideas to develop and improve observational procedures	3a – Analyse information and ideas to develop observational procedures.		<ul style="list-style-type: none"> ▪ The abilities to interpret and evaluate in this context are both linked and complementary. ▪ Questions/tasks should address a range of sources here – for example, written, numerical, theoretical, observational, social and economic.
	3b – Analyse information and ideas to improve observational procedures.		

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