Qualification Specification:

OCN NI Level 2 Certificate in Applied Science

- **Qualification No: 603/1141/1**

OCN NI Level 2 Extended Certificate in Applied Science

- **Qualification No: 603/1142/3**

Version: 2.0

1. Specification Updates

Key changes have been listed below:

Section	Detail of change	Version and date of Issue
Specification	New specification format	2.0
Units	Teaching content added	2.0

2. Contents

3. Introduction to Open College Network Northern Ireland (OCN NI)

The Open College Network Northern Ireland (OCN NI) is a UK recognised awarding organisation based in Northern Ireland. We are regulated by CCEA Regulation to develop and award regulated professional and technical (vocational) qualifications from Entry Level up to and including Level 5 across all sector areas. In addition, OCN NI is also regulated by Ofqual to award qualifications in England.

OCN NI is also an educational charity that advances education by developing nationally recognised qualifications and recognising the achievements of learners. We work with centres such as Further Education Colleges, Private Training Organisations, Voluntary & Community Organisations, Schools, SME's and Public Sector bodies to provide learners with opportunities to progress into further learning and/or employment. OCN NI's Strategic Plan can be found on the OCN NI website www.ocnni.org.uk.

For further information on OCN NI qualifications or to contact us, you can visit our website at www.ocnni.org.uk. The website should provide you with details about our qualifications, courses, contact information, and any other relevant information you may need.

OCN NI Contact Details

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4. About this Specification

This specification details OCN NI's specific requirements for the delivery and assessment of the **OCN NI Level 2 Certificate and Extended Certificate in Applied Science.**

This specification will provide guidelines for centres to ensure the effective and correct delivery of these qualifications. OCN NI qualification specifications are based on research and engagement with the practitioner community to ensure they provide appropriate skills and knowledge for learners.

The qualification specification will detail the following aspects of the OCN NI Level 2 Certificate and Extended Certificate in Applied Science.

- **Qualification Features**: this includes the key characteristics and features of these qualifications, such as their intended audience, purpose, and credit value.

- **Centre Requirements:** this details the prerequisites and obligations that centres must fulfil to be eligible to deliver and assess these qualifications. These include guidelines on staff qualifications, resources, and required procedures.

- **Structure and Content:** this details the structure and content of the qualifications including units, and any specific content that learners will be required to study.

- **Assessment Requirements:** this details assessment criteria and assessment methods for these qualifications, ensuring that summative assessment approaches are clear.

- **Quality Assurance:** the quality and consistency of delivery and assessment of these qualifications are of paramount importance to OCN NI. The mandatory quality assurance arrangements including processes for internal and external verification that all centres offering these qualifications must adhere to are detailed.

- **Administration:** guidance on the administrative aspects of delivering these qualifications, including registration, certification, and record-keeping.

- Reference to other handbooks and policies as appropriate to the qualifications.

It is important to note that OCN NI will communicate any significant updates or changes to this specification in writing to our Centres. Additionally, we will make these changes available on our official website at www.ocnni.org.uk.

To stay current, please refer to the online version of this specification as it is the most authoritative and up-to-date publication. Be aware that downloaded and printed copies may not reflect the latest revisions.

4.1 Additional Support

OCN NI offers a comprehensive range of support services designed to assist Centres in meeting the delivery and quality assurance requirements of OCN NI qualifications. These services include:

- **Learner Assessment Booklets**: These booklets are created to assist learners in demonstrating the fulfilment of assessment criteria and organising the quality assurance prerequisites for each individual unit.

- **Specimen Assessment Booklets:** These booklets are created to assist learners in demonstrating the fulfilment of assessment criteria and organising the quality assurance prerequisites for each individual unit.

- **Qualification Support Pack**: A support pack has been developed to support Centres in the delivery of these qualifications. The pack includes planning and assessment templates, guides to best practice, etc.

- **Professional Development for Educators**: OCN NI provides opportunities for professional development tailored to meet the various needs of practitioners and quality assurance staff. Centres can join our training sessions, available in both face-to-face and online formats, or explore a wealth of training materials by visiting www.ocnni.org.uk

- **OCN NI Subject Advisors**: Our team of subject advisors offers vital information and support to Centres. They provide guidance on specification details, non-exam assessment advice, updates on resource developments, and various training opportunities. They actively engage with subject communities through an array of networks to facilitate the exchange of ideas and expertise, to support practitioners to provide quality education programs to learners.

All centres can access information, support and guidance to support the delivery and quality assurance of these qualifications by contacting their designated Business Development Executive or by contacting us on Contact Us | OCN NI

5. About these Qualifications

5.1 Qualification Regulation Information

OCN NI Level 2 Certificate in Applied Science
Qualification Number: 603/1141/1

OCN NI Level 2 Extended Certificate in Applied Science
Qualification Number: 603/1142/3

Operational start date: 01 March 2017
Operational end date: 31 July 2030
Certification end date: 31 July 2032

The qualifications' operational start and end dates define the regulated qualifications' lifecycle. The operational end date is the final date for learner registration, while learners have until the certificate end date to complete the qualifications and receive their certificates.

It is important to note that all OCN NI regulated qualifications are listed on the Register of Regulated Qualifications (RQF), which can be found at Ofqual Register. This register is maintained by Ofqual in England and CCEA Regulation in Northern Ireland. It contains information about qualifications that are regulated and accredited. It is a key resource for learners, employers, and educational institutions to verify the status and recognition of qualifications.

Centres must adhere to administrative guidelines diligently, with special attention to the fact that fees, registration, and certification end dates for the qualification may be subject to changes. It is a centre's responsibility to make itself aware of updates on any modifications to ensure compliance with the latest requirements. OCN NI provides centres with timely updates through various channels including website, newsletters and through this specification. Information on qualification fees can be found on the Centre Login section of the OCN NI website www.ocnni.org.uk .

5.2 Sector Subject Area

A subject sector area is a specific category used to classify academic and vocational qualifications. Subject sector areas are part of the educational and qualifications framework to organise and categorise qualifications. The sector subject for these qualifications is:

2.1 Science

5.3 Grading

Grading for these qualifications is pass/fail.

5.4 Qualifications' Aims and Objectives

Qualifications' Aim

The aim of the OCN NI Level 2 Certificate and the OCN NI Level 2 Extended Certificate in Applied Science qualifications is to provide learners with the opportunity to develop their knowledge, skills and understanding in a range of key concepts within Biology, Chemistry and Physics and builds upon the Key Stage 3 science curriculum.

Qualifications' Objectives

The objectives of these qualifications are to provide learners with the knowledge and skills in the following areas of applied science:

- physical processes
- life processes and living things
- materials and their chemical properties
- chemical analysis and detection
- exploring our universe
- health science
- mathematics for science
- planning, conducting and reporting on scientific projects
- the environment and human influences
- the living body

5.5 Target Learners

These qualifications are targeted at individuals who are interested in developing their knowledge and understanding in applied science and who have not studied or achieved a GCSE in this area.

5.6 Entry Requirements

There are no formal restrictions on entry. However, learners must be at least 14 years of age on completion of the qualification and receive appropriate advice and guidance on the suitability of the qualification.

5.7 Progression

These qualifications will provide learners with the opportunity to acquire knowledge and skills that would support progression to further learning or to employment within the Science Technology Engineering and Mathematics (STEM) sector.

5.8 NI Entitlement Framework

OCN NI has a wide range of vocational and technical qualifications available to offer in schools through the Entitlement Framework. The NIEFQAN file shows details of GCSE Guided Learning Hours (GLHs) size equivalences for level 1 and level 2 qualifications, and A-level Guided Learning Hours (GLH) size equivalences for qualifications at level 3.

The system is designed to enable schools to report their performance. The information on GLHs/size equivalency applies only to the allocation of school performance points.

It is not intended for use in relation to the equivalency of qualifications for employment and/or further/higher education purposes.

5.9 Ensuring Health and Safety of Learners

The health, safety and security of learners are paramount. Every effort must be made by the centre and those involved in the delivery to ensure that learners operate in a safe and secure environment.

Particular attention should be given to:

- ensuring all practical work is conducted in a properly equipped and maintained laboratory
- ensuring learners are briefed about health, safety and security procedures including how to identify hazards and report accidents/injuries/dangerous occurrences
- ensuring levels of supervision are agreed and implemented where appropriate
- clear accident reporting procedures
- ensuring tools and equipment are in safe working order and learners are given proper instruction, training and protective clothing

5.10 Delivery Language

These qualifications are exclusively available in English. If there is a desire to offer these qualifications in Welsh or Irish (Gaeilge), we encourage you to get in touch with OCN NI. They will assess the demand for such provisions and, if feasible, provide the qualification in the requested language as appropriate.

6. Centre Requirements for Delivering these Qualifications

6.1 Centre Recognition

New and existing OCN NI recognised centres must apply for and be granted approval to deliver these qualifications prior to the commencement of delivery.

6.2 Qualification Approval

Once a centre has successfully undergone the centre recognition process, it becomes eligible to apply for qualification approval. The centre's capability to meet and sustain the qualification criteria will be assessed. Throughout the qualification approval process, OCN NI will aim to ensure that:

- centres possess suitable physical resources (e.g., equipment, IT, learning materials, teaching rooms) to support qualification delivery and assessment
- centre staff involved in the assessment process have relevant expertise and/or occupational experience
- robust systems are in place for ensuring ongoing professional development for staff delivering the qualifications
- centres have appropriate health and safety policies concerning learner equipment use
- qualification delivery by centres complies with current equality and diversity legislation and regulations

6.3 Centre Staffing

To offer these qualifications centres are mandated to establish the following roles as a minimum, although a single staff member may serve in more than one capacity*:

- Centre contact
- Programme Co-ordinator
- Assessor
- Internal Quality Assurance (IQA)

*Note: An individual cannot serve as an IQA for their own assessments.

6.4 Tutor Requirements

Tutors responsible for delivering these qualifications are expected to possess a high degree of occupational competency. They should meet the following criteria:

- **Occupational Competency:** Tutors should demonstrate a clear understanding of the subject matter, including up-to-date knowledge. This competence should enable them to effectively impart knowledge and practical skills to learners.

- **Qualifications:** Tutors should hold qualifications at a level that is at least one level higher than the qualification they are teaching. This ensures that they have the necessary academic foundation to provide in-depth guidance and support to learners.

These requirements collectively ensure that learners receive instruction from highly qualified and experienced instructors.

6.5 Assessor Requirements

The assessment of these qualifications takes place within the Centre and is subjected to OCN NI's rigorous quality assurance procedures. The achievement of individual units is based on the criteria defined in each unit.

Assessors play a pivotal role in ensuring the validity and fairness of assessments. They are required to meet the following criteria:

- **Occupational Competency:** Assessors should possess a high degree of occupational competency in the relevant subject matter. This expertise enables them to accurately evaluate and measure a learner's knowledge and skills. Additionally, they should hold qualifications at a level that is at least one level higher than the qualification they are assessing, ensuring their in-depth understanding of the subject matter.

- **Assessment Expertise:** Assessors should have direct or related experience in the field of assessment. This includes knowledge of best practices in designing, conducting, and grading assessments. Their expertise ensures that assessments are both fair and valid.

- **Assessors Qualification:** Assessors should hold or be currently undertaking a recognised assessor's qualification; or must have attended the OCN NI Assessment Training.

- **Comprehensive Assessment Oversight:** Assessors are responsible for evaluating all assessment tasks and activities comprehensively. They must thoroughly review and assess each element to ensure a fair and accurate representation of a learner's skills and knowledge.

These rigorous requirements uphold the quality and integrity of the qualification's assessment process, ensuring that learners receive a fair and reliable evaluation of their competencies.

6.6 Internal Quality Assurance Requirements

The IQA plays a crucial role in the centre's internal quality assurance processes. The centre must designate a skilled and trained IQA who assumes the role of an internal quality monitor responsible for verifying the delivery and assessment of the qualifications.

The IQA for these qualifications must meet the following criteria:

- **Internal Quality Expertise:** IQAs should have direct or related experience in the field of verification. This includes knowledge of best practices in designing, conducting, and grading assessments. Their expertise ensures that assessments are both fair and valid.
- **Internal Quality Assurance Qualification:** IQAs should hold or be currently undertaking a recognised Internal Quality Assurance qualification; or must have attended the OCN NI Internal Quality Assurance Training.
- **Thorough Evaluation of Assessment Tasks and Activities:** IQAs are tasked with conducting in-depth reviews and assessments of all assessment tasks and activities. Their responsibility is to ensure a comprehensive and meticulous oversight of each element to guarantee a just and precise reflection of a learner's abilities and knowledge and to ensure that all assessment and quality assurance requirements are fulfilled.

7. Qualification Structure

7.1 Qualification Purpose

The OCN NI Level 2 Certificate and Extended Certificate in Applied Science are unitised qualifications on a scale of pass or fail. Learners are expected to demonstrate a comprehensive understanding of the subject matter, ensuring a level of proficiency.

7.2 Qualification Level

In the context of the OCN NI Level 2 Certificate and Extended Certificate in Applied Science it is essential to understand the significance of qualification levels, as they play a pivotal role in assessing the depth and complexity of knowledge and skills required for successful attainment. These qualifications align with Level 2, which signifies a moderate level of difficulty and intricacy. It's important to note that qualification levels in the educational framework range from Level 1 to Level 8, complemented by three 'entry' levels, namely Entry 1 to Entry 3.

7.3 Qualification Size

Total Qualification Time (TQT)

This represents the total amount of time a learner is expected to spend to complete the qualification successfully. It includes both guided learning hours (GLH) and independent study or additional learning time.

Guided Learning Hours (GLH)

These are the hours of guided instruction and teaching provided to learners. This may include classroom instruction, tutorials, or other forms of structured learning.

OCN NI Level 2 Certificate in Applied Science	
Total Qualification Time (TQT):	180 hours
Total Credits Required:	18 credits
Guided Learning Hours (GLH):	144 hours
OCN NI Level 2 Extended Certificate in Applied Science	
Total Qualification Time (TQT):	300 hours
Total Credits Required:	30 credits
Guided Learning Hours (GLH):	240 hours

7.4 How to Achieve the Qualifications

To achieve the **OCN NI Level 2 Certificate in Applied Science** learners must complete all three mandatory units for a total of 18 credits.

To achieve the **OCN NI Level 2 Extended Certificate in Applied Science** learners must complete all three mandatory units (18 credits) plus a minimum of 12 credits from any of the optional units for a total of 30 credits.

8. Assessment Structure

These qualifications are assessed through internal assessment and each unit is accompanied by specific assessment criteria that define the requirements for achievement.

8.1 Assessment Guidance: Portfolio

The portfolio for these qualifications is designed to provide a comprehensive view of a learner's skills and knowledge. It is a holistic collection of evidence that may include a single piece of evidence that satisfies multiple assessment criteria. There is no requirement for learners to maintain separate evidence for each assessment criterion.

When learners are creating their portfolio, they should refer to the assessment criteria to understand the evidence required.

It is essential that the evidence in the portfolio reflects the application of skills in real-world situations. Learners should ensure that they provide multiple examples or references whenever the assessment criteria require it.

8.2 Understanding the Units

The units outlined in this specification establish clear assessment expectations. They serve as a valuable guide for conducting assessments and ensuring quality assurance efficiently. Each unit within this specification follows a consistent structure. This section explains the operational framework of these units. It is imperative that all educators, assessors, IQAs, and other personnel overseeing the qualification review and familiarise themselves with this section to ensure a comprehensive understanding of how these units function.

Explanation

- **Title:** The title will reflect the content of the unit and should be clear and concise.
- **Level:** A unit can have one of six RQF levels: Entry, One, Two, Three, Four or Five. All units within these qualifications are level 2.
- **Credit Value:** This describes the number of credits ascribed to a unit. It identifies the number of credits a learner is awarded upon successful achievement of the unit. One credit is awarded for the learning outcomes which a learner, on average, might reasonably be expected to achieve in a notional 10 hours of learning.
- **Learning Outcome:** A coherent set of measurable achievements.
- **Assessment Criteria:** These enable a judgement to be made about whether or not, and how well, the students have achieved the learning outcomes.
- **Assessment Guidance and Methods:** These detail the different assessment methods within the unit that may be used.
- **Possible Content:** This provides indicative content to assist in teaching and learning.
- **Scope:** This provides possible teaching content.

9. Qualification Summary by Unit

OCN NI Level 2 Certificate in Applied Science
Total Qualification Time (TQT) for this qualification: 180 hours
Guided Learning Hours (GLH) for this qualification: 144 hours

In order to achieve this qualification, the learner must successfully complete all three mandatory units for a total of 18 credits.

OCN NI Level 2 Extended Certificate in Applied Science
Total Qualification Time (TQT) for this qualification: 300 hours
Guided Learning Hours (GLH) for this qualification: 240 hours

In order to achieve this qualification, the learner must successfully complete all three mandatory units (18 credits) plus a minimum of 12 credits from any of the optional units for a total of 30 credits.

Unit Reference Number	OCN NI Unit Code	Unit Title	Credit Value	GLH	Level
Mandatory units					
A/615/5224	CBD698	Physical Processes	6	48	Two
F/615/5225	CBD695	Life Processes and Living Things	6	48	Two
J/615/5226	CBD696	Materials and their Chemical Properties	6	48	Two
Optional units					
L/615/5227	CBD691	Chemical Analysis and Detection	6	48	Two
R/615/5228	CBD692	Exploring our Universe	3	24	Two
Y/615/5229	CBD693	Health Science	3	24	Two
L/615/5230	CBD697	Mathematics for Science	3	24	Two
R/615/5231	CBD699	Planning, Conducting and Reporting on Scientific Projects	3	24	Two
Y/615/5232	CBD700	The Environment and Human Influences	3	24	Two
D/615/5233	CBD701	The Living Body	3	24	Two

10. Unit Content

Title	Physical Processes
Level	Two
Credit Value	6
Guided Learning Hours (GLH)	48
OCN NI Unit Code	CBD698
Unit Reference No	A/615/5224
Unit purpose and aim(s): This unit will enable the learner to understand fundamental Physical processes.	

Learning Outcomes	Assessment Criteria
1. Understand energy transfer.	1.1. Describe different forms of energy. 1.2. Illustrate the law of conservation of energy using energy transfer diagrams. 1.3. Describe the movement of heat energy via the processes of conduction, convection and radiation. 1.4. Describe how these processes relate to: a) energy conservation in the home b) the design of energy efficient systems c) choice of materials for different uses
2. Understand electricity.	2.1. Define electrical energy as energy possessed by moving electrons. 2.2. Draw circuit diagrams using common circuit symbols. 2.3. Construct basic series and parallel circuits. 2.4. Use appropriate meters to measure voltage and current in simple series and parallel circuits. 2.5. Illustrate how current and voltage behave in series and parallel circuits. 2.6. Describe what is meant by resistance in electrical circuits. 2.7. Define and apply Ohm's law to simple circuits and use V=IR in simple calculations.
3. Understand forces and motion.	3.1. Describe the forces acting on an object. 3.2. Draw and interpret simple distance time graphs. 3.3. Illustrate the difference between velocity and speed. 3.4. Define the terms in the equation v = d/t and apply to simple calculations. 3.5. Describe acceleration in terms of rate of change of velocity. 3.6. Describe the effect of velocity on stopping distances.
4. Understand waves and radiation.	4.1. Illustrate, with practical examples, the properties of transverse and longitudinal waves. 4.2. Define and illustrate using practical examples, the following characteristics of transverse waves: a) frequency b) wavelength c) amplitude d) velocity

	4.3. Define the terms in the equation v=fλ and apply to simple calculations. 4.4. Illustrate the key areas of the electromagnetic spectrum and their uses in everyday life. 4.5. Describe the basic structure and properties of α, β and γ radiation. 4.6. Describe the diagnostic and therapeutic uses of radiation.

Assessment

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the Assessor to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Physical Processes

1. Understand energy transfer.	**Scope**
	
	Teaching will cover:
	• The many forms of energy:
	  ○ chemical
	  ○ electrical
	  ○ gravitational potential
	  ○ heat
	  ○ kinetic
	  ○ light
	  ○ magnetic
	  ○ sound
	• The Principle of Conservation of Energy
	• Energy transfer diagrams in the context of:
	  ○ the transfer of energy in a range of common appliances
	  ○ the principle of the conservation of energy
	• Conduction, convection, evaporation and radiation in relation to the transfer of heat energy through:
	  ○ different type of materials
	  ○ conductors and insulators
	  ○ common appliances for heat transference
	• The effect of heat energy on the arrangement and movement of particles
	• Practical ways of conserving energy in the home
	• Energy efficiency
	  ○ in the design of systems
	  ○ in the choice of materials for different uses

2. Understand electricity.	**Scope**
	
	Teaching will cover:
	• Electricity as moving electrons
	  ○ energy transference to electrons
	  ○ current in metals
	• Circuit diagrams
	  ○ circuit diagram standard symbols and conventions:
	  ▪ battery
	  ▪ cell
	  ▪ lamp
	  ▪ switch
	  ▪ ammeter
	  ▪ voltmeter
	  ▪ resistor
	  ▪ variable resistor
	  ○ relationship between circuit diagrams and the measured effects of running currents through constructed electrical circuits
	  ▪ connected in series
	  ▪ connected in parallel
	
	• Measuring instruments

	○ ammeter ○ voltmeter ○ multimeter • The relationship between current, voltage and resistance ○ Ohm's Law ○ solving simple mathematical problems using arrangements of the equation *voltage = current × resistance* ○ standard units for current, voltage and resistance ○ current and voltage through circuits connected in series and in parallel ○ tabular and graphical presentations of results
3. Understand forces and motion.	**Scope** Teaching will cover: • Forces acting on objects at rest and in motion ○ weight ○ gravity ○ normal reaction ○ traction ○ friction ○ thrust • Speed and velocity • The relationship between distance, time and speed/velocity ○ solving simple mathematical problems using arrangements of the equation *average speed = distance ÷ time* ○ standard and commonplace units for speed, distance and time e.g. m/s; km/h; mph • Construction and interpretation of distance/time graphs • Acceleration ○ acceleration as the rate of change of velocity ○ examples of acceleration in everyday life ▪ consideration of acceleration, deceleration and braking force • The relationship between the velocity and stopping distance of moving vehicles ○ reaction times and thinking distances ○ safe stopping distances of moving road vehicles
4. Understand waves and radiation.	**Scope** Teaching will cover: • Properties of transverse and longitudinal waves ○ construction of labelled diagrams of transverse/longitudinal waves ○ practical examples of transverse/longitudinal waves • Characteristics of waves in terms of their: ○ amplitude ○ frequency ○ wavelength ○ velocity

	• Solving simple mathematical problems using arrangements of the equation *velocity = frequency × wavelength*
	  ○ standard units associated with *velocity, frequency, wavelength and amplitude*
	• Electromagnetic spectrum
	  ○ depiction of the EM spectrum and identification of its key areas
	  ▪ Radio waves
	  ▪ Microwaves
	  ▪ Infrared
	  ▪ Visible light and colour
	  ▪ Ultraviolet
	  ▪ X-rays
	  ▪ Gamma rays
	  ○ the relationship between frequency, wavelength and the order of the key areas of the EM spectrum
	• Practical examples of how we may observe or be aware of or be affected by the different types of EM waves in the world around us
	• Practical uses of EM waves in everyday life
	• The basic structure and properties of α, β and γ radiation
	• Practical uses of radiation by the Health sector
	  ○ for diagnosis purposes
	  ○ for treatment and therapy

Title	Life Processes and Living Things
Level	Two
Credit Value	6
Guided Learning Hours (GLH)	48
OCN NI Unit Code	CBD695
Unit Reference No	F/615/5225
Unit purpose and aim(s): This unit will enable the learner to understand the fundamentals of biological science.	

Learning Outcomes	Assessment Criteria
1. Understand cellular structure and functions.	1.1. Define key attributes of living organisms. 1.2. Describe the structure and function of typical animal, plant and bacterial cells including selected organelles. 1.3. Illustrate the structure and function of specialised cells including: a) sperm b) palisade cell c) red blood cell d) white Blood cell e) root hair cell f) nerve cell 1.4. Describe with examples, cellular organisation into tissues, organs and organ systems.
2. Know about transport of nutrients and gases in plants.	2.1. Compare and contrast the structure of flowering and non-flowering plants. 2.2. Illustrate the structure and function of stomata, guard cells, xylem and phloem and how they enable transportation of gases and nutrients in plants. 2.3. Describe the principles of diffusion, osmosis and active transport.
3. Understand genetics and inheritance.	3.1. Define a gene as a length of DNA coding for polypeptide or protein. 3.2. Describe with examples, genetic and environmental variation. 3.3. Describe the role of X and Y chromosomes in determining the sex of humans. 3.4. Describe the principles of natural and artificial selection.
4. Understand how organisms interact with the environment and each other.	4.1. Describe what is meant by the terms ecology and environment. 4.2. Illustrate how at least three plant and three animal species interact with their environment and other plants and animals. 4.3. Describe three examples of how human activity has impacted on ecological systems. 4.4. Describe energy flow through a simple food chain. 4.5. Describe the main elements and their relationships within a chosen food web.

5. Understand what enzymes are and their role in living organisms and industrial processes.	5.1 Describe how an enzyme acts as a biological catalyst. 5.2 Describe the lock and key model of enzyme action. 5.3 Summarise the factors that affect enzyme action including: a) substrates b) temperature c) pH 5.4 Describe the action of digestive enzymes in humans. 5.5 Describe industrial applications of enzymes.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered:

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Life Processes and Living Things

1. Understand cellular structure and functions.	**Scope**
	
	Teaching will cover:
	• Key attributes of living organisms
	  ○ nutrition
	  ○ respiration
	  ○ movement
	  ○ excretion
	  ○ growth
	  ○ reproduction
	  ○ sensitivity
	• Structure and function of typical animal cells
	  ○ nucleus
	  ○ chromosomes
	  ○ mitochondrion
	  ○ cytoplasm
	  ○ cell membrane
	• Structure and function of typical plant cells
	  ○ cell wall
	  ○ nucleus
	  ○ chromosomes
	  ○ vacuole
	  ○ mitochondrion
	  ○ cytoplasm
	  ○ cell membrane
	  ○ chloroplast
	• Structure and function of typical bacterial cells
	  ○ cell wall
	  ○ cytoplasm
	  ○ cell membrane
	  ○ chromosomal DNA
	  ○ plasmid DNA
	  ○ flagella
	• Description with illustration of the structure and function of specialised cells
	  ○ sperm
	  ○ palisade
	  ○ red blood cell
	  ○ white blood cell
	  ○ root hair cell
	  ○ nerve cell
	• Description with examples of
	  ○ how cells are organised to form tissues
	  ○ how tissues form organs
	  ○ how organs form organ systems
	  ○ how organ systems form organisms
	• Practical investigation into cellular structure is recommended where possible to
	  ○ enhance understanding of cellular structure and functions
	  ○ help compare the cellular structure of different types of cells

2. Know about transport of nutrients and gases in plants.	**Scope**
	
	Teaching will cover:
	• The structure of flowering and non-flowering plants with examples
	• Practical investigation is recommended to
	  ○ enhance understanding of the structure of flowering and non-flowering plants
	  ○ help compare and contrast the structure of flowering and non-flowering plants
	
	• The transportation of gases and nutrients in plants
	• Description and illustration of:
	  ○ stomata
	  ○ guard cells
	  ○ xylem
	  ○ phloem
	
	• Description and illustration of the principles of:
	  ○ diffusion
	  ○ osmosis
	  ○ active transport

3. Understand genetics and inheritance.	**Scope**
	
	Teaching will cover:
	• genetics
	  ○ definition of a gene with reference to DNA coding
	  ○ role of alleles in inheritance and how they lead to variation
	  ○ simple explanation and illustration of the structure of DNA
	
	• Description with examples to promote understanding of:
	  ○ genetic variation e.g. hair colour; eye colour, blood type
	  ○ environmental variation e.g. adaptations to the environment
	
	• The role of X and Y chromosomes in determining the sex of humans
	  ○ description of male and female gametes
	  ○ illustration to show how sex chromosomes combine to determine the sex of an offspring
	
	• The principles of natural selection with examples
	  ○ variation
	  ○ selection
	  ○ heredity
	  ○ survival of the fittest - evolution or extinction
	
	• The principles of artificial selection
	  ○ explanation of what selective breeding is
	  ○ examples of selective breeding with plants and animals
	  ○ effects of selective breeding over time

4. Understand how organisms interact	**Scope**

with the environment and each other.	Teaching will cover:
	• Description of the term ecology
	• Description of the term environment
	• Description and illustration of the interaction with their environment and other plants and animals by:
	  ○ three plant species
	  ○ three animal species
	• Description with three examples of how human activity has impacted ecological systems
	• Description with examples of simple food chains
	• Description of how energy flows through simple food chains
	• Description with examples of food webs
	  ○ network of food chains in a single ecosystem
	  ○ producers
	  ○ primary consumers (concept of prey)
	  ○ secondary consumers (concept of predator)

5. Understand what enzymes are and their role in living organisms and industrial processes.	**Scope**
	
	Teaching will cover:
	• Description of enzymes
	  ○ how an enzyme can act as a biological catalyst
	  ○ description and illustration of lock and key model
	• Practical investigation of how enzyme action is affected by:
	  ○ substrates
	  ○ temperature
	  ○ pH
	• Description with examples of how enzymes:
	  ○ act on the human digestive system
	  ○ are used in industry

Title	Materials and their Chemical Properties
Level	Two
Credit Value	6
Guided Learning Hours (GLH)	48
OCN NI Unit Code	CBD696
Unit Reference No	J/615/5226
Unit purpose and aim(s): This unit will enable the learner to understand materials and their chemical properties.	

Learning Outcomes	Assessment Criteria
1. Understand atomic structure and bonding.	1.1. Describe the structure of the atom in terms of relative atomic mass and charge. 1.2. Describe the difference between elements, compounds, molecules and mixtures. 1.3. Define and give an example of ionic bonding and describe the physical properties of an ionic compound. 1.4. Define and give an example of covalent bonding and describe the physical properties of a covalent compound. 1.5. Define and give an example of metallic bonding and describe the physical properties of a metallic compound.
2. Know about the periodic table.	2.1. Describe the general trends and patterns within the periodic table. 2.2. Identify common elements from their proton number or chemical symbol. 2.3. Describe the properties and reactivity of elements of groups one, seven and 0.
3. Understand the nature of chemistry and the main types of chemical reaction.	3.1. Describe the following reactions using word and symbol equations: a) magnesium oxidation b) metal + Acid c) thermal decomposition d) neutralisation e) assessing the pH of a solution 3.2. Illustrate, using experiments, the following reactions: a) magnesium oxidation b) metal + Acid c) thermal decomposition d) neutralisation e) assessing the pH of a solution
4. Understand rates of reaction.	4.1. Describe the progress of reaction in terms of kinetic theory. 4.2. Illustrate using experiments the factors affecting the rate of reaction including: a) temperature b) surface area c) concentration of a reactant d) use of a catalyst

Assessment Guidance		
Internally set, internally marked, externally moderated 100% coverage of the Assessment Criteria		
The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered:		
Assessment Method	**Definition**	**Possible Content**
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the Assessor to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Materials and their Chemical Properties

1. Understand atomic structure and bonding.	**Scope**
	
	Teaching will cover:
	• The structure of the atom
	  ○ diagrammatic representation to show where protons, neutrons and electrons are positioned within the structure
	  ○ relative masses of proton, neutron and electron
	  ○ charge of each particle
	  ○ atomic number
	  ○ mass number = atomic number + number of neutrons
	• Elements, compounds, molecules and mixtures
	  ○ examples of each type of substance with descriptions that highlight their differences
	• Ionic and Covalent bonding
	  ○ definitions of each type of bonding. (to meet the assessment criteria, learners must be able to demonstrate in their evidence that they have a full understanding of the definitions)
	  ○ example of ionic bonding, using dot and cross diagrams, with explanation of how the bonding takes place
	  ○ example of covalent bonding, using dot and cross diagrams, with explanation of how the bonding takes place
	  ○ typical types of bonding in metals and non-metals

2. Know about the periodic table.	**Scope**
	
	Teaching will cover:
	• The modern periodic table and its purpose
	• The general trends and patterns within the periodic table
	• The arrangement of the elements in terms of groups and periods and increasing atomic number
	• Chemical symbols
	• Identification of the common elements:
	  ○ from their atomic number
	  ○ from their chemical symbol
	• Diagrammatic representation of the common elements in the periodic table
	• Investigation into the properties of elements from groups one and seven:
	  ○ relationship between groupings and the number of electrons in their outer shell
	  ○ properties of elements in the same group
	  ○ reaction rates of elements as the period increases

3. Understand the nature of chemistry and the main types of chemical reaction.	**Scope**
	
	Teaching will cover:
	• Reactions involving the following:
	  ○ magnesium oxidation
	  ○ a metal reacted with an acid
	  ○ thermal decomposition
	  ○ neutralisation

	○ assessing the pH of a solution • Word equations to describe reactions • Practical experiments to investigate reactions • Health and safety considerations when carrying out practical work • Recording and illustrating observations and findings from practical work • Analysing and presenting results
4. Understand rates of reaction.	**Scope** Teaching will cover: • Kinetic theory of reactions • Practical investigation into the factors that affect the rate of reaction: ○ temperature ○ surface area ○ concentration of a reactant ○ use of a catalyst • Measuring the rate of reaction with time ○ consideration of the changes that indicate a reaction is taking place ○ consideration of how varying a factor changes the rate of reaction ○ consideration of practical methods to take measurements • Recording of observations • Collecting and tabulating data. (There is opportunity here for graphical presentation of results to facilitate the analysis of findings) • The relationship between findings from practical investigation and kinetic theory

Title	Chemical Analysis and Detection
Level	Two
Credit Value	6
Guided Learning Hours (GLH)	48
OCN NI Unit Code	CBD691
Unit Reference No	L/615/5227
Unit purpose and aim(s): This unit will enable the learner to be able to demonstrate a range of chemical analysis and detection techniques.	

Learning Outcomes	Assessment Criteria
1. Know the reagents and techniques used to analyse a variety of chemical compounds.	1.1. Define what is meant by organic and in-organic chemistry. 1.2. Carry out a risk assessment. 1.3. Carry out the following tests: a) Named cations (Na, K, Li, Sr, Ca, Cu) using flame tests b) Water using anhydrous Copper Sulphate c) Gas tests to include H_2, O_2, CO_2, NH_3/HCL d) Halide tests using Silver Nitrate solution e) Metal carbonates using acids f) Sulphates using Barium Chloride solution 1.4 Follow safe working practices.
2. Be able to classify chemical substances according to their pH.	2.1. Illustrate the pH scale and the position of strong and weak acids and alkalis and neutral substances. 2.2. Identify different pH indicators. 2.3. Illustrate the colours associated with different pH values when using Universal Indicator. 2.4. Test at least five chemical substances classifying their pH.
3. Be able to show how chromatography is used to analyse materials.	3.1. Illustrate how paper chromatography processes are used in analysis of materials.
4. Be able to detect different chemicals in unknown compounds.	4.1. Apply techniques to detect different chemicals in unknown compounds.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered:

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the	Record of observation Learner notes/written work

	Assessor to enable learners to practise and apply skills and knowledge	Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Chemical Analysis and Detection

1. Know the reagents and techniques used to analyse a variety of chemical compounds.	**Scope**
	
	Teaching will cover:
	• The definition of organic chemistry
	• Fundamental organic chemistry processes/reactions
	  ○ addition reactions
	  ○ substitution reactions
	  ○ elimination reactions
	• The definition of inorganic chemistry
	• Fundamental inorganic chemistry processes/reactions
	  ○ combination
	  ○ decomposition
	  ○ displacement
	• How to carry out a risk assessment when working in a chemistry laboratory
	  ○ identification of potential hazards
	  ○ risks involved
	  ○ safety precautions
	• Safety rules in the laboratory and how to ensure safe working practices are followed
	• Practical investigations to analyse a variety a chemical compounds:
	  ○ Flame tests to detect the cations na, k, li, sr, ca, cu
	  ○ Test on anhydrous copper sulphate to detect water
	  ○ Gas tests to include h_2, o_2, co_2, nh_3/hcl
	  ○ Halide tests using silver nitrate solution
	  ○ Detection of sulphates using a solution of barium chloride

2. Be able to classify chemical substances according to their pH.	**Scope**
	
	Teaching will cover:
	• The pH scale and how it is used to indicate the strengths of acids, alkalis and neutral substances:
	  ○ strong acid
	  ○ weak acid
	  ○ neutral substance
	  ○ weak alkali
	  ○ strong alkali
	• Identification of different pH indicators and how they are used in chemistry to indicate the pH of different substances
	• Practical investigation into the effects of acids, alkalis and neutral solutions on indicator papers such as red and blue litmus papers, universal indicator paper
	• Classification of the strengths of acidic, alkaline and neutral substances by their colour and pH when using universal indicator
	• Practical investigation using at least five chemical substances in order to classify their pH

3. Be able to show how chromatography is used to analyse materials.	**Scope**
	
	Teaching will cover:
	• An introduction to chromatography and how it is used in chemical analysis and detection
	• The Rf (retardation factor) value and how to calculate it
	• Practical investigation using paper chromatography
	  ○ setting up of appropriate apparatus
	  ○ preparation of the chromatography paper by adding to it a mixture of soluble substances
	  ○ addition of a solvent to produce a chromatogram for analysis
	  ○ measuring of the rf value
	  ○ identification of the soluble substances in the mixture

4. Be able to detect different chemicals in unknown compounds.	**Scope** Teaching will cover: • A recap of the different types of chemical analysis tests performed in the study of this module • An introduction to a practical investigation through which learners will select and apply the appropriate techniques, to detect different chemicals in at least three unknown compounds.

Title	Exploring our Universe
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD692
Unit Reference No	R/615/5228
Unit purpose and aim(s): This unit will enable the learner to understand the development of astronomy and cosmology.	

Learning Outcomes	Assessment Criteria
1. Know the theories of the evolution of the universe.	1.1. Illustrate how astronomy and the theories of the universe have developed over time including the geocentric and heliocentric models of the universe. 1.2. Illustrate how the Big Bang theory describes the origin of the universe. 1.3. Describe the evidence of the big bang theory including: a) Red Shift/Doppler Effect b) Cosmic microwave background radiation
2. Know the current theory on the structure of the universe.	2.1. Describe the importance of gravity in star and planet formation. 2.2. Illustrate the solar system. 2.3. Illustrate the position of planets, stars, solar systems, galaxies and the universe in terms of their relative size.
3. Be aware of the application of technology to astronomy and space exploration.	3.1. Research current technologies used in astronomy and space exploration outlining how they have increased human knowledge of the universe.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Exploring our Universe

1. Know the theories of the evolution of the universe.	**Scope**
	
	Teaching will cover:
	• The use of a timeline to illustrate how astronomy and the theories of the universe have developed over time
	  ○ big bang model
	  ○ very small, hot, dense universe forms
	  ○ inflation
	  ○ particles form
	  ○ cosmic microwave background
	  ○ universe cools enough for hydrogen and helium to form
	  ○ scattering of light
	  ○ first stars are born
	  ○ galaxies form
	  ○ modern universe continues to expand
	• The Aristotle/Ptolemy geocentric model of the universe
	  ○ illustrate the model with use of a geocentric diagram
	• The Copernicus/Galileo heliocentric model of the universe
	  ○ illustrate the model with use of a heliocentric diagram
	• Evidence that supports the Big Bang Theory
	  ○ Red Shift as an example of the Doppler Effect and how it relates to wavelength
	  ○ the Cosmic Radiation Background as further evidence of the Big Bang

2. Know the current theory on the structure of the universe.	**Scope**
	
	Teaching will cover:
	• The birth of a star
	  ○ the effect of gravity on clouds of dust and gas mostly composed of hydrogen
	  ○ compression, temperature increase resulting in spinning clouds
	  ○ fusion of hydrogen nuclei to make helium
	• The formation of planets
	  ○ the effect of gravity on the remaining dust and gas after the star has burst into life
	  ○ formation of planets and solar systems
	• The structure of our Solar System
	  ○ illustrations to show the position of planets in relation to the sun and each other
	  ○ types of planets – rocky, gas and ice
	  ○ the moon
	• Ordering of celestial bodies in terms of their relative size
	  ○ planets
	  ○ stars
	  ○ solar systems
	  ○ galaxies
	  ○ the universe

3. Be aware of the application of technology to astronomy and space exploration.	**Scope**
	
	Teaching will cover:
	• How current space technologies have increased human knowledge of the Universe
	  ○ at least three technologies used in astronomy such as ground-based telescopes, space telescopes, spectrometers
	  ○ at least three technologies used in space exploration such as spacecrafts, rovers, the international space station

Title	Health Science
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD693
Unit Reference No	Y/615/5229
Unit purpose and aim(s): This unit will enable the learner to understand how individual and public health is maintained and improved.	

Learning Outcomes	Assessment Criteria
1. Know factors that contribute to healthy living.	1.1. Illustrate the key factors that contribute to a healthy lifestyle.
2. Know how preventative measures can be used to promote a healthier population.	2.1. Outline the role of health screening and describe in detail the impact of one screening programme on public health. 2.2. Describe how the following health initiatives may contribute to the improvement of public health: a) health education b) vaccination programmes c) hygiene and sanitation
3. Be aware of treatments used to combat illness.	3.1. Illustrate how antibiotics fight against specific bacteria. 3.2. Describe how gene therapy may be used to treat a chosen disease.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Health Science
1. Know factors that contribute to healthy living.	**Scope** Teaching will cover: • Definition of a healthy lifestyle e.g. WHO (World Health Organisation), NHS (National Health Service) • Factors that contribute to a healthy lifestyle e.g. o physical activity o balanced diet o establishing good sleep patterns o good mental health o personal hygiene o minimising harmful habits or risks e.g. smoking, gambling, debt o achieving work/life balance • Factors that contribute to poor health o physically o mentally and o socially • The impact on health from making poor lifestyle choices • How individuals can make smart decisions to ensure o the absence of disease/illness o a balanced diet o regular exercise o good quality rest
2. Know how preventative measures can be used to promote a healthier population.	**Scope** Teaching will cover: • Definition of public health e.g. NHS definition o the background to health screening o what is health screening o why was it introduced o benefits to the individual o benefits to society o risks and limitations of screening • Description of at least three screening programmes that aim to promote public health e.g. biometric testing; newborn baby screening; female or male specific screening • Explanation of what is meant by Health Education o examples of organisations that advise on health education e.g. NHS; government departments; schools and the Education Authority; o introduction to some freely available programmes e.g. children and young people's health and wellbeing; Reach mental health for schools; emotional health and wellbeing in the workplace

	• Explanation of what is meant by a vaccination programme
	  ○ Introduction to some of the freely available vaccination programmes e.g. for babies and very young children; flu and or COVID vaccinations; Td/IPV; HPV
	
	• Explanation of what is meant by hygiene and sanitation and why they are important
	  ○ examples when good hygiene is crucial to public health e.g. food preparation and storage and links to food poisoning bacteria; handwashing and its links to communicable disease
	  ○ introduction to some relevant legislation and public advice e.g. the Food Safety (Northern Ireland) Order 1991; Food Hygiene Regulations (Northern Ireland) 2006
	
	• Explanation of why clean water and sanitation are crucial for public health
	  ○ consequences of poor sanitation that in the past proved injurious to public health e.g. cholera during the industrial revolution; plague during mediaeval times
	  ○ awareness of current global issues regarding poor sanitation and steps that are being taken to ensure everyone has access to a clean water supply e.g. reference to United Nations Sustainable Development Goal 6

3. Be aware of treatments used to combat illness.	**Scope**
	
	Teaching will cover:
	• Description of what antibiotics are and what they are used for
	• The discovery of antibiotics and how they are developed
	  ○ examples of antibiotics e.g. penicillin
	  ○ explanation of how antibiotics fight against specific bacteria
	  ○ the overuse of antibiotics and the consequence e.g. development of superbugs
	• explanation of what gene therapy is and how it can be used to treat disease
	  ○ examples of specific diseases where gene therapy may be used to treat e.g. Cystic fibrosis, haemophilia

Title	Mathematics for Science
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD697
Unit Reference No	L/615/5230
Unit purpose and aim(s): This unit will enable the learner to use mathematics in a science context.	

Learning Outcomes	Assessment Criteria
1. Be able to use mathematical tools in a scientific context.	1.1. Carry out mathematical scientific calculations to solve problems using a range of formulae including: a) V=IR b) v=fλ c) v=d/t d) a=Δv/t
2. Be able to collect and record scientific data.	2.1. Illustrate how accuracy of results are impacted by measuring instruments and techniques. 2.2. Collect and record different data, checking for errors and anomalous results. 2.3. Compare precision and accuracy in scientific measurements.
3. Be able to display and interpret scientific data.	3.1. Illustrate different ways of displaying data from experiments in tabular and graphical form.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Mathematics for Science
1. Be able to use mathematical tools in a scientific context.	**Scope** Teaching will cover: • The basic concept of a scientific formula: ○ letters in a scientific formula are variables that are related to each other in a mathematical way ○ a variable represents a quantity of a unit ○ a formula specifies mathematical operations that must be performed to make rhs = lhs (+; -; /; ×) ○ solving an equation means finding the value of an unknown variable, when the value of the other variables is known ○ variables can be rearranged to make the unknown variable the subject of the equation • Steps to solving a problem using a formula ○ make the unknown variable the subject of the formula ○ substitute values for the other known variables into the formula ○ perform the operations ○ check answer makes sense • Illustration of how a range of problems can be solved by using the following formulae: a) $V = IR$ b) $v = f\lambda$ c) $v = d/t$ d) $a = \Delta v/t$ ○ identify the operations to be performed ○ include references to the units and techniques for changing the subject of the formula ○ include checking procedures to ensure both calculations and the units are accurate • Students should provide evidence of correct calculation with the appropriate unit appended to their answer for at least two calculations at a); b); c); and d)

2. Be able to collect and record scientific data.	**Scope**
	
	Teaching will cover:
	• A variety of measuring instruments that could be used to measure at least one of the variables in each of the formulae listed 1.1 a); b); c); and d)
	  ○ for example, meters, rulers, scopes, gauges, measuring tape, multimeter; oscilloscopes; stopwatches etc.
	• Scales on measuring instruments and taking readings to the level of accuracy that the scale provides
	
	• Significance of accuracy and precision when taking measurements
	• Importance of whether the level of accuracy provided by the measuring instrument is sufficient and appropriate for the data required e.g. using a 30cm ruler to measure distance between school and home
	
	• Practical activity that involves the use a scientific measuring instrument to collect data that tests at least one of the formulae listed in AC 1.1 is a true relationship between its variables. For example, students could test that R=V/I is true by constructing a circuit where the potential difference and current are varied while the resistance is held constant.
	
	• Techniques to ensure precision when taking scientific measurements e.g.
	  ○ careful planning and preparation before starting the experiment
	  ○ identifying the right equipment to measure the data
	  ○ testing the equipment to make sure it is working properly
	  ○ being meticulous when taking and recording measurements
	
	• Techniques to verify the accuracy of measurements and identify errors, anomalous data and uncharacteristic results e.g.
	  ○ repeating experiments to compare results
	  ○ comparing results with somebody else's results
	  ○ comparing results with standard results
	  ○ plotting results into a graph and noting inconsistencies

3. Be able to display and interpret scientific data.	**Scope**
	
	Teaching will cover:
	• Recording and organising collected data into a suitable data capture arrangement e.g. table of results, tally charts, labelled diagrams, spreadsheets etc.
	• Interpreting results
	  ○ comment on findings
	  ○ account for missing data, errors and anomalous results

Title	Planning, Conducting and Reporting on Scientific Projects
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD699
Unit Reference No	R/615/5231
Unit purpose and aim(s): This unit will enable the learner to be able to plan, conduct and report on a given scientific project.	

Learning Outcomes	**Assessment Criteria**
1. Be able to plan a practical scientific project.	1.1. Plan a practical scientific project to include: a) research b) hypothesis c) methodology d) risk assessment e) resources and equipment f) recording and presenting results
2. Be able to carry out practical scientific project.	2.1. Carry out practical scientific project and record and review results.
3. Be able to analyse and present results on practical scientific project.	3.1. Analyse results of scientific project and produce and present a report on findings and/or conclusions.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	**Definition**	**Possible Content**
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the Assessor to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: Planning, Conducting and Reporting on Scientific Projects

1. Be able to plan a practical scientific project.	**Scope**
	
	Teaching will cover:
	• Explanation of what scientific research is and why it is important
	  ○ role of the scientific community and peer review to establish whether the research has been carried out properly and the findings are acceptable
	  ○ explanation as to why it is important to plan scientific research and set out the project in a systematic way
	
	• Planning a practical scientific project:
	  ○ determination of a problem or a question that could be solved/answered by a scientific investigation
	  ○ development of a hypothesis
	  ○ prediction of what the outcome of the investigation might be based on understanding of science up to this point
	  ○ outline of the methodology that will be employed to test the hypothesis
	  ○ assessment of any risks that might be involved e.g. health and safety considerations; possible factors that might produce errors or anomalies in the data
	  ○ identification of resources and equipment needed in order to carry out the investigation
	  ○ description of how the data will be captured and recorded e.g. tables or spreadsheets
	  ○ description of how the data will be checked to verify its accuracy

2. Be able to carry out practical scientific project.	**Scope**
	
	Teaching will cover:
	
	• The conducting of a practical scientific project
	  ○ production of the data capture forms e.g. tables or spreadsheets
	  ○ setting up and testing of equipment
	  ○ carrying out the experiment and recording the data
	  ○ checking the data to verify that it is accurate and accounting for any errors or inconsistencies

3. Be able to analyse and present results on practical scientific project.	**Scope**
	
	Teaching will cover:
	• Analysis and presentation of results
	  ○ presenting results and observations
	  ○ account of any errors in the data
	  ○ steps taken to minimise risk and ensure data was accurate
	  ○ drawing conclusions and relating back to the hypothesis

Title	The Environment and Human Influences
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD700
Unit Reference No	Y/615/5232
Unit purpose and aim(s): This unit will enable the learner to understand how to monitor the impact of human activity on the environment.	

Learning Outcomes	Assessment Criteria
1. Know the structure and operation of ecosystems.	1.1. Describe the ecosystem functions and services of a chosen ecosystem.
2. Know how human activities influence the environment.	2.1. Illustrate the effect of the following factors on the environment: a) human population b) pollution c) waste disposal d) sustainable development e) climate change 2.2. Illustrate, with examples, how adverse effects on the environment may be minimised or reversed.
3. Be aware of the techniques used to monitor changes in the environment.	3.1. Monitor at least two ecosystems, using appropriate techniques, including: a) soil analysis b) water and air quality analysis
4. Know how environmental protection is regulated.	4.1. Describe why it is important to conserve the environment. 4.2. Summarise the role of relevant government and non-governmental bodies and agencies involved in environmental protection.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the Assessor to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: The Environment and Human Influences

1. Know the structure and operation of ecosystems.	**Scope**
	
	Teaching will cover:
	
	• Definition of an ecosystem with reference to its biotic and abiotic components
	• The different levels of organisation within an ecosystem from individual organisms to populations, communities and to the whole ecosystem
	
	• Description of the functions of an ecosystem and their impact on the environment e.g.
	  ○ productivity,
	  ○ decomposition,
	  ○ energy flow and
	  ○ nutrient recycling
	
	• Description of the services provided by ecosystems e.g.
	  ○ provisioning e.g. food; fuel
	  ○ regulating e.g. climate; soil quality; water quality; air quality
	  ○ cultural e.g. cultural heritage; health benefits; leisure and recreation
	  ○ supporting e.g. decomposition of wastes; soil formation

2. Know how human activities influence the environment.	**Scope**
	
	Teaching will cover:
	• How human population impacts the environment
	  ○ illustrate impact with examples e.g. urbanisation/industrialisation and the destruction of natural habitats; deforestation; intensive farming – land/waterways; tourism
	  ○ illustrate, with examples, methods that may be employed to minimise negative impacts or reverse their effects e.g. conservation programmes; protection of threatened species; alternative sources of energy to fossil fuels; reducing human consumption of natural resources
	
	• How pollution impacts the environment
	  ○ illustrate impact with examples e.g. pollution caused by the combustion of hydrocarbons; atmospheric pollution; ocean pollution
	  ○ illustrate, with examples, methods that may be employed to reduce pollution or reverse its effect e.g. measure and monitor pollution; the use of indicator species as pollution monitors
	
	• How waste disposal impacts the environment
	  ○ illustrate impact with examples e.g. littering; disposal of plastics; landfill sites; sewage; ocean dumping and eutrophication

	○ illustrate, with examples, methods that may be employed to reduce negative impact on environment due to waste disposal or reverse its effect e.g. reduce, reuse, repurpose and recycle • How sustainable development impacts the environment ○ illustrate impact with examples e.g. wind farms; nuclear energy to generate electricity; sustainable woodlands; brown-field building sites ○ illustrate, with examples, methods that may be employed to reduce negative impact on environment caused by sustainable development or reverse its impact • How climate change impacts the environment ○ illustrate impact with examples e.g. the greenhouse effect; climate change impact on pollinators; extreme weather; increased risks to health from diseases such as malaria ○ illustrate, with examples, methods that may be employed to reduce negative impact on environment from climate change or reverse its impact
3. Be aware of the techniques used to monitor changes in the environment.	**Scope** Teaching will cover: • How two different and specific ecosystems are dependent on their environment ○ likely factors that will change their environment ○ how changes in their environment will impact their well-being • What is meant by 'monitoring the changes in an environment' and why it is important • Techniques for monitoring changes in the environment • Soil analysis: ○ explanation of what soil is and why it is important ○ investigation into the composition of soil ○ how changes in the environment can impact the quality of soil ○ the purpose of soil analysis ○ techniques for analysing soil ○ practical investigation into how soil analysis helps to monitor changes to the environment of the two specific ecosystems • Water and air quality analysis ○ explanation of what is meant by 'water quality' and 'air quality' ○ why water and air quality are important to the ecosystems ○ how changes in the environment can impact the quality of water and air ○ the purpose of water and air analysis ○ techniques for analysing water and air quality ○ practical investigation into how water and air quality analysis help to monitor changes to the environment of the two specific ecosystems • Presenting results; drawing conclusions; and making recommendations based on findings

4. Know how environmental protection is regulated.	**Scope**
	
	Teaching will cover:
	• Explanation of what is meant by conservation and the conservation of the environment
	  ○ why it is important to conserve the environment
	  ○ relevant examples of national; international and local projects to conserve the environment e.g. RSPB; Birdwatch Ireland; WWF; Special areas of conservation in NI; rewilding projects to protect and restore biodiversity across UK and Ireland; international ecology projects;
	  ○ examples of ways that we can all help to conserve the environment e.g. Eco-Schools projects, reducing carbon footprint
	
	• The role of relevant government and other bodies/agencies that are involved in environmental protection
	  ○ Government legislation and initiatives e.g. Environment Act 2021; Environmental Improvement Plan for NI; European Union regulation for the disposal of farm wastes
	  ○ national and international agreements to combat global pollution e.g. COP26 and the Paris Agreement 2015
	  ○ organisations involved in protection of the environment e.g. Woodland Trust; Environment Agency (EA); Centre for Environment, Fisheries and Aquaculture Science (Cefas)

Title	The Living Body
Level	Two
Credit Value	3
Guided Learning Hours (GLH)	24
OCN NI Unit Code	CBD701
Unit Reference No	D/615/5233
Unit purpose and aim(s): This unit will enable the learner to understand the key functions and systems of the living body.	

Learning Outcomes	Assessment Criteria
1. Understand body systems.	1.1. Describe the key structure and functions of the major organs comprising the following: a) digestive system b) respiratory system c) circulatory system d) renal system e) reproductive system
2. Understand nervous responses in animals.	2.1. Describe the role of the motor, sensory and relay neurons. 2.2. Describe with examples, voluntary and reflex nervous responses. 2.3. Illustrate the components of a simple reflex arc.

Assessment Guidance

Internally set, internally marked, externally moderated
100% coverage of the Assessment Criteria

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Assessor notes/record Learner log/diary

Learning Outcome	Unit Title: The Living Body

1. Understand body systems.	**Scope**
	
	Teaching will cover:
	• Explanation of digestion, an overview of how it works and why it is important for survival
	• The key structure and functions of the digestive system
	  ○ mouth
	  ○ oesophagus
	  ○ stomach
	  ○ large and small intestines
	  ○ rectum
	  ○ anus
	• Explanation of respiration, an overview of how it works and why it is important for survival
	• The key structure and functions of the respiratory system
	  ○ nose
	  ○ trachea
	  ○ bronchus and bronchiole
	  ○ lungs
	  ○ alveoli
	  ○ diaphragm
	  ○ ribs
	• Explanation of the circulatory system, an overview of how it works and why it is important for survival
	• The key structure and functions of the circulatory system
	  ○ blood and oxygen
	  ○ blood cells, haemoglobin and platelets
	  ○ veins, arteries and capillaries
	  ○ heart, heart beat
	  ○ right and left atria and ventricles
	  ○ valves
	• Explanation of the renal system, an overview of how it works and why it is important for survival
	• The key structure and functions of the renal system
	  ○ renal vein and artery
	  ○ kidney
	  ○ ureter
	  ○ bladder
	  ○ urethra
	• Explanation of what reproduction is and why it is important for our species survival
	• The key structure and functions of the male and female reproductive systems
	  ○ testis; sperm duct; prostate gland; urethra; penis
	  ○ fallopian tube; ovary; uterus; cervix; vagina
	• Illustrations of the major organs and where they are located within the body

2. Understand nervous responses in animals.	**Scope**
	
	Teaching will cover:
	• Role of the nervous system
	  ○ the central nervous system - brain and spinal cord
	  ○ peripheral nervous system – networked nerves throughout body
	• Receptors and effectors
	• Neurones – nerves and electrical impulses
	  ○ sensory neurones
	  ○ relay neurones
	  ○ motor neurones
	• Responses
	  ○ voluntary nervous responses conscious control and thinking time
	  ○ reflex nervous responses – speed of response
	  ○ labelled diagrams and examples should be used to illustrate and reinforce understanding
	• Reflex arc
	  ○ labelled diagram to illustrate the components of a simple reflex arc
	  ○ reflex pathway
	  ○ relationship between the neurones, stimulus and response

11. Quality Assurance of Centre Performance

11.1 Internal Assessment

When delivering and assessing these qualifications, Centres must align with stakeholders' expectations and address learners' needs by implementing a practical and applied programme. Centres have the flexibility to customise programmes to meet local requirements and establish connections with local employers and the broader vocational sector.

The Assessor should work with the IQA to ensure that the assessment is planned in line with OCN NI requirements. Assessment Plans must be developed and approved by the Internal Verifier prior to the delivery of the qualification.

All units within these qualifications must undergo internal assessment. Learners must provide evidence that they have appropriately met all assessment criteria required for that grade.

The assessment format for all units involves a task conducted after the delivery of the unit's content, or part of it, if multiple tasks are used. Tasks may exhibit in various forms, encompassing practical and written types. Please refer to 'OCN NI's Assessment Definitions Guide' for additional details.

A task constitutes a distinct activity completed independently by learners, separated from teaching, practice, exploration, and other activities guided by tutors. Tasks are assigned to learners with a specified start date, completion date, and explicit requirements for the evidence to be produced. Some tasks may include observed practical components and require diverse forms of evidence.

A valid assignment will enable a clear and formal assessment outcome, which meets the requirements of the assessment criteria. Assessment decisions are based on the specific assessment criteria given in each unit and set at each grade level. The way in which individual units are written provides a balance of assessment of understanding, practical skills and vocational attributes appropriate to the purpose of qualifications.

It is the Assessor's role to ensure that learners are appropriately prepared for assessment, this begins from induction onwards. Assessors should ensure that learners understand how assessment tasks are used to determine the award of credit, the importance of meeting assessment timelines, and that all learners work must be independently created, where source documents are used this should be appropriately referenced, learners should be aware of what would constitute plagiarism and the possible consequences.

When conducting the assessment, Assessors must ensure they do not provide direct input, instructions or specific feedback which may compromise the authenticity of the work submitted.

Once the Assessor has authenticated the learners work, they must transparently demonstrate the rationale behind their assessment decisions. Once a learner completes all assigned tasks for a unit, the Assessor will allocate a grade for the unit. Refer to the 'Unit Grading Matrix' for additional information on the grading process.

Once the Assessor has completed the assessment process for the task, the assessment decision is recorded formally, and feedback is provided to the learner. The feedback should show the learner the outcome of the assessment decision, how it was determined or where the criteria has been met, it may indicate to the learner why achievement of the assessment criteria has not been met. It must be clear to the learner that this Assessment outcome is subject to verification.

For further information on assessment practice, please see the 'OCN NI Centre Handbook'. Assessment Training is also available and can be booked through the OCN NI Website.

11.2 Internal Quality Assurance

The role of the IQA is to ensure appropriate internal quality assurance processes are carried out. The IQA must oversee that assessments are conducted in accordance with relevant OCN NI policies, regulations, and this specification.

The IQA must ensure assessments are fair, reliable, and uniform, thereby providing a consistent standard for all learners.

IQA are required to provide constructive feedback to Assessors, identifying areas of strength and those that may require improvement. This feedback contributes to the ongoing professional development of Assessors.

Contributing to the standardisation of assessment practices within the Centre is an important function of this role. This entails aligning assessment methods, grading criteria, and decision-making processes to maintain fairness and equity.

IQA will actively engage in the sampling and monitoring of assessments to ensure the consistency and accuracy of assessment decisions. This process helps identify trends, areas for improvement, and ensures the robustness of the overall assessment system.

For further information on internal verification practice, please see the 'OCN NI Centre Handbook'. Internal Verification Training is also available and can be booked through the OCN NI Website.

11.3 Documentation

For internal quality assurance processes to be effective, the internal assessment and internal verification team needs to keep effective records.

- The programme must have an assessment and internal verification plan. When producing a plan, they should consider:
    - the time required for training and standardisation activities
    - the time available to undertake teaching and carry out assessment,
    - consider when learners may complete assessments and when quality assurance will take place
    - the completion dates for different assessment tasks
    - the date by which the assignment needs to be internally verified
    - sampling strategies
    - how to manage the assessment and verification of learners' work so that they can be given formal decisions promptly
    - how resubmission opportunities can be scheduled.

The following documents are available from OCN NI and document templates can be found in the Centre Login section of the OCN NI website www.ocnni.org.uk:

- A1 – Learner Assessment Record form
- Learner Authentication Declarations
- Records of any reasonable adjustments applied for and the outcome – please see 'OCN NI's Reasonable Adjustments and Special Consideration Policy' for further information
- M1 Internal Quality Assurance Sample Record
- M2 Internal Quality Assurance Feedback to Assessor
- Records of any complaints or appeals

11.4 External Quality Assurance

All OCN NI recognised centres are subject to External Quality Assurance. External quality assurance activities will be conducted to confirm continued compliance with the CCEA Regulation General Conditions of Recognition, OCN NI terms and conditions and the requirements outlined within this qualification specification.

The External Quality Assurance is assigned by OCN NI. The External Quality Assurer will review the delivery and assessment of these qualifications. This will include, but is not limited to, the review of a sample of assessment evidence and evidence of the internal verification of assessment and assessment decisions. This will form the basis of the External Quality Assurance report and will help OCN NI determine the Centres risk.

The role of the External Quality Assurer serves as an external overseer of assessment quality, working to uphold consistency, compliance, and continuous improvement within the assessment process. Their role is crucial in ensuring that assessments are valid, reliable, fair, and aligned with the required standards and regulations.

For further information on OCN NI Centre Assessments Standards Scrutiny (CASS) Strategy, please see the OCN NI Centre Handbook.

11.5 Standardisation

As a process, standardisation is designed to ensure consistency and promote good practice in understanding and the application of standards. Standardisation events:

- make qualified statements about the level of consistency in assessment across centres delivering a qualification
- make statements on the standard of evidence that is required to meet the assessment criteria for units in a qualification
- make recommendations on assessment practice
- produce advice and guidance for the assessment of units
- identify good practice in assessment and internal quality assurance

Centres offering these qualifications must carry out internal standardisation activities prior to the claim for certification.

Centres offering units of an OCN NI qualification must attend and contribute assessment materials and learner evidence for standardisation events if requested.

OCN NI will notify centres of the nature of sample evidence required for standardisation events (this will include assessment materials, learner evidence and relevant Assessor and Internal Quality Assurance documentation). OCN NI will make standardisation summary reports available and correspond directly with centres regarding event outcomes.

12. Administration

12.1 Registration

A centre must register learners for these qualifications within 90 days of commencement of the delivery of the programme.

For further information on learner registration please see the OCN NI Centre Handbook and the QuartzWeb Manual, available through the Centre Login section of the OCN NI website. Administration training is also available and can be booked through www.ocnni.org.uk.

12.2 Certification

Once all internal quality assurance activities have been successfully completed, the Centre can claim certification for the learner(s).

Certificates will be issued to centres within 20 working days from completion of a satisfactory external quality assurance activity, if appropriate, alternatively from the submission of an accurate and complete marksheet.

It is the responsibility of the centre to ensure that certificates received from OCN NI are held securely and distributed to learners promptly and securely.

For further information on the uploading of results please see the QuartzWeb Manual for guidance, administration training is also available and can be booked through OCN NI

12.3 Charges

OCN NI publishes all up-to-date qualification fees in its Fees and Invoicing Policy document. Further information can be found on the centre login area of the OCN NI website.

12.4 Equality, Fairness and Inclusion

OCN NI's are committed to ensuring all learners have an equal opportunity to access our qualifications and assessment, and that our qualifications are awarded in a way that is fair to every learner.

OCN NI is committed to making sure that:

- learners with a protected characteristic are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers

For information on reasonable adjustments and special considerations please see the OCN NI Centre Handbook and Reasonable Adjustments and Special Considerations Policy held in the back office of the OCN NI website.

12.5 Retention of Evidence

OCN NI has published guidance for centres on the retention of evidence. Details are provided in the OCN NI Centre Handbook and can be accessed via the OCN NI website.

OCN NI Level 2 Certificate in Applied Science
Qualification Number: 603/1141/1

OCN NI Level 2 Extended Certificate in Applied Science
Qualification Number: 603/1142/3

Operational start date:	1 March 2017
Operational end date:	31 July 2030
Certification end date:	31 July 2032

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12.6 Appendix 1 - Definition of OCN NI's Assessment Verbs

The following verbs are working definitions of those used in OCN NI assessments with examples of how they can be applied and used in different but equally valid contexts.

Verb	Definition	Example
Analyse	To examine closely and break into components to enable results to be interpreted and findings presented	The learner will be expected to perform a critical process which will involve closely examining data, breaking it into meaningful components, interpreting the results, and presenting clear findings to inform future decisions and / or draw meaningful conclusions.
Apply	To effectively utilize information, items, or equipment to achieve specific objectives, produce tangible outcomes, or enhance understanding.	The learner will be expected to understand and use information, items, or equipment to complete tasks accurately, solve problems, and achieve specific goals efficiently and effectively in practical situations. This involves combining various resources to create coherent and effective outcomes. The learner demonstrates efficiency in using the resources, minimising waste and maximising effectiveness. This involves planning, organising, and executing tasks in a streamlined manner.
Calculate	To determine something using a mathematical method to find an answer or result.	The learner will be expected to have the knowledge and understanding to select the correct mathematical formula they should use to work out the answer needed for a specific task. Learners will need to use appropriate formulas and perform accurate computations to successfully meet the criteria asked of them.
Carry out	To effectively utilise information, items, or equipment to achieve specific objectives, produce tangible outcomes, or enhance understanding.	The learner will be expected to comprehend the information, items, or equipment they are required to use. This involves understanding the purpose, function, and relevance of the resources. The learner must carry out tasks using the information, items, or equipment to produce specific results. This involves following procedures accurately and demonstrating the ability to use resources effectively. The learner uses the resources to address challenges and find solutions. This involves planning, organising, and executing tasks in a streamlined manner.

Collect and record	To gather or bring together items, information or data from various sources and document observations.	The learner will be expected to perform tasks that involve gathering information or data and systematically document findings.
Compare	To examine and evaluate the similarities and differences between information, items, or equipment in order to enhance understanding and make informed decisions.	The learner will be expected to identify the specific information, items, or equipment to be compared. This involves selecting relevant subjects for comparison based on the task or objective. The learner analyzes the characteristics, features, and attributes of each subject. The learner identifies relevant items, analyses their features, evaluates similarities and differences, and draws conclusions to make informed decisions or solve problems.
Construct	To build or create something by assembling different parts or elements and materials based on design specifications and methods.	The learner will be expected to bring together different elements in a logical and organised manner to create a complete and functional entity. This may involve following instructions or guidelines or creating a methodical process to create and successfully achieve the end-product. The learner should be able to apply their skills to plan and organise their approach, breaking down the task into manageable steps. They should have the technical skills necessary to carry out the construction, ensuring their construction is accurate, precise and adhering to all specifications and criteria.
Define	Description of what a term means and its application i.e. to specify meaning	The learner will be expected to explain and provide a clear definition of key terms or concepts within a subject area. This may involve describing the meaning of a specific term, concept, or idea and illustrating its application in relevant contexts. The learner should demonstrate understanding by accurately defining terms and their significance or relevance
Describe	To paint a full picture of a concept, process or thing in words.	The learner will be expected to explore a concept, process, or object and provide a detailed verbal or written account that includes significant features, characteristics, and relevant details. The learner should be able to demonstrate the ability to convey a comprehensive understanding and include all key components, stages and/or features of concept, process, or object being described. related activities in the industry by identification and brief purpose.

Develop	The process of creating, improving or expanding something over time.	The learner will be expected to create, enhance or expand something. This may involve: creating new ideas, projects or solutions – Improving existing skill, knowledge or products – expanding upon current understand or capabilities to achieve great depth or breath.
Follow	Adhere to rules, procedures and/or conventions in regard to an activity showing skills and knowledge in more than one area and /or contexts.	Adhere to a series of steps or stages in a specific order to achieve a particular goal or complete a task. This involves understanding and executing each step correctly, ensuring that the sequence is maintained to produce the desired outcome.
Identify	To select and list appropriate items from information that you have been given or collected.	The learner will be expected to review a set of data, information or items, and accurately select and list the required individual elements of data, information or items. The learner should be able demonstrate the ability to filter relevant information from a broader set, showing comprehension and attention to detail.
Illustrate	To visually or descriptively depict an item, activity, or process in a clear and detailed manner to enhance understanding and convey information effectively.	The learner will be expected to have a thorough understanding of the item, activity, or process being illustrated. This involves comprehending its components, functions, and overall purpose. The learner must ensure that the illustration is clear and detailed. This involves providing enough information to accurately represent the subject and using appropriate visual, role play or descriptive techniques to enhance clarity. The learner employs effective visual techniques, such as role play, diagrams, charts, sketches, or infographics, to depict the subject. This involves choosing the appropriate method to best convey the information. The learner uses descriptive language to complement the visual elements. This involves providing explanations, annotations, or labels to enhance the understanding of the illustration. The learner ensures that the illustration is accurate and free from errors.
Monitor	To continuously observe, track or check something over a period of time.	The learner will be expected to: observe progress, behaviour or performance – track data or information regularly to assess changes or developments – check that standards or criteria are being me consistently.

Outline	To give general idea and overview without going into detail.	The learner will be expected to review a topic or concept and provide a brief summary that highlights the main points or key elements, without delving into detailed explanations or analysis. The learner should be able to demonstrate the ability to understand and convey the essence of a subject clearly and concisely.
Plan	To create a detailed strategy or roadmap for an activity or process, outlining the necessary steps, resources, and timeline to achieve specific objectives.	The learner will be expected to identify clear and specific objectives for the activity or process. The learner conducts thorough research and analysis to inform the planning process. This includes gathering relevant information, studying existing solutions, and understanding constraints and opportunities. The learner identifies and allocates the necessary resources, such as materials, tools, personnel, and budget. The learner creates a detailed step-by-step plan outlining the tasks and activities needed to achieve the objectives.
Research	To systematically investigate and study materials and sources in order to establish facts and reach new conclusions.	The learner will be expected to conduct a structured and methodical approach to defining objectives, gathering data from various sources, systematically investigating and analysing that data, establishing facts, and reaching new conclusions that can inform decision-making .
Summarise	To provide a brief account giving the main points of a topic or range of topics.	The learner will be expected to examine a topic or set of information and condense it into a concise summary that captures the essential points, themes, or arguments, without including unnecessary details. The learner should be able to demonstrate the ability to distil complex or extensive information into its core components and present it in a clear and coherent manner focusing on the most significant aspects and omitting extraneous details.
Test	Undertake a process of evaluating and verifying that a system or application performs as required, showing complex skills and knowledge in more than one familiar and unfamiliar area and/or context.	The learner will be expected to conduct a thorough evaluation process requiring a deep understanding of both the system or application itself and its intended purpose. Testing is intended to provide findings to verify the system or application performs as intended and / or identify areas for improvement. This may involve an iterative process of making adjustments in light of test findings and subsequent testing.