

# WJEC Entry Level/Level 1 Foundation The Sciences

Approved by Qualifications Wales

## Specification

Teaching from September 2027

For award from September 2029



The UK Government has announced plans to restrict social media use by children under 16, which may impact some of our qualifications. We will keep our qualifications under review and make any necessary updates as further details become available.

This specification meets the requirements of the following regulatory documents published by Qualifications Wales:

- [General Foundation Qualifications Approval Criteria](#) which set out requirements for any new General Foundation Qualification Approved for first teaching from September 2027 and beyond.
- [Standard Conditions of Recognition](#) which contains the rules that all awarding bodies and their qualifications must meet when offering qualifications to learners in Wales.

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## Empowering learners, supporting teachers

As Wales' largest awarding body, we have over 75 years of experience in delivering trusted, high-quality qualifications that support learners, educators, and employers across Wales.

We provide a wide range of bilingual qualifications that are accessible, engaging, and designed to meet the needs of today's learners.

Our qualifications are backed by expert subject teams, high quality resources, and responsive, specialist support. Our work is guided and shaped through close collaboration with schools, colleges, regional consortia, sector experts and Qualifications Wales.

As the only awarding body offering qualifications in every suite of the 14-16 National Qualifications offer, we are proud to play a key role in supporting the Welsh Government's ambition to make education in Wales a source of national pride, and we remain committed to helping every learner achieve their potential and progress with confidence.

## A strong foundation for future success

Our General Foundation Qualifications are designed to inspire and support learners, offering a two-year programme that is accessible and engaging. These qualifications help learners build confidence, develop essential knowledge, understanding skills, and enjoy meaningful success.

A key feature of our General Foundation Qualifications is their unitised structure, allowing learners to complete some assessments in Year 10 and others in Year 11. This flexible approach supports steady progression, reduces assessment pressure, and gives learners the opportunity to demonstrate achievement throughout the course.

The compensatory nature of our General Foundation Qualifications recognises learners' strengths across different units. Rather than requiring uniform performance in every area, this approach allows high achievement in one unit to offset lower performance in another, promoting an inclusive and supportive assessment experience.

Our General Foundation Qualifications build on the conceptual understanding learners have developed through their Curriculum for Wales learning from ages 3-14, and relate to and support the four purposes and the principles of progression. Although very distinct from GCSEs, we have designed them to provide a broad basis for progression onto our related GCSEs by focussing on similar skills and understanding.

Whether learners continue in the subject or not, they will gain valuable knowledge, understanding and skills, and a sense of accomplishment that prepares them for life, learning, and work.

# Entry Level/Level 1 Foundation The Sciences

## Summary of assessment

|                                                                                                                                                                                                                                                                                                                    |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Unit 1: Science in Everyday Life</b><br><b>Topic tests: 2 × 30 minutes</b><br><b>30% of qualification</b>                                                                                                                                                                                                       | <b>60 marks</b> |
| <p>Questions requiring objective responses, short and extended answers, with some based around applied situations. Set by WJEC, marked by WJEC.</p> <p>Centres can select from digital and paper formats within a four-week assessment window.</p>                                                                 |                 |
| <b>Unit 2: Caring for the Planet</b><br><b>4 enquiry tasks x 30 minutes (Candidates can have up to one additional hour per task for any data collection or data presentation linked to task)</b><br><b>40% of qualification</b>                                                                                    | <b>60 marks</b> |
| <p>Learners complete four enquiry tasks. A choice of enquiry tasks, set by WJEC, will be available. Centres must choose one enquiry task for each area of enquiry-based contexts. These enquiry tasks will be static for the duration of the qualification.</p> <p>Marked by the Centre and moderated by WJEC.</p> |                 |
| <b>Unit 3: Me and My Health</b><br><b>2 tasks. Candidates allowed up to 20 hours to complete both tasks.</b><br><b>30% of qualification</b>                                                                                                                                                                        | <b>60 marks</b> |
| <p>Set by WJEC, centres can tailor the practical elements of tasks. Marked by the Centre and moderated by WJEC.</p>                                                                                                                                                                                                |                 |

This is a unitised qualification.

Unit 1 has a tiered assessment.

Foundation Tier: Entry 1 to Entry 3

Higher tier: Entry 3 to Level 1

Unit 2 and Unit 3 are untiered.

Units 1 and 2 will be available from 2028, with Unit 3 available in 2029.

The first award of the qualification will be 2029.

Qualification Approval Number: C00/5358/2

# 1. Introduction

## 1.1. Aims

The qualification will support learners to:

- explore a range of knowledge, skills and understanding in relation to the sciences
- make connections within and between different scientific disciplines
- understand how different areas of science relate to them
- explore practical applications of science
- develop practical and investigative skills
- understand relationships between different forms of evidence
- consider scientific methods, evidence and conclusions
- appreciate the role played by morals, ethics and sustainability within science.

These aims are set out in Qualifications Wales' Approval Criteria.

## 1.2. Curriculum for Wales

This WJEC Entry/Level 1 Foundation The Sciences qualification is underpinned by the Curriculum for Wales framework and has been designed to ensure that learners can continue to make progress towards the four purposes whilst studying for this qualification. Central to this design are the [principles of progression](#), along with the [statements of what matters](#) and those [subject specific skills and concepts](#) outlined in the '[Designing your Curriculum](#)' section of the Science and Technology Area of Learning and Experiences

In developing this qualification, we have considered where there are opportunities to embed the cross-curricular themes and where there are opportunities for integral skills and cross-curricular skills to be developed. Appendix A provides a simple mapping, and information to support teachers will be provided in the Guidance for Teaching.

We have also considered where the qualification can generate opportunities for integrating the learning experiences; the Guidance for Teaching will include further information on integrating these learning experiences into delivery.

The 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.

### 1.3. Prior learning and progression

Although there is no specific requirement for prior learning, the qualification is designed primarily for learners between the ages of 14 and 16 and builds on the conceptual understanding learners have developed through their learning from ages 3 – 14.

The qualification allows learners to develop a strong foundation of knowledge, skills and understanding which supports progression to post-16 study and prepares learners for life, learning and work. The qualification provides a broad basis for progression onto GCSEs and other related qualifications. In addition, the specification provides a coherent, satisfying and worthwhile course of study for learners who do not progress to further study in this subject.

### 1.4. Guided Learning Hours

WJEC Entry Level/Level 1 Foundation The Sciences has been designed to be delivered within 120 guided learning hours (GLH). The qualification has been primarily designed as a 2-year programme for learners in years 10 and 11. Centres have flexibility in how they structure and deliver their courses within the total GLH for the qualification. The amount of content within each unit and its weighting within the qualification provides an indication of the anticipated percentage of GLH required for each unit.

Total qualification time (TQT) is the total amount of time, in hours, expected to be spent by a learner to achieve a qualification. It includes both the GLH and additional time spent in preparation, study and some formative assessment activities. As General Foundation Qualifications are primarily designed for pre-16 entry-level learners, all learning and assessment within the qualification is intended to be guided. Accordingly, the total qualification time has been set at 120 hours.

### 1.5. Use of language

As our understanding of diversity, equity, and inclusion evolves, so must our language. Updated terminology better reflects individual identities and fosters respect and accuracy. Language used should be specific as possible. Staying informed and adaptable is crucial, as inclusive language promotes dignity and equity. Recognising that language will continue to evolve, we will remain open to further amendments to ensure it accurately represents and supports all individuals. WJEC will inform centres of any amendments and the most up to date version of the specification will always be on the website.

## 1.6. Equality and fair access

This specification is designed to be accessible to all learners, regardless of gender, ethnicity, religion, culture, or any other protected characteristic as defined by the Equality Act 2010. These characteristics include age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. Inclusive design principles have been applied throughout the qualification, including the use of clear and unbiased language and diverse examples. Every effort has been made to avoid, where possible, features that could unjustifiably create barriers to access or achievement.

Access arrangements and reasonable adjustments are available for eligible learners to ensure they can participate fully in assessments and demonstrate their knowledge and skills. These adjustments do not alter the intended demand of the assessment but support fair access. Guidance on access arrangements and reasonable adjustments is provided in the Joint Council for Qualifications (JCQ) document Access Arrangements, Reasonable Adjustments: General and Vocational Qualifications, available at [www.jcq.org.uk](http://www.jcq.org.uk).

This qualification adheres to the principles outlined in the JCQ guidance. As a result of inclusive design and provision for reasonable adjustments, very few learners should encounter a complete barrier to any part of the assessment process.

## 2. Subject content

### Scientific Enquiry Skills

Scientific enquiry is fundamental to this qualification.

Scientific enquiry is the broad process of asking questions, exploring ideas and seeking understanding about natural phenomena. It involves practical and investigation skills alongside curiosity-driven activities like questioning, observing, gathering information and thinking critically.

Scientific enquiry should be fully embedded throughout the teaching and learning of all units, ensuring that learners develop these important skills. This includes conducting practical science experiments and enquiries that actively engage learners, bringing their learning to life and fostering curiosity.

Every unit provides opportunities to enhance scientific enquiry skills, and it is essential that teaching and learning incorporates these experiences in a structured and meaningful way.

The scientific enquiry skills are:

|     | <b>Scientific enquiry skill</b>          |
|-----|------------------------------------------|
| SE1 | Using scientific enquiry                 |
| SE2 | Explore scientific models                |
| SE3 | Make informed decisions                  |
| SE4 | Planning an enquiry                      |
| SE5 | Using primary data                       |
| SE6 | Using secondary data                     |
| SE7 | Analyse data                             |
| SE8 | Form conclusions and evaluate approaches |

Further guidance of these scientific enquiry skills can be found in the subject content for Unit 2. Support for the teaching and learning of the scientific enquiry skills can be found in Guidance for Teaching document.

### Mathematical Skills

Additionally, mathematical skills play a crucial role in scientific understanding and must be integrated into the teaching of subject content rather than taught in isolation. Teaching and learning planning should ensure that learners apply relevant mathematical skills throughout their scientific studies, as outlined in Appendix C.

## How to read the amplification

The amplification provided in the right-hand column uses the following four stems:

- 'Learners should know' is used when learners are required to demonstrate basic knowledge and understanding.
- 'Learners should understand' is used when learners are required to demonstrate greater depth of knowledge and understanding, application of knowledge to familiar or unfamiliar contexts and analysis and evaluation of information for a given purpose.
- 'Learners should be able to' is used when learners need to apply their knowledge and understanding to a practical situation or demonstrate application of practical skills and techniques.
- 'Learners should be aware of' is used when learners do not need to understand all aspects of the specified content in detail. Teachers should refer to Guidance for Teaching documents for further guidance on the depth and breadth to which this content should be taught.

The use of the word 'including' indicates that the specified content must be taught and could be subject to assessment.

The use of the words 'for example' or 'such as' indicates that the specified content is for guidance only, and alternative examples could be chosen.

## Unit 1

### Science in Everyday Life

2 × Topic tests, 30 minutes each  
30% of qualification in total  
2 × 30 marks = 60 marks  
Set by WJEC, marked by WJEC.

Unit 1 has a tiered assessment. Learners should cover all content in the specification. See Section 3.2 for more information about the differences between the tiered assessments.

Foundation tier: Entry 1 to Entry 3  
Higher tier: Entry 3 to Level 1

Centres can select from digital and paper formats within a four-week assessment window.

### Overview of unit

This unit helps learners explore how energy is used, transferred and transformed in everyday life, in living organisms and through the process of burning fuels. They develop an understanding of the scientific principles behind energy conservation, efficiency and sustainability, and build scientific enquiry skills to investigate energy changes in practical contexts. Through studying human-made systems, natural processes, and combustion, learners gain insight into how energy flows through the world around them and how our choices impact the environment.

Learners explore what living things and everyday materials are made of, how their structures determine their properties, and why different materials are chosen for specific uses. Learners develop an understanding of cells as the building blocks of life, the particle model as the basis of all matter, and the characteristics of metals, plastics and other materials. Through enquiry, they learn how structure links to function, both in organisms and in manufactured materials, and consider how material choices impact the environment.

## Areas of content

### 1.1 What energy changes happen around me?

In this topic learners will gain knowledge, understanding and skills in the following areas:

1.1.1 Energy changes that I use

1.1.2 Energy in nature

1.1.3 Burning

| Section                            | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1.1<br>Energy changes that I use | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that energy cannot be created or destroyed</li> <li>that energy is transferred from one form to another</li> <li>that some energy transfers are not useful, and this is described as wasted energy</li> <li>that electricity can be generated from a range of renewable resources or by burning fuels</li> <li>that energy will transfer from areas of higher temperature to areas of lower temperature, until the temperatures are equal.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that more efficient devices transfer more of the input energy into useful energy</li> <li>the advantages and disadvantages associated with renewable and non-renewable resources</li> <li>that some methods of generating electricity cause natural resources to be used up</li> <li>that electricity can be supplied to an appliance via a battery or by plugging into the mains.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>suggest a range of different insulation methods to reduce the rate of energy transfer from homes and to link this to payback times</li> <li>interpret and complete Sankey diagrams of given data.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>different appliances exist with different energy ratings.</li> </ul> |
| 1.1.2<br>Energy in nature          | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>the purpose of photosynthesis</li> <li>the word equation for photosynthesis</li> <li>that cells use energy from respiration</li> <li>the word equation for aerobic respiration in humans</li> <li>that a food chain shows a transfer of energy</li> <li>that the Sun is the original source of energy in a food chain/web.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>the importance of photosynthesis to provide food and oxygen for other living organisms, and to remove carbon dioxide from the atmosphere</li> <li>the importance of respiration in providing energy for humans and some of the ways the energy is used.</li> <li>how to construct a food chain/web.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>investigate factors that affect photosynthesis</li> <li>suggest how the energy is being used by organisms.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>respiration changes during different activities</li> <li>using knowledge of food chains helps to protect ecosystems.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>1.1.3<br/>Burning</p> | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>the purpose of combustion</li> <li>the energy transfers due to combustion</li> <li>ways that combustion is used to provide energy in modern life</li> <li>the word equation for combustion</li> <li>that the fire triangle shows what is needed for a fire and if any aspect is removed the fire is extinguished</li> <li>that combustion will lead to release of carbon dioxide.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that combustion is one way that humans release carbon dioxide into our atmosphere.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>investigate factors that affect combustion</li> <li>suggest methods to put out different types of fire.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>there are different ways to replace our dependence on combustion to provide our energy needs</li> <li>the fuels commonly used in our homes include gas, coal, oil and wood</li> <li>alternative energy sources can be used to reduce our reliance on combustion.</li> </ul> |

## 1.2 What are things made of?

In this topic learners will gain knowledge, understanding and skills in the following areas:

1.2.1 What am I made of?

1.2.2 What are materials made of?

1.2.3 Why is it made of that?

| Section                     | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.2.1<br>What am I made of? | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that living things are made of cells</li> <li>the structure of plant and animal cells</li> <li>the function of the following parts of a cell: <ul style="list-style-type: none"> <li>cell membrane</li> <li>cytoplasm</li> <li>nucleus</li> <li>cell wall</li> <li>chloroplast</li> <li>vacuole</li> </ul> </li> <li>the levels of organisation within organisms, to include cells, tissues, organs and organ systems.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>the differences and similarities in the structures of plant and animal cells</li> <li>the main structures in and function of human organ systems: <ul style="list-style-type: none"> <li>cardiovascular</li> <li>respiratory.</li> </ul> </li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>view slides of animal and plant cells</li> <li>draw and label diagrams of plant and animal cells.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>some cells are specialised and have structures which allow them to perform their function.</li> </ul> |

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1.2.2<br/>What are materials made of?</p> | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that solid, liquid and gas are the three main states of matter</li> <li>how solids, liquids and gases can be represented using the simple particle model</li> <li>elements are made up from one type of atom</li> <li>compounds are made up of atoms of more than one element joined together.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that substances change state when they are heated or cooled</li> <li>that melting, boiling, condensing and freezing are terms used to describe changes of state</li> <li>each element is represented by a chemical symbol</li> <li>how a chemical formula shows the number of atoms of each element in a molecule.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>match space-filler diagrams with formulae</li> <li>recognise elements and compounds shown diagrammatically.</li> </ul>                                                                                                                                                            |
| <p>1.2.3<br/>Why is it made of that?</p>     | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>metals and polymers are types of materials</li> <li>polymers are formed when lots of small molecules are joined together</li> <li>plastics are examples of polymers.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>the general properties of metals which make them suitable for many uses</li> <li>the general properties of common plastics which make them suitable for many uses.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>investigate the properties of materials, including: <ul style="list-style-type: none"> <li>density</li> <li>strength</li> <li>elasticity</li> <li>electrical and thermal conductivity</li> </ul> </li> <li>select suitable materials for specific uses, given their properties.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>there are environmental issues relating to the disposal of plastics and metals</li> <li>recycling addresses these issues as well as conserving finite natural resources.</li> </ul> |

## Unit 2

### Caring for the Planet

4 tasks

40% of qualification in total

4 enquiry tasks x 30 minutes (Candidates can have up to one additional hour per task for any data collection or data presentation linked to task(s))

4 x 15 marks = 60 marks

Choice of WJEC set tasks, marked by centres. Moderated by WJEC.

### Overview of unit

This unit develops learners' scientific enquiry skills through real environmental challenges focused on caring for the planet. Learners apply and strengthen these skills within four enquiry-based contexts (see Appendix B for details):

- What is waste and how can we reduce it?
- How can we save energy and water?
- What is pollution and how can it be measured?
- What plants and animals are in our local environment?

Learners investigate different waste-management methods using data to compare their impacts and to draw conclusions about how to conserve resources. They explore energy and water use by examining how these resources are produced, analysing rising demand, and carrying out investigations that test the effectiveness of methods for reducing consumption. Learners study pollution through practical activities such as gas tests, biological indicators or sound measurements. They interpret evidence to assess pollution levels and evaluate possible solutions. Finally, learners use ecological sampling and data analysis to explore biodiversity, competition or adaptation. They investigate how human actions affect ecosystems and use scientific methods to understand and protect local environments.

## Unit 2 Caring for the planet

Learners need to develop their scientific enquiry skills in the following:

- Using scientific enquiry
- Explore scientific models
- Make informed decisions
- Planning an enquiry
- Using primary data
- Using secondary data
- Analyse data
- Form conclusions and evaluate approaches

| Section                   | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Using scientific enquiry  | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• recognise that science helps us answer questions about the world</li> <li>• appreciate that science has strengths (it gives evidence) and limits (it cannot answer every question)</li> <li>• recognise when scientific investigations raise ethical issues, for example, fairness, care for living things</li> <li>• identify that scientific enquiries can involve risks and take simple steps to stay safe.</li> </ul>                                        |
| Explore scientific models | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• appreciate that scientific models improve when scientists get better evidence, new technology or new ideas</li> <li>• use models (diagrams, simple examples, analogies) to help explain things they cannot see directly, such as the three states of matter or simple space-filler models of molecules.</li> </ul>                                                                                                                                               |
| Make informed decisions   | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• use evidence to help make sensible choices in everyday life, such as recycling, energy use or personal safety</li> <li>• think about the personal, social, economic and environmental effects of scientific ideas</li> <li>• weigh up evidence and arguments before making a decision</li> <li>• appreciate that different choices may have different consequences</li> <li>• use simple scientific language to explain why they made their decision.</li> </ul> |
| Planning an enquiry       | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• say what they want to find out (a simple question or idea)</li> <li>• use what they already know in science to make a basic prediction</li> <li>• choose the equipment, materials and method they will use</li> <li>• explain why they chose that method in simple words</li> <li>• use correct scientific words when talking about their plan</li> <li>• think about safety and identify risks.</li> </ul>                                                      |

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Using Primary Data                       | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• set up equipment safely with help or guidance</li> <li>• make observations or measurements carefully</li> <li>• use the equipment in the correct way</li> <li>• record results clearly, including tables, tally charts, simple charts</li> <li>• present their results in ways they understand, such as in a bar chart</li> <li>• begin to evaluate the method(s) or primary data, including: <ul style="list-style-type: none"> <li>• checking if their results make sense and repeat anything that looks wrong</li> <li>• beginning to notice if results are accurate or need improvement.</li> </ul> </li> </ul> |
| Using Secondary Data                     | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• find scientific information from a book, website, worksheet or video</li> <li>• pick out key facts or data</li> <li>• present this information in a simple way, for example, lists, tables, simple graphs</li> <li>• begin to evaluate the method(s) or secondary data, including: <ul style="list-style-type: none"> <li>• noticing if the information looks valid or if something does not fit.</li> </ul> </li> </ul>                                                                                                                                                                                            |
| Analyse data                             | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• look at results and identify simple patterns</li> <li>• do simple maths to help understand the data</li> <li>• change data from one form to another, including from a table to a graph or chart</li> <li>• describe what the data shows and what it might mean.</li> </ul>                                                                                                                                                                                                                                                                                                                                          |
| Form conclusions and evaluate approaches | <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• state what their results show in simple language</li> <li>• link their results back to their prediction or question</li> <li>• state what went well in their method</li> <li>• suggest simple improvements.</li> <li>• say if their results were similar each time (repeatability)</li> <li>• use scientific words to explain their thinking where possible.</li> </ul>                                                                                                                                                                                                                                             |

**The enquiry-based contexts can be found in Appendix B.**

## Unit 3

### **Me and My Health**

2 tasks. Candidates allowed up to 20 hours to complete all tasks.

30% of qualification

60 marks

Set by WJEC, marked by the Centre and moderated by WJEC

### **Overview of unit**

This unit helps learners understand how the human body is organised, how it senses the world, and how it responds to changes in the environment. They explore the major organ systems, what each one does, and how lifestyle choices can affect health. Learners investigate how sense organs detect stimuli and how the nervous system processes information to produce voluntary and reflex actions. Through scientific enquiry they develop a foundational understanding of how the body maintains safety, function and wellbeing.

Learners develop understanding of how everyday choices influence health. They explore the benefits of regular exercise, the components of a balanced diet, and how the body uses food for energy. Learners also examine the importance of hygiene, the role of the immune system, and how vaccinations and antibiotics help protect against disease. By analysing data, carrying out enquiries, and evaluating health information, learners build the knowledge and skills needed to make informed decisions about maintaining a healthy lifestyle.

## Areas of content

### 3.1 How do our bodies work?

In this topic learners will gain knowledge, understanding and skills in the following areas:

- 3.1.1 Human body systems and health
- 3.1.2 Sensing changes in the environment
- 3.1.3 Responding to changes in the environment

| Section                                | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1.1<br>Human body systems and health | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that the human body has interconnecting organ systems that function to carry out our life processes</li> <li>the basic function of each system: <ul style="list-style-type: none"> <li>cardiovascular</li> <li>respiratory</li> <li>musculo-skeletal</li> <li>digestive</li> <li>nervous</li> <li>reproductive</li> </ul> </li> <li>how to label the following organs on the organ system diagrams: <ul style="list-style-type: none"> <li>cardiovascular – heart</li> <li>respiratory – lungs</li> <li>musculoskeletal – spine</li> <li>digestive – stomach, pancreas, small intestine, large intestine</li> <li>nervous – brain, spinal cord</li> <li>reproductive – ovaries, testes</li> </ul> </li> <li>the function of the named organs in the system.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that if any of the systems do not function effectively then human health is affected</li> <li>the health problems associated with the systems not working effectively</li> <li>the lifestyle choices that contribute to these health problems: <ul style="list-style-type: none"> <li>coronary heart disease – saturated fats in diet</li> <li>lung cancer – smoking</li> <li>type 2 diabetes – excess sugar in diet</li> <li>brain damage – excess alcohol.</li> </ul> </li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>careers in the NHS focus on helping people with health problems in each of the systems e.g. physiotherapist (musculoskeletal health), cardiologist (heart health), neurologist (nervous system).</li> </ul> |

|                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3.1.2<br/>Sensing changes in the environment</p>       | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that cells in our sense organs detect stimuli in our surroundings</li> <li>the stimuli detected by each sense organ:             <ul style="list-style-type: none"> <li>tastebuds on the tongue detect chemicals that the brain interprets as taste</li> <li>cells in the nose detect chemical smells</li> <li>cells in the skin detect temperature, pressure and pain</li> </ul> </li> <li>that information is carried from cells in sense organs along nerves to the brain and spinal cord</li> <li>that the brain makes sense of the information received and coordinates a response.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that changes in the iris regulates the size of the pupil, protecting the light sensitive cells within the eye</li> <li>that some areas of the skin have more cells that detect stimuli than others.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>carry out experiments to determine skin sensitivity and investigate the effect of light on pupil size.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>respiration changes during different activities</li> <li>knowledge of food chains helps to protect ecosystems.</li> </ul> |
| <p>3.1.3<br/>Responding to changes in the environment</p> | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>effectors such as muscles will carry out a voluntary or reflex response to stimuli</li> <li>reflexes are fast, automatic and protective.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>how a withdrawal reflex can protect you from harm</li> <li>how the pupil reflex can prevent damage to the eye</li> <li>that reaction times can be affected by substances such as caffeine and alcohol.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>investigate their reaction times</li> <li>analyse data on the effect of caffeine and alcohol on reaction times.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### 3.2 Why is it important to keep healthy?

In this topic learners will gain knowledge, understanding and skills in the following areas:

3.2.1 Exercise and staying active

3.2.2 Healthy eating and balanced diets

3.2.3 The importance of hygiene

| Section                                    | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.2.1<br>Exercise and staying active       | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>that regular exercise is an important factor in keeping the body healthy</li> <li>the risk of health issues such as obesity, type 2 diabetes and heart disease can be reduced with regular exercise</li> <li>the heart is a muscle, and regular exercise strengthens the muscle so blood can flow around the body more efficiently.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>the effect exercise has on heart rate</li> <li>the link between recovery time and fitness.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>investigate the effect exercise has on heart rate</li> <li>investigate recovery times and fitness.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| 3.2.2<br>Healthy eating and balanced diets | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>the energy needed for any activity comes from our diet</li> <li>humans have different levels of activity and so have different energy/diet requirements</li> <li>a balanced diet consists of carbohydrates, proteins, fats, vitamins, minerals, fibre and water in the correct proportions</li> <li>the function of carbohydrates, proteins, fats, and fibre in the body</li> <li>the function of vitamin C and D in keeping the body healthy</li> <li>the function of calcium and iron in keeping the body healthy.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>that the intake of too much energy can result in it being stored as fat in the body</li> <li>BMI can be used as a general measure to determine if our body mass is in a healthy range</li> <li>the use of food labels and traffic light labels on foods to determine how they fit into a balanced diet.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>use BMI data to assess obesity levels</li> <li>investigate the energy content of foods</li> </ul> |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>GLP-1 medications are used to help people maintain a healthy BMI.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <p>3.2.3<br/>The importance of hygiene</p> | <p>Learners should know:</p> <ul style="list-style-type: none"> <li>microbes that cause disease are called pathogens</li> <li>pathogens can be bacteria, viruses or fungi</li> <li>pathogens can enter the body through cuts, airways, contaminated food, contaminated water, insect bites, sexual intercourse</li> <li>that the human body has natural defences to microbes such as tears, stomach acid, mucus and cilia, ear wax, and skin</li> <li>white blood cells fight infection by producing specific antibodies for each microbe</li> <li>vaccinations contain a safe form of the pathogen for white blood cells to recognise and prepare for future infection giving us immunity</li> <li>antibiotics can be used to treat bacterial infections but not viral infections</li> <li>overuse of antibiotics can adversely affect human health and lead to antibiotic resistant bacteria.</li> </ul> <p>Learners should understand:</p> <ul style="list-style-type: none"> <li>how basic hygiene such as hand washing, social distancing, masks and vampire cough can prevent the spread of infectious disease</li> <li>how use of public health messages like 'catch it, bin it, kill it' can help prevent the spread of disease.</li> </ul> <p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>consider the scientific evidence surrounding the use of vaccinations to reduce serious disease.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>that the safety of vaccinations is often discussed in the media and that some reports are not scientifically accurate</li> <li>that parents may have different opinions about giving their children vaccinations and the rights of the child.</li> </ul> |

## Opportunities for integration of learning experiences

WJEC Entry Level/Level 1 Foundation The Sciences generates opportunities for the following learning experiences to be developed (experiences will not be directly assessed):

- explore relationships and connections between the sciences
- engage with the work of diverse scientists or professionals working in related areas, either in person or on-screen and/or remotely, to understand their interests and experiences within the sector
- visit areas of scientific interest, which could include natural environments, constructed environments, other educational establishments with a scientific focus, or scientific facilities. This could be either in person or digitally
- engage in learning outside of the classroom to further develop scientific understanding and skills
- research the different roles and careers that draw upon science
- develop collaboration skills by working with, and learning from, others.

The Guidance for Teaching will include further information on the opportunities provided by the qualification for teachers/centres to integrate these learning experiences and skills into delivery.

For opportunities to develop cross-cutting themes, cross-curricular skills and integral skills please see Appendix A.

### 3. Assessment

The Assessment Pack will include all detailed information relating to assessment.

#### 3.1. Assessment Objectives and Weightings

Below are the assessment objectives for this specification. Learners must:

##### **AO1**

**Demonstrate knowledge and understanding** of scientific ideas, processes, techniques and procedures.

##### **AO2**

**Apply knowledge and understanding** of scientific ideas, processes, techniques and procedures.

##### **AO3**

**Analyse, interpret and evaluate** scientific information, processes, techniques and procedures.

The table below shows the weighting of each assessment objective for each unit and for the qualification as a whole.

|                   | <b>AO1</b> | <b>AO2</b> | <b>AO3</b> | <b>Total</b> |
|-------------------|------------|------------|------------|--------------|
| Unit 1            | 6%         | 18%        | 6%         | 30%          |
| Unit 2            | 8%         | 24%        | 8%         | 40%          |
| Unit 3            | 6%         | 18%        | 6%         | 30%          |
| Overall weighting | <b>20%</b> | <b>60%</b> | <b>20%</b> | <b>100%</b>  |

#### 3.2. Assessment Overview

##### **Unit 1: Overview**

For this assessment candidates are required to take two topic tests within the same assessment window. Centres will be able to select from two sets of tests for their learners (foundation and higher tiers).

Set 1 (foundation tier): Test covering questions aimed at Entry 1 – Entry 3 candidates.

Set 2 (higher tier): Tests covering questions aimed at Entry 3 – Level 1 candidates.

| Set 1 - Foundation                                                                                                                                                                                                                                                                                                                                | Common items                                                                                                                                                                                                                                                                                                                                                                      | Set 2 - Higher                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Common items are used on tiered assessments. These items are used to ensure that the levels between the tests are comparable.</p> <p>Topic tests will contain common items that make up 10 marks. These will be the last items on a foundation tier topic test, and the first items on a higher tier topic test.</p>                           |                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Item types</p> <p>Objective Test Questions (OTQs) including:</p> <ul style="list-style-type: none"> <li>• MCQs</li> <li>• Matching</li> <li>• Fill the blanks</li> </ul>                                                                                                                                                                       | <p>Item types</p> <p>Objective Test Questions (OTQs) including:</p> <ul style="list-style-type: none"> <li>• MCQs</li> <li>• Matching</li> <li>• Fill the blanks</li> <li>• Short open responses</li> </ul>                                                                                                                                                                       | <p>Item types</p> <p>Objective Test Questions (OTQs) including:</p> <ul style="list-style-type: none"> <li>• MCQs</li> <li>• Matching</li> <li>• Fill the blanks</li> <li>• Short open responses</li> </ul>                                                                                                                                                                 |
| <p>Cognitive demand</p> <ul style="list-style-type: none"> <li>• Foundation items may ask learners to identify, state, or describe</li> <li>• Scaffolding used to support</li> </ul>                                                                                                                                                              | <p>Cognitive demand</p> <ul style="list-style-type: none"> <li>• Higher-tier items may require learners to explain, interpret/compare, analyse or evaluate in short sentences</li> <li>• Scaffolding used to support</li> </ul>                                                                                                                                                   | <p>Cognitive demand</p> <ul style="list-style-type: none"> <li>• Higher tier items may require learners to explain, interpret/compare, analyse or evaluate in short sentences</li> <li>• Reduced scaffolding – this may include: <ul style="list-style-type: none"> <li>• Fewer steps broken down</li> <li>• Independent selection and use of data</li> </ul> </li> </ul>   |
| <p>Use of resources in the topic tests (such as graphs, diagrams, infographics)</p> <ul style="list-style-type: none"> <li>• Simple</li> <li>• Candidates directed to given data/information e.g. candidates are told where to look for data/information</li> <li>• Information is direct and does not require detailed interpretation</li> </ul> | <p>Use of resources in the topic test (such as graphs, diagrams, infographics)</p> <ul style="list-style-type: none"> <li>• May contain more detail</li> <li>• Candidates may be expected to select data/information independently e.g. candidates not told where to look for data/information</li> <li>• Information may be indirect and require basic interpretation</li> </ul> | <p>Use of resources in the topic test (such as graphs, diagrams, infographics)</p> <ul style="list-style-type: none"> <li>• May contain more detail</li> <li>• Candidates may be expected to select data/information independently e.g. candidates not told where to look for data/information</li> <li>• Information may be indirect and require interpretation</li> </ul> |
| <p>Mathematical skills</p> <ul style="list-style-type: none"> <li>• Straightforward calculations</li> <li>• 1 mark maximum - marks given for answer only</li> <li>• No requirement to write out a calculation (though candidates may choose to do so)</li> <li>• Assessed through MCQ</li> <li>• Data displayed up to 1dp</li> </ul>              | <p>Mathematical skills</p> <ul style="list-style-type: none"> <li>• May require more complex calculations</li> <li>• Up to 2 marks available</li> <li>• May include a requirement to write out a calculation</li> <li>• Data displayed up to 1dp</li> </ul>                                                                                                                       | <p>Mathematical skills</p> <ul style="list-style-type: none"> <li>• May require more complex calculations</li> <li>• Up to 3 marks available</li> <li>• May include a requirement to write out a calculation</li> <li>• Data displayed up to 2dp</li> </ul>                                                                                                                 |

The topic tests will be available for completion within a four week-long window with the first assessment in Summer 2028.

Each topic test will consist of a variety of question types, including multiple choice questions (MCQs), objective test questions (OTQs) and short answer questions. The topic tests will be worth 30 marks each, totalling 60 marks.

In total, the topic tests contribute to 30% of the overall qualification grade. Each topic test takes 30 minutes to complete. A candidate does not have to complete all tests in the same session but must complete each individual test within a session. Test materials must be securely stored between sessions. The tests must be sat under invigilated examination conditions. This could be done in a classroom. Please see [JCQ](#) requirements: Instructions for Conducting Examinations (ICE).

The test will be set and marked by WJEC.

## **Unit 2: Overview**

For this assessment, candidates are required to complete four enquiry tasks. Centres must select one enquiry task from a choice of three for each context. Enquiries tasks are set by WJEC. The Unit 2 contexts are:

- 2.1 What is waste and how can we reduce it?
- 2.2 How can we save energy and water?
- 2.3 What is pollution and how can it be measured?
- 2.4 What plants and animals are in our local environment?

Candidates have 30 minutes to complete each chosen enquiry task. They may have up to an additional one hour for any data collection or data presentation linked to the task(s). The four enquiry tasks contribute 40% of the overall qualification grade. Each enquiry task is worth 15 marks, giving a total of 60 marks.

The choice of enquiry tasks will be issued to centres in assessment packs for each topic via the WJEC Portal. Tasks are not intended to change for the lifetime of the qualification.

## **Unit 3: Overview**

For this assessment candidates are required to complete 2 tasks. Candidates must be allowed up to 20 hours to complete all tasks. The task contributes to 30% of the overall qualification grade. The enquiry is set by WJEC and can be tailored by the centre. The mark scheme is set by WJEC and cannot be amended.

The assessment will be issued to centres via the WJEC Portal. The assessment is not intended to change for the lifetime of the qualification.

### 3.3. Managing non-examination assessment

Non-examination assessment is structured across three key stages: task setting, task taking, and task marking.

All non-examined assessment (NEA) must adhere to the instructions included in [JCQ's Instructions for Conducting Non-Examination Assessments \(Vocational and Technical Qualifications\)](#). Please note that the JCQ guidance for GCE and GCSE Specifications is **not** applicable to this qualification.

#### Task Setting

Assessment packs are provided for each unit in line with the arrangements set out in 3.2.

#### Task Taking

The completion of non-examination assessment is guided by controls in five areas: time, resources, supervision, authentication and collaboration.

- Time: Each assessment pack specifies the total time available.
- Resources: Any specific resource requirements will be outlined in the assessment pack.
- Supervision and authentication: Learners should normally be supervised by a teacher while completing assessment tasks. Teachers may clarify task requirements but must not provide feedback on the evidence being produced.
- Collaboration: Group work is permitted only where specified. Individual contributions must be clearly identifiable and assessed independently to ensure fairness. Learners must provide individual responses, and evidence must be attributable to each learner.

#### Task Marking for internally assessed non-examination assessment (Unit 2 and Unit 3)

All marking must be carried out by a designated teacher with appropriate subject expertise, using the marking criteria provided in the assessment pack. Evidence must align with the expectations set out in the assessment pack.

Written evidence must be annotated to show how it meets the marking criteria.

Where required, performance evidence (e.g. presentations) must be documented using observation records that include descriptive and summative comments.

Teachers are responsible for ensuring that:

- both learners and teachers sign declarations confirming the authenticity of submitted work
- assessment is conducted in line with the expectations of the assessment pack and JCQ guidance
- judgements are made solely against the performance band statements
- evidence is authentic, clearly annotated, and accurately recorded
- when used, observation records contain sufficient detail to support assessment decisions.

### 3.4. Resubmission of internally assessed non-examination assessments

Where the NEA is assessed by the centre, teachers may allow a learner one opportunity to improve their evidence and resubmit it for marking before the final marks are submitted for moderation. This process is referred to as resubmission.

Internal assessment must be scheduled to allow sufficient time for this resubmission window, where needed, prior to external moderation. Learners must complete the full assessment before their work is initially marked, and any resubmission is authorised.

Any feedback provided to learners must:

- be factual, based on what has been observed in their work
- avoid directing learners on how to improve their mark
- be documented and made available for external moderation if requested.

Teachers must not:

- permit multiple resubmissions based on minor changes following feedback
- allow learners to add, amend, or remove any work after a resubmission has been marked.

Learners are not required to produce an entirely new set of evidence for a resubmission. They should focus only on the areas where they did not achieve the desired mark. As a result, they may not need the full time indicated in the assessment pack, although they can use up to the full allocation if necessary. The assessment pack indicates the approximate amount of time that learners should spend completing each task. Where learners are focusing on specific tasks for resubmission, the time allowed should not exceed the total suggested time allocated to those tasks.

There is no need to create a separate candidate mark submission sheet for resubmission; the original sheet can be updated with revised marks and additional comments. Centres should maintain internal records of resubmissions to provide a clear audit trail, which will be helpful if queries arise. Only the final marks and evidence need to be submitted for external moderation.

Once marks have been submitted for moderation, no further resubmission of the same assessment is permitted. Learners have one opportunity to resit the assessment in a future assessment series. When resitting an assessment, centres must ensure that learners are using the assessment brief released for that series. (See Section 5.4).

**Please note** – For Unit 1, which is assessed by WJEC, teachers **must not** allow a learner an additional opportunity to improve their evidence before the work is submitted to WJEC for marking. **Teachers must follow the instructions included in the assessment pack.**

## 4. Malpractice

Before the course starts, the teacher is responsible for informing candidates of WJEC's regulations concerning malpractice. Candidates must not take part in any unfair practice in the preparation of work for Entry Level/Level 1 Foundation The Sciences.

Information regarding malpractice is available in our [Guide to preventing, reporting and investigating malpractice](#).

All cases of suspected or actual malpractice must be reported immediately to WJEC ([malpractice@wjec.co.uk](mailto:malpractice@wjec.co.uk)). If candidates commit malpractice, they may be penalised or disqualified from the examinations.

In all cases of malpractice, centres are advised to consult the [JCQ](#) booklet: Suspected Malpractice: Policies and Procedures.

## 5. Technical information

### 5.1. Making entries

This is a unitised qualification. Candidates are entered for each unit separately.

Assessment opportunities will be available in the summer series until the end of the life of this specification.

Unit 1 will be available in summer 2028 (and every June thereafter). Candidates will need to complete all Unit 1 topic tests within the same assessment window. The submission of Unit 1 and Unit 2 will be available in 2028 (and each year thereafter).

Unit 2 will be available during a window in summer 2028 (and each year thereafter).

Unit 3 will be available in summer 2029 (and each year thereafter).

Entry for individual units must be made by submitting the relevant unit shown below:

|                                 |                      | Entry Codes    |              |
|---------------------------------|----------------------|----------------|--------------|
|                                 |                      | English medium | Welsh medium |
| <b>Unit 1</b> (Higher Tier)     | On screen Topic Test | 6450UA         | 6450NA       |
| <b>Unit 1</b> (Higher Tier)     | Paper Topic Test     | 6450UB         | 6450NB       |
| <b>Unit 1</b> (Foundation Tier) | On screen Topic Test | 6450UC         | 6450NC       |
| <b>Unit 1</b> (Foundation Tier) | Paper Topic Test     | 6450UD         | 6450ND       |
| <b>Unit 2</b>                   |                      | 6450U2         | 6450N2       |
| <b>Unit 3</b>                   |                      | 6450U3         | 6450N3       |

## 5.2. Qualification entry

The qualification will be awarded for the first time in summer 2029.

Candidates will be entered for the qualification when entering for aggregation (cash-in).

Aggregation does not take place automatically; it is necessary to enter the relevant code for aggregation to take place.

|                     | English medium | Welsh medium |
|---------------------|----------------|--------------|
| <b>Cash-in code</b> | 6450Q0         | 6450C0       |

The current edition of our Entry Procedures and Coding Information gives up-to-date entry procedures.

## 5.3. Grading, awarding and reporting

WJEC Entry Level/Level 1 Foundation The Sciences is reported on a 4 point scale: Entry 1 Pass, Entry 2 Pass, Entry 3 Pass and Level 1 Pass (where Level 1 Pass is the highest grade). Candidates who do not achieve the uniform marks required to achieve an Entry 1 Pass will have their achievement recorded as U (unclassified) and will not receive a certificate.

Individual unit results are reported on a uniform mark scale (UMS) with the following grade equivalences:

|               | Weighting | UMS | Level 1 | Entry 3 | Entry 2 | Entry 1 |
|---------------|-----------|-----|---------|---------|---------|---------|
| <b>Unit 1</b> | 30%       | 75  | 60      | 45      | 30      | 15      |
| <b>Unit 2</b> | 40%       | 100 | 80      | 60      | 40      | 20      |
| <b>Unit 3</b> | 30%       | 75  | 60      | 45      | 30      | 15      |

For Unit 1, the maximum uniform mark available on the foundation tier of the assessment will be 59 (i.e. 1 uniform mark less than the minimum needed to achieve a Level 1 on the unit).

The uniform marks obtained for each unit are added up and the qualification grade is based on this total.

|                      | Weighting | UMS | Level 1 | Entry 3 | Entry 2 | Entry 1 |
|----------------------|-----------|-----|---------|---------|---------|---------|
| <b>Subject Award</b> | 100%      | 250 | 200     | 150     | 100     | 50      |

## 5.4. Resitting assessments

Candidates may resit Unit 1, the WJEC marked assessment, twice (three attempts in total). The better uniform mark score from the three attempts will be used in calculating the final overall grade.

Candidates may resit Units 2 and 3, the centre marked assessments, once (two attempts in total). The better uniform mark score from the two attempts will be used in calculating the final overall grade.

When resitting an assessment, the candidate must submit a new assessment, completed within the same levels of control. They cannot improve previously submitted work.

If a candidate has been entered for an assessment but is marked absent (a), the absence does not count as an attempt.

If a candidate is recorded as being awarded '0' marks, then it will be assumed that the evidence generated for assessment was not worthy of credit; this will be counted as an attempt.

When resitting an assessment, provided that the candidate has not exceeded the maximum number of attempts, marks from the other units will be carried forward.

## 5.5. Retaking the qualification

If a candidate enters a the WJEC marked assessment for a fourth time or a centre marked assessment for a third time, they must re-enter and retake all assessments.

When retaking a qualification, a candidate may have up to three attempts at each WJEC marked assessment and up to two attempts at each centre marked non-examination assessment. However, no results from units taken prior to the retake can be used in aggregating the new grade(s).

## Appendix A: Opportunities for embedding elements of the Curriculum for Wales

| Curriculum for Wales Strands                                       | Unit 1 | Unit 2 | Unit 3 |
|--------------------------------------------------------------------|--------|--------|--------|
| <b>Cross-cutting Themes</b>                                        |        |        |        |
| Local, National & International Contexts                           | ✓      | ✓      | ✓      |
| Sustainability aspects of Local, National & International Contexts | ✓      | ✓      |        |
| Relationships and Sexuality Education                              |        |        | ✓      |
| Human Rights Education                                             |        | ✓      | ✓      |
| Careers and Work-Related Experiences                               | ✓      | ✓      | ✓      |
| <b>Cross-curricular Skills - Literacy</b>                          |        |        |        |
| Listening                                                          | ✓      | ✓      | ✓      |
| Reading                                                            | ✓      | ✓      | ✓      |
| Speaking                                                           | ✓      | ✓      | ✓      |
| Writing                                                            | ✓      | ✓      | ✓      |

| Curriculum for Wales Strands                                                                                                             | Unit 2 | Unit 2 | Unit 3 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|
| <b>Cross-curricular Skills - Numeracy</b>                                                                                                |        |        |        |
| Developing Mathematical Proficiency                                                                                                      | ✓      | ✓      | ✓      |
| Understanding the number system helps us to represent and compare relationships between numbers and quantities                           | ✓      | ✓      | ✓      |
| Learning about geometry helps us understand shape, space and position and learning about measurement helps us quantify in the real world | ✓      | ✓      | ✓      |
| Learning that statistics represent data and that probability models chance help us make informed inferences and decisions                | ✓      | ✓      | ✓      |
| <b>Digital Competence</b>                                                                                                                |        |        |        |
| Citizenship                                                                                                                              | ✓      | ✓      | ✓      |
| Interacting and Collaborating                                                                                                            | ✓      | ✓      | ✓      |
| Producing                                                                                                                                | ✓      | ✓      | ✓      |
| Data and Computational Thinking                                                                                                          | ✓      | ✓      | ✓      |

| Curriculum for Wales Strands          | Unit 2 | Unit 2 | Unit 3 |
|---------------------------------------|--------|--------|--------|
| <b>Integral Skills</b>                |        |        |        |
| Creativity and Innovation             | ✓      | ✓      | ✓      |
| Critical Thinking and Problem Solving | ✓      | ✓      | ✓      |
| Planning and Organisation             | ✓      | ✓      | ✓      |
| Personal Effectiveness                | ✓      | ✓      | ✓      |

## Appendix B: Unit 2 Caring for the planet: Contexts for teaching the scientific enquiry skills

| <b>2.1 What is waste and how can we reduce it?</b>                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Learners need to develop their scientific enquiry skills in the following contexts:<br>2.1.1 What waste is and how it is disposed of<br>2.1.2 How recycling can reduce waste<br>2.1.3 How composting can reduce waste |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Section</b>                                                                                                                                                                                                        | <b>Amplification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.1.1<br>What waste is and how it is disposed of                                                                                                                                                                      | Learners should be aware that: <ul style="list-style-type: none"> <li>waste is collected (by the council) and taken away from our homes and businesses</li> <li>some waste is disposed of in landfill or by being burnt</li> <li>there are advantages and disadvantages of landfill and burning for waste disposal</li> <li>the disposal of waste impacts the environment</li> <li>as waste continues to increase globally, there is a need to reduce the amount that goes into landfill or is burnt.</li> </ul>                              |
| 2.1.2<br>How recycling can reduce waste                                                                                                                                                                               | Learners should be aware that: <ul style="list-style-type: none"> <li>recycling can be used to reduce the amount of waste ending up in landfill or being burnt</li> <li>that there are advantages and disadvantages to recycling</li> <li>not all materials can be recycled</li> <li>sorting waste is essential for recycling, but can be difficult and time consuming</li> <li>that different materials need to be processed using different methods</li> <li>collecting and processing materials is labour and energy intensive.</li> </ul> |
| 2.1.3<br>How composting can reduce waste                                                                                                                                                                              | Learners should be aware that: <ul style="list-style-type: none"> <li>composting can be used to reduce the waste ending up in landfill or being burnt</li> <li>composting will lead to nutrients being returned to the soil</li> <li>composting at home and industrially can dispose of different materials</li> <li>there are advantages and disadvantages to composting</li> <li>not all materials can be composted.</li> </ul>                                                                                                             |

## 2.2 How can we save energy and water?

Learners need to develop their scientific enquiry skills in the following contexts:

2.2.1 Why saving energy is important

2.2.2 Ways to save energy

2.2.3 Why saving water is important

| Section                                 | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2.1<br>Why saving energy is important | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>the electricity that reaches our houses has come from a power station</li> <li>saving energy would mean that less energy needs to be supplied</li> <li>energy companies charge money due to the cost of generation and maintaining the service</li> <li>using energy has an impact on the environment</li> <li>as demand for energy continues to increase globally, there are increasing concerns that factors such as increasing population, increasing industrialisation and climate change could lead to energy shortages all over the world.</li> </ul>                                                                                                                                                                                                                  |
| 2.2.2<br>Ways to save energy            | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>individuals can save energy using many methods including: <ul style="list-style-type: none"> <li>reducing their use of energy, for example by turning off appliances or using energy saving appliances</li> <li>sharing energy for example by lift sharing or taking the bus rather than driving</li> <li>using energy efficient devices e.g. appliances and cars</li> </ul> </li> <li>companies/organisations can also save energy.</li> </ul>                                                                                                                                                                                                                                                                                                                              |
| 2.2.3<br>Why saving water is important  | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>clean, fresh water is essential for life</li> <li>the water that reaches our taps has been treated to make it drinkable</li> <li>individuals and companies can use different methods to save water</li> <li>saving water would mean that less water needs to be cleaned</li> <li>that saving water leads to energy being saved</li> <li>water companies charge money for clean water due to the cost of cleaning the water and maintaining the service</li> <li>drinkable water is not plentiful in all parts of the world</li> <li>as demand for water continues to increase globally, there is increasing concern that factors such as increasing population, increasing industrialisation and climate change could lead to water shortages all over the world.</li> </ul> |

## 2.3 What is pollution and how can it be measured?

Learners need to develop their scientific enquiry skills in the following contexts:

- 2.3.1 Air pollution
- 2.3.2 Water pollution
- 2.3.3 Noise pollution

| Section                  | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.3.1<br>Air pollution   | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>the atmosphere is a mixture of many different gases</li> <li>pollution is the introduction of harmful substances or energy into the environment</li> <li>burning fossil fuels to power vehicles produces air pollution</li> <li>problems are caused by the release of pollutant gases including carbon dioxide and sulfur dioxide by vehicles into the atmosphere</li> <li>that increasing carbon dioxide in the air causes global warming</li> <li>lichens are sensitive to air pollution</li> <li>the automotive industry has targets to reduce air pollution from vehicle emissions promoting the development of EV and hybrid vehicle technologies.</li> </ul> |
| 2.3.2<br>Water pollution | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>fertilisers and manure contain nitrates which are used by farmers to help plants grow</li> <li>fertilisers and manure can be washed by rain from farmland into waterways and cause pollution</li> <li>pollution from the fertilisers, manure and sewage in rivers and lakes kills many species living there and reduces oxygen content of the water</li> <li>freshwater invertebrates indicate water pollution.</li> </ul>                                                                                                                                                                                                                                         |
| 2.3.3<br>Noise pollution | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>noise pollution can affect humans and ecosystems</li> <li>the effects of noise pollution on humans could include hearing loss, stress, sleep disruption</li> <li>the effects on ecosystems could include disruption of communication or migration patterns in wildlife</li> <li>noise pollution can be caused by transportation, industry, construction, the leisure industry or domestic activities</li> <li>there are economic, social and environmental consequences of noise pollution</li> <li>noise management regulations exist in urban areas and that noise mapping can be used to estimate noise pollution from road and rail sources.</li> </ul>        |

## 2.4 What plants and animals are in our local environment?

Learners need to develop their scientific enquiry skills in the following contexts:

- 2.4.1 Sampling biodiversity
- 2.4.2 Competition and adaptation
- 2.4.3 Variation and evolution

| Section                             | Amplification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.4.1<br>Sampling biodiversity      | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• biodiversity refers to the number of different species and the number of individuals of each species in an area</li> <li>• the term habitat is used to describe where an organism lives</li> <li>• maintaining biodiversity is important for the ecosystem as well as to the health and wellbeing of humans</li> <li>• sampling must be used to estimate biodiversity in a habitat</li> <li>• regulations around building and development protect biodiversity in local areas, for example wildlife corridors are designed to prevent organisms being hurt on new roads.</li> </ul>                                                 |
| 2.4.2<br>Competition and adaptation | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• plants compete for resources such as light, water, minerals</li> <li>• animals compete for resources such as food, shelter, mates</li> <li>• organisms have adaptations that allow them to survive in their environment</li> <li>• organisms which are better adapted to their habitat tend to outcompete others for resources or camouflage more easily</li> <li>• predators hunt other animals for food, and prey are animals hunted for food</li> <li>• as organisms are adapted to their environment any rapid changes made to their habitats by humans often lead to the destruction of the organisms in that area.</li> </ul> |
| 2.4.3<br>Variation and evolution    | <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• organisms of the same species can breed and produce fertile offspring</li> <li>• species can change due to evolution</li> <li>• variations are differences between members of the same species</li> <li>• variations are a result of mutations in their genes</li> <li>• variations give some members of a species an advantage in the competition for resources</li> <li>• the organisms that outcompete members of their species survive to breed and pass on their advantageous characteristics</li> </ul>                                                                                                                       |

|  |                                                                                                                                                                     |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>• rapid changes in the environment caused by human activities can result in species becoming endangered or extinct.</li></ul> |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Appendix C: Mathematical Skills

Mathematical skills play a crucial role in scientific understanding and must be integrated into the teaching of subject content rather than taught in isolation. Planning should ensure that learners apply relevant mathematical skills throughout their scientific studies.

| <b>Mathematical Skills</b> |                                                          |
|----------------------------|----------------------------------------------------------|
| <b>1</b>                   | <b>Handling data</b>                                     |
|                            | Recognise and use expressions in decimal form            |
|                            | Use fractions and percentages                            |
|                            | Find arithmetic means                                    |
|                            | Construct and interpret tables and diagrams              |
|                            | Make order of magnitude calculations                     |
| <b>2</b>                   | <b>Graphs</b>                                            |
|                            | Translate information between graphical and numeric form |
|                            | Plot two variables from experimental or other data       |



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