GCSE The Sciences Qualification Outline- Consultation Version

Introduction

This document provides a high-level overview of the proposed WJEC GCSE The Sciences (Double Award) qualification.

It is based on Qualification Wales's Approval Criteria (key sections are included in Appendix 2). Our qualification **must** meet these requirements.

The qualification outline will provide a guide for the development of the Specification and Sample Assessment Materials (SAMs).

Qualification Overview

The construct of GCSE The Sciences (Double Award) qualification is to:

- explain phenomena scientifically to demonstrate how the world works
- construct and evaluate designs for scientific enquiry and interpret scientific data and evidence critically
- research, evaluate and use scientific information to make informed decisions[1].

The GCSE The Sciences (Double Award) qualification will support the Curriculum for Wales by:

- Supporting the statements of what matters, giving learners the opportunity to engage with the following:
  - curiosity - being curious and searching for answers is essential to understanding and predicting phenomena
  - living things - the world around us is full of living things which depend on each other for survival
  - matter - matter and the way it behaves defines our universe and shapes our lives
  - forces - forces and energy provide a foundation for understanding our universe.

- Supporting the principles of progression by:
  - developing knowledge and understanding of scientific concepts
  - using, applying and evaluating scientific enquiry skills
  - becoming more effective as a learner, to solve scientific problems with increased independence
  - making connections and exploring new contexts, considering the impacts of scientific actions.

[1] Adapted from OECD PISA 2025 Science Framework

Proposed Qualification Structure

Unit 1: Bringing the Sciences Together Written examination with pre-release material 15% of qualification External assessment, marked by WJEC Available in the first year of study
Unit 2: Practical Science Practical science assessment 10% of qualification Completed in the final year of study External assessment, marked by WJEC
Unit 3: Biology Written examination 25% of qualification Completed in final year of study External assessment, marked by WJEC
Unit 4: Chemistry Written examination 25% of qualification Completed in final year of study External assessment, marked by WJEC
Unit 5: Physics Written examination 25% of qualification Completed in final year of study External assessment, marked by WJEC

This will be a unitised qualification.

Each unit will assess the Assessment Objectives and have the same weighting as follows:

AO1	**Demonstrate knowledge and understanding** of scientific ideas, processes, techniques and procedures.	**25%**
AO2	**Apply knowledge and understanding** of scientific ideas, processes, techniques and procedures	**50%**
AO3	**Analyse, interpret and evaluate** scientific information, processes, techniques and procedures.	**25%**

This is within the indicated weightings from the Qualification Wales Approval Criteria. This will allow assessment in line with the Curriculum for Wales. The principles of progression focus on applying skills, problem solving, investigation, and making links and connections. Therefore, significant weighting is required at AO2 to support this.

Unit Information

Unit 1 - Bringing the Sciences Together

The purpose of this unit is to:

- **explore The Sciences through an interdisciplinary approach**
- **apply knowledge, understanding and skills from across The Sciences to real life contexts**
- **interpret scientific data and evidence critically.**

This unit will be based on designated content from biology, chemistry, and physics sections of the specification, which lend themselves to an interdisciplinary teaching approach. This content will be highlighted in the specification as content that should be delivered in the first year of teaching the qualification.

The specification will include a list of themes (see Appendix 1) through which the designated content for the interdisciplinary approach could be assessed. Approaches to teaching the interdisciplinary content through these themes will be exemplified in the Guidance for Teaching. This approach allows for centres to devise their own curriculum for the teaching and learning of this unit, through any of the themes outlines in Appendix 1, in line with the Curriculum for Wales.

The unit will be assessed via an examination available in the summer series; an examination will be made available for the first cohort of learners in summer 2026. The assessment will include a mix of question types that will target all assessment objectives.

The pre-release material will be issued one month before the examination. This will contain a range of resources under one or more of the designated themes from Appendix 1.

There will be no optionality in this unit.

The assessment will be tiered – higher tier and foundation tier.

Unit 2 - Practical Science

The purpose of this unit is to:

- **undertake practical science experiments**
- **interpret scientific data and evidence**
- **inquire into and apply scientific knowledge**
- **plan and evaluate designs for scientific enquiry.**

Practical science is an integral element of the qualification. Practical work engages learners throughout the qualification by bringing their learning to life and encouraging curiosity. This unit assesses the skills developed throughout the qualification across the three science disciplines.

The assessment will include subject content from across The Sciences.

The practical assessment requires candidates to sit two out of a possible three tasks (one task from each of biology, chemistry and physics) and will be assessed in January/February of the final year of study.

This assessment will not be tiered.

Unit 3 - Biology

The purpose of this unit is to:

- **explore phenomena scientifically to explain how the living world works**
- **apply knowledge, understanding and skills from the biology content to real life contexts**
- **interpret scientific data and evidence critically**
- **evaluate scientific information to make informed decisions.**

This unit will be based on the following concepts:

- the world around us is full of living things which depend on each other for survival
- being curious and searching for answers is essential to understanding and predicting phenomena.

The content for the unit is outlined in Qualification Wales's Approval Criteria.

The unit will be assessed via an examination available in the summer series of the final year of study. The question types will target all Assessment Objectives. There will be no optionality in this unit.

The examination will be tiered – higher tier and foundation tier.

Unit 4 – Chemistry

The purpose of this unit is to:

- **explore phenomena scientifically to explain how matter defines the universe**
- **apply knowledge, understanding and skills from the chemistry content to real life contexts**
- **interpret scientific data and evidence critically**
- **evaluate scientific information to make informed decisions.**

This unit will be based on the following concepts:

- matter and the way it behaves defines our universe and shapes our lives

- being curious and searching for answers is essential to understanding and predicting phenomena.

The content for the unit is outlined in Qualification Wales's Approval Criteria.

The unit will be assessed via an examination available in the summer series of the final year of study. The question types will target all Assessment Objectives. There will be no optionality in this unit.

The examination will be tiered – higher tier and foundation tier.

Unit 5 – Physics

The purpose of this unit is to:

- **explore phenomena scientifically to explain forces and energy**
- **apply knowledge, understanding and skills from the physics content to real life contexts**
- **interpret scientific data and evidence critically**
- **evaluate scientific information to make informed decisions.**

This unit will be based on the following concepts:

- forces and energy provide a foundation for understanding our universe
- being curious and searching for answers is essential to understanding and predicting phenomena.

The content for the unit is outlined in Qualification Wales's Approval Criteria.

The unit will be assessed via an examination available in the summer series of the final year of study. The question types will target all Assessment Objectives. There will be no optionality in this unit.

The examination will be tiered – higher tier and foundation tier.

Consideration of manageability, engagement, reliability, validity

In developing this proposed qualification outline, we have considered manageability, engagement, reliability and validity, and how to balance these considerations in the context of the requirements of the Approval Criteria.

The Approval Criteria require 85% of the qualification to be assessed in the final year of the qualification; this includes the Practical Science assessment.

This poses some potential manageability challenges which we propose to minimise by allowing centres to spread the workload and assessment. As the Approval Criteria state that the qualification must be unitised, we propose making the Practical Science assessment available to learners during a window at the start of the Spring term. This will allow learners to gain experience of practical skills after undertaking a number of practical science enquiries during the first year of study and the Autumn term of the second year of study. This window will be outside examination periods for GCSE The Sciences and other practical science assessments for GCE qualifications. During the Autumn term of the second year of

study, centres will be issued with an equipment list for the practical assessments to aid preparation. Providing three tasks gives centres flexibility to consider equipment and staff availability. Although we acknowledge that practical science has an impact on manageability, with access to equipment and scheduling often difficult for centres, we have concluded that it is the most appropriate time period to assess the practical science skills.

We believe that our proposed qualification should provide opportunities for centres to develop an engaging programme of study for its learners, in line with the expectations of the Curriculum for Wales. In the Bringing the Sciences Together unit, the focus will be on centres having the flexibility to devise their own curriculum for the unit of teaching, drawing on prescribed content from biology, chemistry, and physics, through any of the themes outlined in Appendix 1. The qualification will also allow centres to integrate experiences into the curriculum to encourage learners to understand the interrelationship between their learning and the world of work.

We believe that the examinations and practical science assessment are a valid approach to assessing the purpose and content because they allow students to demonstrate their skills in appropriate scientific contexts. To ensure the reliability of all units, we will ensure each unit will target the same assessment objective weightings over time.

We believe that the purpose and content of the biology, chemistry, and physics units can be validly assessed by examination, and a mix of question types can help us maximise validity. When we develop assessments, we will ensure that all tasks target the relevant construct, that there is an appropriate balance of content covered over time and that there is alignment between assessment items and learning outcomes. Where appropriate, we will use data available to us on how an assessment has functioned. To ensure reliability, we will make sure that the examined units target the same assessment objective weightings and have a consistent level of demand each series, marking criteria will be developed and assessors will be trained on how to apply them consistently.

We will continue to consider the balance of manageability, engagement, reliability and validity, at each stage of qualification development.

Appendix 1– Themes for Bringing the Sciences Together

- Energy
- Environment
- Health
- Materials
- Sport
- Sustainability
- The Universe
- Transport

Appendix 2

Key information from Approval Criteria

The following information has come directly from Qualifications Wales GCSE The Sciences (Double Award) - Approval Criteria - our qualification must meet these requirements.

Purpose

1. **GCSE The Sciences (Double Award)** must:
   - 1.1 be designed primarily for *Learners* between the ages of 14 and 16
   - 1.2 build on the conceptual understanding *Learners* have developed through their learning from ages 3-14
   - 1.3 support teaching and learning by providing appropriately broad, demanding, relevant and engaging content and assessment that relates to and supports the Curriculum for Wales, including its four purposes
   - 1.4 allow *Learners* to develop a strong foundation of knowledge, skills and understanding which supports progression to post-16 study and prepares them for life, learning and work
   - 1.5 provide meaningful, fair and accurate information on *Learner* achievement within a subject that highlights what *Learners* know, understand and can do

Aims

2. **GCSE The Sciences (Double Award)** must:
   - 2.1. allow *Learners* to explore a range of knowledge, skills and understanding in relation to The Sciences
   - 2.2. provide opportunities for *Learners* to be assessed in a variety of relevant and meaningful contexts

3. The **GCSE The Sciences (Double Award)** qualification must support *Learners* to:
   - 3.1. demonstrate knowledge and understanding from a range of sciences, including biology, chemistry, and physics
   - 3.2. understand how different areas of science relate to them personally, locally, nationally, and internationally
   - 3.3. recognise the interdisciplinary nature of the sciences
   - 3.4. develop the skills to question scientific ideas, using critical and creative thinking to solve problems
   - 3.5. understand the nature of scientific methods
   - 3.6. develop a variety of practical and research skills, enabling them to successfully refine their ways of working
   - 3.7. understand relationships between data, evidence and explanations through quantitative and qualitative analysis and research

3.8. evaluate and challenge scientific methods, models, evidence, and conclusions
3.9. apply mathematical, communication and digital skills and tools when developing scientific knowledge and skills
3.10. appreciate the role played by morals, ethics, sustainability, and other aspects of decision-making in the application of science

Assessment Objectives

- The assessment of the knowledge, understanding and skills required in the qualification will target the following assessment objectives in line with the indicated weightings within a tolerance of +/- 5 percentage points.

AO1	**Demonstrate knowledge and understanding** of scientific ideas, processes, techniques and procedures.	**25%**
AO2	**Apply knowledge and understanding** of scientific ideas, processes, techniques and procedures	**50%**
AO3	**Analyse, interpret and evaluate** scientific information, processes, techniques and procedures.	**25%**

Scheme of assessment

- The **GCSE The Sciences (Double Award)** qualification must be unitised.
- The qualification will have two tiers, higher tier (A*-D) and foundation tier (C-G).

The **GCSE The Sciences (Double Award)** specification must include the following assessment arrangements:

20.1. three examination assessments that account for 75% of the qualification:
20.1.1. there must be one examination for each of the science disciplines of biology, chemistry and physics
20.1.2. each exam must have a weighting of 25% of the final grade
20.1.3. each exam must be taken at the end of the final year of study

20.2. a practical assessment that accounts for 10% of the qualification:
20.2.1. this assessment must allow Learners to demonstrate their practical skills in context
20.2.2. the awarding body must offer a range of tasks each year, from which Centres can choose
20.2.3. the awarding body must specify how many tasks each Learner must complete
20.2.4. this assessment must be completed in the final year of study
20.2.5. this assessment must be set and marked by the awarding body
20.2.6. the awarding body must specify the duration of the practical assessment and the period in which it must be taken by Learners in their final year of study

20.3. an examination on Bringing the Sciences Together that accounts for 15% of the qualification that:
20.3.1. assesses some of the subject content identified in the specification under Bringing the Sciences Together
20.3.2. includes assessment of interdisciplinary knowledge, skills and understanding

20.3.3. is linked to pre-released materials relating to a theme or set of themes, such as those outlined in the Bringing the Sciences Together appendix

20.3.4. the awarding body must issue the pre-release material one month before the assessment

20.3.5. must be available for Learners to complete in the first year of study

20.3.6. must be set and marked by the awarding body