Technical and Vocational Education and Training (TVET) Council

Occupational Standards of Competence

Laboratory Operations

Level 2

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Qualification Overview

NVQB

in

Laboratory Operations

Level 2

NVQB in Laboratory Operations Level 2

Qualification Overview

Employers can use this qualification to support employees in developing their laboratory skills required to effectively conduct laboratory operations across a wide range of industry sectors.

Employees at this level must demonstrate the ability to follow established procedures, recipes and protocols and apply technical skills and basic scientific knowledge. These individuals generally work in a laboratory environment but may also operate in the field or within production plants. They may also be responsible for laboratory maintenance and general office administration.

Like all NVQs this qualification is competence based. This means that it is linked to the candidate's ability to competently perform a range of tasks connected with his/her work. Candidates must plan a programme of development and assessment with their assessors and compile a portfolio of evidence to prove that they are competent in their work role.

Who is this qualification for?

The NVQB in Laboratory Operations Level 2 is aimed at persons who are required to perform a limited range of laboratory operations within a scientific discipline such as laboratory technicians, instrument operators and similar personnel.

Jobs within the occupational area

Relevant occupations include:

- Laboratory assistants (e.g., medical, pharmaceutical, agriculture, food/beverage, scientific research, education, etc.)
- Laboratory technicians
- Chemists
- Quality control/assurance officers

Where can it be used?

The qualification can be used in medical services facilities, production plants and various types of laboratories (e.g. educational, agricultural, agro-food processing, scientific or research).

This list is not exhaustive and only serves to illustrate the breadth of the qualification.

A012302 - APPROVED NATIONAL VOCATIONAL QUALIFICATION STRUCTURE

LABORATORY OPERATIONS LEVEL 2

To achieve the full award, candidates must complete all thirteen (13`) mandatory units.

Mandatory Units (All must be completed)	CODES
1. Participate in workplace communication	**U53802**
1.1 Gather and convey workplace information	
1.2 Contribute to workplace meetings and discussions	
1.3 Complete work-related documents	
2. Contribute to environmentally sustainable work practices	**UA57201**
2.1 Identify current resource use	
2.2 Comply with environmental regulations	
2.3 Seek opportunities to improve environmental practices and resource efficiency	
3. Prepare, standardise and use solutions	**UA57301**
3.1 Prepare solutions	
3.2 Standardise and use volumetric solutions	
3.3 Calculate and record data	
3.4 Monitor the quality of laboratory solutions	
3.5 Maintain a safe work environment	
4. Perform microscopic examinations	**UA58002**
4.1 Interpret test requirements	
4.2 Set up work area for preparation and examination of samples	
4.3 Prepare samples for examination	
4.4 Set up and use a light microscope	
4.5 Observe, identify and report sample characteristics	
4.6 Maintain a safe work environment	
5. Process and interpret data	**UA58102**
5.1 Retrieve and check data	
5.2 Calculate scientific quantities	
5.3 Present data	
5.4 Interpret data	
5.5 Keep records and maintain confidentiality	

Mandatory Units (All must be completed)		CODES
6.	**Maintain laboratory and field workplace safety**	**UA58202**
6.1	Work in a safe manner	
6.2	Check and confirm the implementation of safe work practices	
6.3	Monitor the observance of safe work practices in the work area	
6.4	Participate in risk management processes	
6.5	Support the implementation of participative arrangements	
6.6	Support the implementation of emergency procedures	
7.	**Handle and transport samples and equipment**	**UA58302**
7.1	Prepare for collection	
7.2	Collect and transport items	
7.3	Perform routine maintenance	
7.4	Maintain a safe work environment	
8.	**Perform chemical tests and procedures**	**UA58402**
8.1	Interpret and schedule tests	
8.2	Receive and prepare samples	
8.3	Check equipment	
8.4	Perform tests on samples	
8.5	Process and interpret data	
8.6	Maintain a safe work environment	
9.	**Perform food tests**	**UA58502**
9.1	Interpret and schedule test requirements	
9.2	Receive and prepare food samples	
9.3	Check equipment	
9.4	Perform tests on samples	
9.5	Process and interpret data	
9.6	Maintain a safe work environment	
10.	**Maintain the laboratory**	**UA58602**
10.1	Clean work preparation areas	
10.2	Clean and store equipment	
10.3	Monitor stock of materials and equipment	
10.4	Maintain a safe work environment	
11.	**Apply quality systems and continuous improvement processes**	**UA58702**
11.1	Adhere to quality system requirements	
11.2	Identify risks and opportunities for improvements	
11.3	Contribute to strategic improvements	

12. Identify and respond to routine standard operating procedures **UA58802**

12.1 Prepare to review standard operating procedures
12.2 Interpret operating procedures
12.3 Clarify understanding and respond to procedures

13. Manage yourself **U82403**

13.1 Develop knowledge and skills
13.2 Develop knowledge of the work role
13.3 Manage time
13.4 Review performance

U53802 Participate in workplace communication

Unit Descriptor: This unit describes the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Gather and convey workplace information	1.1 Access relevant and up-to-date information from appropriate sources.
	1.2 Use effective communication strategies to gather and convey information.
	1.3 Use appropriate medium to transfer information and ideas.
	1.4 Identify and follow lines of communication with management and colleagues.
	1.5 Define procedures for the location and storage of information.
	1.6 Record information according to organisational procedures.
2. Contribute to workplace meetings and discussions	2.1 Make useful contributions in meetings and discussions.
	2.2 Express opinions clearly in a courteous and respectful manner.
	2.3 Confirm that discussions are appropriate to the purpose and proposed outcome of the meeting.
	2.4 Interpret and implement meeting outcomes.
3. Complete work-related documents	3.1 Select correct documentation and complete accurately and legibly according to organisational requirements.
	3.2 Identify and correct errors on forms and documents.

RANGE STATEMENT

All range statements must be assessed:

1. Appropriate sources may include but are not limited to:

- Team members
- Suppliers
- Trade personnel
- Public sector (government)
- Industry

2. Communication strategies may include but are not limited to:

- Questioning
- Listening
- Speaking
- Writing
- Non-verbal communication

3. Medium may include but is not limited to:

- Memorandum
- Circular
- Notice
- Information discussion
- Follow-up or verbal instruction
- Face-to-face communication

4. Storage may include but is not limited to:

- Manual filing system
- Electronic filing system

5. Protocols may include but are not limited to:

- Organisational policies and procedures
- Legislation

6. Workplace interactions may include but are not limited to:

- Face-to-face
- Telephone
- ICT
- Written (electronic, memos, instructions, forms)
- Non-verbal (gestures, signals, signs, diagrams)

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the organisational policies and procedures that relate to the communication of information.
2. How to locate, interpret and provide information in response to organisational requirements or customer requests.
3. What are appropriate sources of information.
4. What is effective communication.
5. What are the different modes of communication and how to use them.
6. What are the different communication strategies and how to use them.
7. How to communicate effectively with management, colleagues and clients to provide information and feedback.
8. How to participate in workplace meetings and discussions.
9. How to identify the purpose and proposed outcomes of a meeting and make positive contributions to achieve them.
10. How to express opinions in a clear and courteous manner.
11. How to use basic ICT resources (fax, telephone, computer).
12. What is the range of work-related documentation and how this should be completed.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out all the elements, meeting **all** of the performance criteria, range and underpinning knowledge on more than one occasion**.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not** be used, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA57201 Contribute to environmentally sustainable work practices

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to comply with environmental regulations, identify environment issues and minimise the risks of negative impact on work and carry out improvements in own work area.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Identify current resource use	1.1 Identify resources used in assigned work role.
	1.2 Confirm current consumption levels of resources in assigned work role with relevant persons.
	1.3 Identify and confirm current environmental performance and resource efficiency issues in the workplace with relevant persons.
2. Comply with environmental regulations	2.1 Discuss and confirm the environmental policies and other requirements applicable to assigned work role with relevant persons.
	2.2 Identify and report incidents to relevant persons in accordance with organisational procedures.
	2.3 Perform work tasks in a manner that ensures compliance with organisational environmental policies and procedures.
3. Seek opportunities to improve environmental practices and resource efficiency	3.1 Identify workplace practices and workplans that contribute to environmental performance and resource efficiency issues.
	3.2 Recommend changes to workplace practices and workplans that could lead to improvements in the environmental performance of the workplace.

RANGE STATEMENT

All range statements must be assessed:

1. **Environmental performance and resource efficiency issues** may include but are not limited to:

    - Excess waste generation (e.g. solid/chemical waste, liquid or gas emissions, etc.)
    - Overconsumption of resources (e.g. energy and water)
    - Negative ecosystem/environmental impacts (e.g. pollution of air, lands and water systems)
    - Overuse of non-recyclables or environmentally harmful materials

2. **Incidents** may include but are not limited to:

    - Breaches or potential breaches of environmental regulations
    - Occurrences outside of standard procedures which may lead to lower environmental performance

3. **Improvements** may include but are not limited to:

    - The prevention and mitigation of negative environmental impacts (e.g. environmental damage from hazardous substances)
    - Reduced carbon footprint (e.g. using renewable energy sources, reducing energy consumption)
    - Improved energy efficiency
    - Reduced waste and water usage
    - Reusing/recycling waste/products

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What it means for a work operation to be "environmentally sustainable" and how this status can be achieved.
2. How to identify the resources used in assigned work roles.
3. Why it is important to track the consumption of resources.
4. What are the methods of measuring or tracking the consumption of various types of resources in the workplace and how to confirm resource consumption levels.
5. What are the relevant organisational and legislative environmental policies and other requirements applicable to the assigned work role and how to clarify and confirm them.
6. What are the types of environmental performance incidents that occur in the workplace and how to identify and report them.
7. Who are the relevant persons to consult regarding environmental policies and issues in the workplace.
8. How to perform work tasks in a manner that ensures compliance with organisational environmental policies and procedures.
9. How to identify workplace practices and workplans that contribute to environmental performance and resource efficiency issues.
10. How to recommend changes to workplace practices and workplans that could lead to improvements in the environmental performance of the workplace.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA57301 Prepare, standardise and use solutions

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to prepare, standardise and use volumetric solutions. Candidates will also be required to monitor the quality of these solutions and calculate and record associated data.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Prepare solutions	1.1 Select appropriate equipment, glassware, materials and solvents of specified purity that are fit for purpose in accordance with laboratory requirements.
	1.2 Measure appropriate quantities of reagents for solution preparation and record data in accordance with laboratory procedures.
	1.3 Assemble specified laboratory equipment and appropriate grade of glassware in accordance with laboratory requirements and manufacturer's guidelines.
	1.4 Perform dilutions in accordance with laboratory procedures and requirements.
	1.5 Homogenise solutions at the specified concentration using appropriate solution preparation procedures.
	1.6 Label and store solutions in a manner that maintains identity and stability.
2. Standardise and use volumetric solutions	2.1 Assemble appropriate laboratory equipment and glassware in accordance with laboratory procedures and manufacturer's guidelines.
	2.2 Perform serial dilutions, where required, in accordance with organisational procedures.
	2.3 Homogenise the solution to the specified range and precision.
	2.4 Label and store solutions in a manner that maintains identity and stability.

		2.5	Use standard volumetric solutions to determine the concentration of unknown solutions.
3.	Calculate and record data	3.1	Evaluate specified concentrations in accordance with organisational methods and procedures.
		3.2	Modify data, where required, using authorised procedures.
		3.3	Record relevant details and report results in accordance with laboratory procedures and organisational requirements.
		3.4	Report concentration with appropriate units in accordance with organisational procedures and requirements.
4.	Monitor the quality of laboratory solutions	4.1	Inspect stored solutions for visual signs of deterioration and check expiry dates in accordance with industry best practices.
		4.2	Re-standardise or dispose of dated or deteriorated solutions in accordance with industry best practices and environmental regulations.
		4.3	Record details and label solutions in accordance with laboratory procedures.
5.	Maintain a safe work environment	5.1	Follow established safety precautions and wear personal protective equipment in a manner that ensures personal safety and the safety of other laboratory personnel.
		5.2	Clean up spills using appropriate techniques to protect personnel, the work area and the environment.
		5.3	Minimise the generation of waste and environmental impacts in accordance with organisational environmental policies.
		5.4	Confirm the safe collection of laboratory and hazardous waste for subsequent disposal.
		5.5	Store equipment and reagents as required according to laboratory and manufacturer's requirements.

RANGE STATEMENT

All range statements must be assessed:

1. **Equipment** may include but is not limited to:

    - Ph meters
    - Balances
    - Stirrers
    - Water baths
    - Heat sources (e.g. bunsen burner, hot plate)
    - Measuring cylinders
    - Filter papers and funnels
    - Fume cupboards
    - Retort stands
    - Thermometers

2. **Glassware** may include but is not limited to:

    - Pipettes and burettes
    - Volumetric flasks
    - Conical flasks
    - Test tubes
    - Dishes
    - Beakers

3. **Solutions** may include but are not limited to:

    - Acids
    - Oxidising or reducing agents
    - Complexometric or precipitation titrations
    - Stains and tissue
    - Enzymes
    - Buffers and antibodies
    - Diluents
    - Organic (e.g. Benzenes)
    - Histological fixatives
    - Indicators

4. **Safe precautions** may include but are not limited to:

    - Use of material safety data sheets (MSDS)
    - Use of personal protective equipment
    - Correct labelling of reagents and hazardous materials
    - Handling and storing hazardous materials and equipment
    - Regular cleaning or decontamination of equipment and work area

4. **Personal protective equipment** may include but is not limited to:

    - Respirator
    - Faceguard
    - Goggles/face mask
    - Gloves
    - Face shield
    - Coveralls
    - Safety glasses

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the terminologies relating to the chemistry of chemicals and reactions.
2. What is the concept of metrology.
3. What are the grades of glassware, reagents and their uses.
4. What reactions are used for standardisation and desirable characteristics.
5. What are the organisation's communication and reporting procedures.
6. What are the occupational health and safety procedures used in laboratories.
7. What are the relevant health, safety and environment requirements.
8. How to interpret and follow laboratory standard operating procedures (SOPs).
9. How to determine equivalence points using indicators and graphical methods.
10. How to calculate using methods, including appropriate units, uncertainties, balancing equations.
11. How to use apparatus and reagents to prepare standard solutions.
12. How to select and use primary and secondary standards and indicators.
13. How to perform quality assurance checks for solution performance.
14. How to perform titrations.
15. How recognise control results that are not within acceptable range.
16. How to interpret and use safety information, such as that provided by material safety data sheets (MSDS) and follow relevant safety procedures.
17. What are the appropriate techniques for cleaning up spill.
18. How to minimise waste.
19. What are the industry, organisational and environmental requirements for disposing of laboratory waste.
20. How to store equipment and chemicals.
21. What are the relevant occupational health and safety requirements.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA58002 Perform microscopic examinations

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to prepare routine samples and examine them using a light microscope, standard methods and readily available advice. Personnel are required to set up microscopes for optimum resolution and observe, identify and report sample characteristics. The unit also covers limited interpretation and analysis of results.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Interpret test requirements	1.1 Review test requests to identify samples to be tested, testing method and equipment involved.
	1.2 Identify hazards associated with samples, preparation methods, reagents and equipment and implement organisational control measures.
2. Set up work area for preparation and examination of samples	2.1 Collect equipment and reagents and arrange the workspace so that equipment can be used in a safe and efficient manner.
	2.2 Perform pre-use and safety checks to ensure equipment is fit for purpose and report and document faulty or unsafe equipment to appropriate personnel in accordance with organisational procedures.
	2.3 Check and confirm that reagents are fit for purpose and report and document any items that require replacement to appropriate personnel in accordance with organisational procedures.
3. Prepare samples for examination	3.1 Log and label samples according to organisational procedures to ensure traceability.
	3.2 Check the suitability of original and prepared samples for the examination and report and document unsuitable samples to appropriate personnel in accordance with organisational procedures.

		3.3 Organise and store samples for examination following organisational procedures.
4.	Set up and use a light microscope	4.1 Arrange the light path to optimise resolution.
		4.2 Select the appropriate objectives and filter for samples being examined.
		4.3 Check and confirm that the lenses are clean before use and perform appropriate cleaning, where required, in accordance with manufacturer's guidelines.
		4.4 Adjust settings and alignment of the light path to optimise performance.
		4.5 Place samples on the stage in accordance with manufacturer's guidelines and industry best practices.
5.	Observe, identify and report sample characteristics	5.1 Identify and confirm significant sample characteristics.
		5.2 Perform required calculations according to industry best practices.
		5.3 Prepare and view control samples and check that results are consistent with expected values.
		5.4 Identify and report 'out of specification' or atypical results to appropriate personnel in accordance with organisational procedures.
		5.5 Record and report data in accordance with organisational procedures.
6.	Maintain a safe work environment	6.1 Confirm safety and minimise cross contamination through the use of personal protective equipment.
		6.2 Handle samples and equipment in accordance with organisational safety protocols.
		6.3 Clean up spills using appropriate techniques to protect personnel, the work area and the environment.

6.4 Minimise the generation of waste and environmental impacts in accordance with organisational requirements.

6.5 Collect and dispose of all waste in accordance with organisational health and safety and environmental policies.

6.6 Report hazards and incidents to designated personnel according to organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Samples** may include but are not limited to:

    - Liquids
    - Solids

2. **Equipment** may include but is not limited to:

    - Manual/electronic microscope
    - Glass slides
    - Counting chambers
    - Optical graticules and stage micrometers
    - Tissue culture flasks

3. **Hazards** may include but are not limited to:

    - Biological (e.g. microbials and pathogens)
    - Chemical (e.g. aerosols, corrosive agents)
    - Physical (e.g. broken glassware and sharps)
    - Ergonomic (e.g. improper lifting technique, poor posture)

4. **Calculations** may include but are not limited to:

    - Percentages
    - Fractions
    - Decimals
    - Conversions between SI units
    - Areas and volumes
    - Averages (e.g. counts, mass)
    - Density
    - Specific gravity
    - Absolute and relative humidity
    - Ratios
    - Concentration
    - Process variables

5. **Personal protective equipment** may include but is not limited to:

    - Goggles/face mask
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs

6. **Appropriate techniques for cleaning spillages** may include but are not limited to:

    - Manual
    - Mechanical

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to select and use equipment to achieve optimum results.
2. What are the hazards associated with working in a lab.
3. What are the appropriate control methods for identified hazards.
4. How to set up the work area.
5. What is the required personal protective and other safety equipment.
6. How to prepare samples for examination.
7. How to log and track samples through all the steps from receiving to completion of process.
8. How to interpret and record test results.
9. How to correctly handle and store equipment.
10. What are the parts and functions of a microscope.
11. What are the hazards and risks associated with performing examinations.
12. What are the organisational and legal traceability requirements.
13. How to perform pre-use and safety checks.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **is not allowed**.

UA58102 Process and interpret data

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to retrieve data, evaluate formulae, perform scientific calculations, present and interpret information in tables, charts and graphs and keep accurate records.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Retrieve and check data	1.1 Store and retrieve data using appropriate files and/or application software.
	1.2 Verify the quality of data according to organisational procedures.
	1.3 Rectify errors in data according to organisational procedures.
2. Calculate scientific quantities	2.1 Evaluate statistical values for given data.
	2.2 Evaluate scientific quantities and associated uncertainties using given formulae and data.
	2.3 Check and confirm that calculated quantities are consistent with estimations and expectations.
	2.4 Complete reports for calculated quantities using the appropriate units and correct number of significant figures.
3. Present data	3.1 Show data in labelled tables and charts in accordance with organisational requirements.
	3.2 Graph data using appropriate scales to span the range of data or display trends.
	3.3 Report data using the appropriate units and number of significant figures.
4. Interpret data	4.1 Identify and interpret significant features of graphs using selected methods.

	4.2 Confirm and report features and trends in data in accordance with organisational requirements.
5. Keep records and maintain confidentiality	5.1 Transcribe information according to organisational procedures.
	5.2 Verify the accuracy of records following organisational procedures.
	5.3 File and store workplace records in accordance with organisational procedures.
	5.4 File reference documents and keep them up-to-date and secured in accordance with established procedures.
	5.5 Observe organisational confidentiality standards.

RANGE STATEMENT

All range statements must be assessed:

1. **Data** may include but is not limited to:
    - Observations
    - Tests and measurements
    - Surveys
    - Graphs
    - Tables
    - Charts
2. **Evaluate** may include but is not limited to:
    - Percentages
    - Fractions
    - Decimals
    - Conversions between SI units
    - Areas and volumes
    - Density
    - Specific gravity
    - Absolute and relative humidity
    - Ratios
    - Concentrations
    - Averages
    - Process variables
    - Moisture content
    - Food properties (e.g. calorific content)
    - Standard deviation
3. **Features and trends** may include but are not limited to:
    - Maximum and minimum
    - Spread of data
    - Rate of change
    - Outliers

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the different types of information systems that can be used, including recording, filing, retrieval of information and distribution systems.
2. How to calculate uncertainty.
3. How to identify the types of error (random or systematic) associated with measurements and different measuring instruments.
4. How to achieve the required precision and accuracy to suit the purpose.
5. How to maintain, store and retrieve data.
6. How to calculate and check scientific quantities.
7. How to interpret calculated statistical values.
8. How to report on and present data.
9. How to maintain and store records and information.
10. How to ensure the confidentiality and security of information.
11. What is the process for verifying the accuracy of records.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Simulations

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **is allowed.**

UA58202 Maintain laboratory and field workplace safety

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to monitor and maintain the occupational safety and health and environmental programmes within a work area where the person has some supervisory responsibility for others.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Work in a safe manner	1.1 Use established work practices and personal protective equipment to check and confirm personal safety and that of other laboratory personnel.
	1.2 Maintain and store equipment, materials, and reagents according to organisational procedures and manufacturer's recommendations.
	1.3 Minimise the generation of waste and environmental impacts.
	1.4 Check and confirm the safe disposal of laboratory and hazardous waste.
2. Check and confirm the implementation of safe work practices	2.1 Verify and confirm that hazard controls and personal protective equipment appropriate to work requirements are available and functional.
	2.2 Provide and communicate current information on occupational safety and health and environmental policies, procedures, and programmes to others.
	2.3 Establish and confirm that hazard control measures relating to work responsibilities are known and understood by others in the work area.
	2.4 Provide support to others in the work area to implement procedures to support safety.
	2.5 Identify and address training needs within own level of responsibility.

3. Monitor the observance of safe work practices in the work area	3.1 Check and confirm that organisational procedures are clear, defined, documented and followed.
	3.2 Identify any deviation from established procedures and report and address within own level of responsibility.
	3.3 Check and confirm that personal behaviour is consistent with organisational policies and procedures.
	3.4 Encourage and follow up with others to identify and report hazards in the work area.
	3.5 Assess conditions and follow up to check and confirm that housekeeping standards in the work area are maintained.
4. Participate in risk management processes	4.1 Report and address identified hazards and inadequacies in existing risk controls within own level of responsibility and according to organisational procedures.
	4.2 Contribute to risk assessments to identify and analyse risks.
	4.3 Support the implementation of procedures to control risks.
	4.4 Check and confirm that records of incidents in the work area and other required documentation are accurately completed and maintained according to organisational procedures and legislative requirements.
5. Support the implementation of participative arrangements	5.1 Inform and consult the work group on occupational safety and health and environmental issues relevant to the work role.
	5.2 Report the outcomes of the consultation on occupational safety and health and environmental issues to the work group.
	5.3 Resolve or refer to appropriate personnel matters raised relating to occupational safety and health and the environment.

6. Support the implementation of emergency procedures	6.1 Check and confirm that organisational procedures for dealing with incidents and emergencies are available and understood.
	6.2 Implement processes to check and confirm that others in the work area can respond to incidents and emergencies.
	6.3 Contribute to investigations of hazardous incidents to help identify their cause where necessary, with relevant personnel.

RANGE STATEMENT

All range statements must be assessed:

1. **Personal protective equipment** may include but is not limited to:

    - Goggles/face mask
    - Face-shield
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs
    - Hardhat
    - Hazmat suits

2. **Equipment** may include but is not limited to:

    - PH meters
    - Chemical field test kits
    - Sample collection containers
    - First aid kits
    - Waste disposal containers
    - Navigation and communications equipment
    - Data loggers

3. **Hazards** may include but are not limited to:

    - Biological
    - Chemical
    - Physical
    - Ergonomic

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to perform work safely.
2. How to select and use personal protective equipment.
3. How to select, care for and use equipment.
4. What are the common hazards in the laboratory.
5. How to communicate effectively in the workplace.
6. What are the standard operating procedures that define safe work practices.
7. How to identify and manage risks.
8. What are the records used to document incidents and how to complete them.
9. What are organisational procedures for handling incidents and emergencies.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **will be allowed**.

UA58302 Handle and transport samples and equipment

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to collect and transport samples or tests and calibration equipment in accordance with organisational procedures designed to ensure the integrity of subsequent test results.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Prepare for collection	1.1 Confirm the collection sequence and licence or permit requirements with appropriate personnel.
	1.2 Check that vehicle and communication devices are in working order in accordance with organisational procedures.
	1.3 Check that required transport containers and materials are loaded in accordance with organisational procedures.
2. Collect and transport items	2.1 Confirm the number and nature of items to be collected on arrival.
	2.2 Check and confirm that items match paperwork.
	2.3 Apply workplace safety procedures to the transportation of samples and equipment.
	2.4 Alert laboratory personnel to any special needs that are identified on documents accompanying the items.
	2.5 Complete required documentation at the collection point according to organisational procedures.
	2.6 Store items in the appropriate transport containers under the required conditions and according to organisational procedures.
	2.7 Deliver items to the reception point in a manner that maintains sample integrity and confidentiality of information in accordance with organisational procedures.

3.	Perform routine maintenance	3.1 Maintain vehicle according to organisational requirements.
		3.2 Maintain transport containers to ensure they are fit for purpose.
		3.3 Requisition stock of consumable materials as required.
		3.4 Replenish stock of collecting equipment at collection centres as required.
4.	Maintain a safe work environment	4.1 Follow workplace safety procedures and personal protective equipment to ensure personal safety and that of others.
		4.2 Clean up spills, if they occur, according to organisational health and safety procedures.
		4.3 Minimise the generation of waste in accordance with organisational policies and procedures.
		4.4 Dispose of waste in accordance with industry and environmental requirements and organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Transport containers** may include but are not limited to:

    - Sample containers (glass, plastic and opaque) and preservatives
    - Sample and equipment boxes (insulated, shockproof and waterproof)

2. **Workplace safety procedures** may include but are not limited to:

    - Safe vehicle driving practices
    - Handling, labelling and storing hazardous material and equipment
    - Use of personal protective equipment
    - Regular cleaning and decontamination of equipment and vehicle
    - Containing and cleaning up spillage or breakages
    - Use of appropriate techniques and equipment to safely dispose of waste materials

3. **Samples** may include but are not limited to:

    - Gases
    - Liquids
    - Solids
    - Raw materials
    - Waste materials

4. **Personal protective equipment** may include but is not limited to:

    - Goggles/face mask
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs
    - Hazmat suit

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the procedures for documenting and picking up samples and equipment.
2. How to check and confirm that equipment is in good working order.
3. What are the types of containers used in transporting samples and equipment.
4. What are the procedures to follow when transporting samples and equipment.
5. What is the documentation relating to picking up and transporting samples and how to complete them.
6. How to transport samples and equipment safely.
7. How to maintain stock.
8. How to manage spills and clean up.
9. What is the equipment required for cleaning up.
10. What are the industry, organisational and environmental requirements for disposing of waste.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **will be allowed.**

UA58402 Perform chemical tests and procedures

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to interpret chemical test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine chemical tests and procedures.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Interpret and schedule tests	1.1 Review test requests to identify samples to be tested, test method and equipment involved.
	1.2 Identify hazards and organisational control measures associated with samples, preparation methods, reagents and equipment.
	1.3 Plan work sequences to optimise throughput of multiple sets of samples.
2. Receive and prepare samples	2.1 Log samples using standard operating procedures.
	2.2 Record description of samples, compare with specifications and note and report discrepancies to appropriate persons.
	2.3 Prepare samples and standards in accordance with chemical testing requirements.
	2.4 Confirm the traceability of samples from receipt to reporting of results.
3. Check equipment	3.1 Set up equipment in accordance with test method requirements.
	3.2 Perform pre-use and safety checks in accordance with relevant organisational and operating procedures.
	3.3 Identify faulty or unsafe components and equipment and report to appropriate personnel.

		3.4	Quarantine out-of-calibration equipment in accordance with organisational procedures.
		3.5	Confirm the reagents required for the test are available and meet quality requirements
4.	Perform tests on samples	4.1	Operate equipment in accordance with test method requirements
		4.2	Test samples using specified methods in accordance with industry best practices.
		4.3	Shut down equipment in accordance with standard operating procedures
5.	Process and interpret data	5.1	Record test data noting atypical observations.
		5.2	Construct calibration graphs (if appropriate) and compute results for all samples from these graphs.
		5.3	Confirm that calculated values are consistent with expectations.
		5.4	Record and report results in accordance with organisational procedures.
		5.5	Interpret trends and features in data and results and report out-of-specification or atypical results to appropriate personnel.
		5.6	Determine if basic procedures or equipment problems have led to atypical data or results.
6.	Maintain a safe work environment	6.1	Use established safe work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel.
		6.2	Minimise the generation of waste and environmental impacts.
		6.3	Confirm the safe collection of laboratory and hazardous waste for subsequent disposal.
		6.4	Care for and store equipment and reagents as required.

RANGE STATEMENT

All range statements must be assessed:

1. **Test** may include but is not limited to:
    - Gravimetric
    - Titrimetric
    - Filtration
    - Corrosion
    - Colorimetric
    - Infrared and ultraviolet
    - Spectrometric
    - Fluorometric
    - Chromatographic
    - Electrochemical
    - Electrophoretic
2. **Samples** may include but are not limited to:
    - Gases
    - Liquids
    - Solids
    - Raw materials
    - Waste materials
3. **Equipment** may include but is not limited to:
    - Spectrometers
    - Alcohol analysers
    - Refractometers
    - Moisture analysers
    - Titrators
4. **Hazards** may include but are not limited to:
    - Physical
    - Chemical
    - Biological
    - Ergonomic
5. **Trends and features** may include but are not limited to:
    - Maximum and minimum values
    - Spread of data
    - Rate of change
    - Outliers
6. **Safe work practices** may include but are not limited to:
    - Use of material safety data sheets (MSDS)
    - Personal protective equipment
    - Biohazard containers
    - Laminar flow cabinets
    - Fume hoods
    - Correct labelling of reagents and hazardous materials
    - Handling and storing hazardous materials and equipment
    - Cleaning and decontaminating equipment and work areas

7. **Personal protective equipment** may include but is not limited to:

    - Googles/face mask
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to prepare samples for testing.
2. What are the hazards associated with working in the laboratory and how to identify them.
3. How to carry out work safely.
4. How to select and use personal protective equipment.
5. How to plan and organise work.
6. How to log samples.
7. How to prepare samples for testing.
8. How to check equipment for faults.
9. How to set-up, use and shut down equipment.
10. How to process, interpret and record data.
11. How to minimise the generation of waste and environmental impact.
12. How to safely store, handle and dispose of waste.
13. What are the relevant legislative and organisational procedures for managing waste.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Simulations

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **will be allowed.**

UA58502 Perform food tests

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to interpret food test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine testing of raw food materials, in-process materials and final products.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Interpret and schedule test requirements	1.1 Review test request to identify samples to be tested and the method and equipment involved.
	1.2 Identify hazards and organisational controls associated with the sample, preparation, test methods, reagents and equipment.
	1.3 Plan parallel work sequences to optimise throughput of multiple sets of samples.
2. Receive and prepare food samples	2.1 Log samples using standard operating procedures.
	2.2 Record samples description, compare with specifications and note and report discrepancies.
	2.3 Prepare samples in accordance with food testing requirements.
	2.4 Confirm the traceability of samples from receipt to reporting of results.
3. Check equipment	3.1 Set up equipment in accordance with test method requirements.
	3.2 Perform pre-use and safety checks in accordance with relevant organisational and operating procedures.
	3.3 Identify faulty or unsafe components and equipment and report to appropriate personnel according to organisational procedures.

	3.4 Calibrate equipment in accordance with organisational procedures and manufacturer's instructions.
	3.5 Quarantine out-of-calibration equipment in accordance with organisational procedures.
4. Perform tests on samples	4.1 Confirm that reagents required for the food test are available and meet quality requirements.
	4.2 Operate equipment in accordance with specific food test method requirements.
	4.3 Perform procedures on all samples in accordance with specified methods.
	4.4 Shut down equipment in accordance with standard operating procedures.
5. Process and interpret data	5.1 Record test data noting atypical observations in accordance with organisational procedures.
	5.2 Construct calibration graphs (if appropriate) and compute results for samples in accordance with sound methodologies.
	5.3 Confirm that calculated values are consistent with reference standards and expectations.
	5.4 Record and report food test results in accordance with organisational procedures.
	5.5 Interpret trends and features in data and results and report 'out-of-specification' or atypical results to appropriate personnel.
	5.6 Determine if basic procedures or equipment problems have led to atypical data or results.
6. Maintain a safe work environment	6.1 Use established safe work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel.
	6.2 Minimise the generation of waste and the environmental impact.

6.3 Confirm the safe collection of waste for subsequent disposal according to organisational health and safety, industry and environmental requirements.

6.4 Maintain and store equipment and reagents as required, in accordance with organisational procedures and manufacturer's instructions.

RANGE STATEMENT

All range statements must be assessed:

1. **Equipment and instruments** may include but are not limited to:

   - PH meters
   - Spectrometers
   - Alcohol analysers
   - Refractometers
   - Moisture analysers
   - Titrators
   - Microscope
   - Balances
   - Stirrers
   - Water bath
   - Heat sources (e.g. hot plates)
   - Measuring cylinders
   - Filter papers and funnels
   - Glassware (e.g. test tubes, watch glasses, petri dishes)
   - Droppers

2. **Hazards** may include but are not limited to:

   - Physical
   - Chemical
   - Ergonomic
   - Biological

3. **Sample** may include but is not limited to:

   - Gases
   - Liquids
   - Solids
   - Raw materials
   - Waste materials

4. **Prepare samples** may include but are not limited to:

   - Grinding and milling
   - Digestion
   - Dissolving
   - Extracting
   - Refluxing
   - Washing
   - Drying

5. **Food testing** may include but is not limited to:

   - Sensory tests
   - Visual tests
   - Physical and mechanical
   - Chemical analysis
   - Microbiological
   - Optical/spectrometric
   - Thermal

6. **Data** may include but is not limited to:

   - Observations
   - Tests and measurements
   - Surveys
   - Graphs
   - Tables

7. **Trends and features** may include but are not limited to:

    - Maximum and minimum values
    - Spread of data
    - Rate of change
    - Outliers
    - Maximum and minimum values

8. **Safe work practices** may include but are not limited to:

    - Use of material safety data sheets (MSDS)
    - Personal protective equipment
    - Biohazard containers
    - Laminar flow cabinets
    - Fume hoods
    - Correct labelling of reagents and hazardous materials
    - Handling and storing hazardous materials and equipment
    - Cleaning and decontaminating equipment and work areas

9. **Personal protective equipment** may include but is not limited to:

    - Goggles/face masks
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs

10. **Waste** may include but is not limited to:

    - Routine waste
    - Hazardous waste

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the principles and procedures associated with conducting tests.
2. What are the fundamentals of chemical reactions.
3. What are the structure and properties of proteins, lipids, carbohydrates, vitamins and minerals.
4. What are the different types of food additives, flavourings and essences.
5. What is the nutritional value of the major food groups.
6. What is microbiology and its significance to public health.
7. What are the chemical and biological changes in food.
8. What are food preparation techniques.
9. What are the hazards associated with sample testing.
10. How to log and record samples.
11. How to prepare samples according to food testing requirements.
12. How to set up equipment and instruments according to food testing methods.
13. How to perform safety checks.
14. How to identify faulty and unsafe equipment.
15. How to check and calibrate equipment.
16. How to process and interpret data to determine trends and other features.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Simulations

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **will be allowed.**

UA58602 Maintain the laboratory

Unit Descriptor: This unit deals with the knowledge, skills and attitudes required to conduct general cleaning of work surfaces, cleaning and storage of equipment and the monitoring of laboratory stocks under direct supervision.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Clean work preparation areas	1.1 Sanitise preparation areas using appropriate cleaning agents according to organisational procedures.
	1.2 Remove spillages, if they occur, using appropriate agents and personal protective equipment according to organisational procedures.
	1.3 Collect and segregate waste according to organisational procedures, relevant industry codes and regulations.
2. Clean and store equipment	2.1 Collect and inspect used equipment, report any faults and, where necessary, remove faulty equipment from service.
	2.2 Use appropriate agents, apparatus and techniques to clean equipment.
	2.3 Store cleaned equipment in the designated locations according to organisational procedures and manufacturer's recommendations.
3. Monitor stock of materials and equipment	3.1 Perform stock checks and maintain records of usage according to organisational procedures.
	3.2 Store labelled stocks for safe and efficient retrieval.
	3.3 Inform appropriate personnel of impending stock shortages to maintain continuity of supply.

4. Maintain a safe work environment	4.1 Use established safe work practices and personal protective equipment to ensure personal safety and that of other personnel.
	4.2 Report potential hazards and maintenance issues in own work area to designated personnel.
	4.3 Minimise the generation of waste and environmental impact.
	4.4 Dispose of wastes in accordance with organisational procedures, relevant industry codes and regulations.
	4.5 Check and confirm that chemical containers are labelled and sealed in accordance with organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Personal protective equipment** may include but is not limited to:

    - Goggles/face mask
    - Gloves
    - Lab coat
    - Safety shoes
    - Ear plugs/muffs

2. **Equipment** may include but is not limited to:

    - Meters (e.g. pH meters, voltmeters, etc.)
    - Balances
    - Stirrers
    - Heat sources (e.g. bunsen burners, hot plates)
    - Measuring cylinders
    - Filter papers and funnels
    - Glassware (e.g. beakers, burettes, pipettes, flasks, etc.)
    - Desiccators and desiccants
    - Wires (e.g. leads, circuits)
    - Microscopes
    - Stands and holders (e.g. retort stand, test tube holders)

3. **Safe work practices** may include but are not limited to:

    - Use of material safety data sheets (MSDS)
    - Personal protective equipment
    - Biohazard containers
    - Laminar flow cabinets
    - Fume hoods
    - Correct labelling of reagents and hazardous materials
    - Handling and storing hazardous materials and equipment
    - Cleaning and decontaminating equipment and work areas

4. **Hazards** may include but are not limited to:

    - Physical
    - Chemical
    - Biological
    - Ergonomic

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to clean and maintain work surfaces and equipment.
2. What are the cleaning agents and equipment used in the laboratory.
3. What are the procedures for managing spills in the laboratory.
4. What is the personal protective equipment used in the laboratory.
5. How to inspect tools and equipment for faults.
6. How to monitor and maintain stock.
7. How to maintain a safe laboratory work environment.
8. What are the procedures for processing and disposing of waste.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA58702 Apply quality systems and continuous improvement processes

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to apply the principles of quality management systems when working in a laboratory environment. Candidates are expected to perform work tasks in adherence to quality laboratory practices and effectively participate in quality improvement exercises. This involves ensuring the quality and integrity of individual work, detecting non-conformance and working with others to recommend system improvements impacting productivity or quality.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Adhere to quality system requirements	1.1 Access and review current quality system information resources, identify quality system requirements for individual job function and confirm with relevant persons.
	1.2 Perform assigned work activities in accordance with job functions and quality system requirements.
	1.3 Record and monitor quality control data pertinent to individual job functions in accordance with quality system requirements.
	1.4 Identify and report problems or instances of non-conformance to relevant persons in accordance with quality system requirements.
2. Identify risks and opportunities for improvements	2.1 Monitor and report on how current work practices, procedures, processes or equipment perform in comparison with quality system requirements.
	2.2 Identify and report variances that indicate abnormal or sub-optimal performance posing a risk to products, services or end users.
	2.3 Identify possible causes for sub-optimal performance in accordance with established analytical tools and methods and report to relevant persons.

	2.4 Recommend changes to standards, procedures and/or training that could resolve sub-optimal performance to relevant persons.
3. Contribute to strategic improvements	3.1 Implement actions to improve performance in work practices, procedures, processes or equipment in accordance with updated quality system requirements.
	3.2 Report to relevant persons on the adequacy of adapted controls, quality methods and systems against quality objectives in a manner that supports continuous improvement objectives.
	3.3 Identify and report opportunities to continuously improve performance in a manner that supports continuous improvement objectives.
	3.4 Draft and refine recommendations for continual improvements of work practices through consultation with relevant persons.
	3.5 Document the outcomes of continuous improvement strategies and communicate them to relevant persons.

RANGE STATEMENT

All range statements must be assessed:

1. **Information resources** may include but are not limited to:

    - Job description
    - Work instructions
    - Training materials
    - Quality policies/objectives/manual/
    - procedures (e.g. for work processes, information management, record keeping, documentation etc.)
    - Standards

2. **Relevant persons** may include but are not limited to:

    - Supervisors/management
    - Authorities having jurisdiction (AHJ)
    - Manufacture representatives
    - Clients/customers

3. **Quality control data** may include but is not limited to:

    - Equipment calibration data (e.g. calibration schedules, calibration results and equipment status)
    - Testing method validation data (e.g. validation parameters, validation results and validation status)
    - Equipment maintenance data (e.g. maintenance dates, maintenance activities and equipment status)
    - Process quality control data (e.g. control charts, quality control results and any corrective actions taken)
    - Sample data (e.g. sample identification, sample type, test results, test date and time and tester identification)
    - Quality assurance data (e.g. audit findings, corrective action data and performance indicators)
    - Customer satisfaction data (e.g. customer feedback, complaint data and resolution data)
    - Training data (e.g. training dates, modules/topics, training hours, etc.)
    - Laboratory environmental control data: (e.g. temperature, humidity and cleanliness)
    - Safety and compliance data (e.g. incidents, regulatory compliance inspections)

4. **Analytical tools and methods** may include but are not limited to:

    - Diagrams (e.g. Pareto charts, spaghetti diagrams, scatter plots)
    - Systematic inquiry (e.g. five whys, Gemba walks, investigative interviews)

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What is a Quality Management System (QMS) and how can it benefit laboratory staff, clients and operations.
2. What are the various quality management systems available and which one is currently being applied to organisational laboratory operations.
3. How a Quality Management System (QMS) can achieve quality objectives in the following aspects of a laboratory's operations:
    - organisational structure and leadership
    - personnel
    - equipment and instruments
    - purchasing and inventory
    - process control
    - information management
    - health and safety
    - assessment and appraisal
    - customer service
4. What is the layout of the workplace, divisions and laboratory.
5. What is the role of the organisation's laboratory services to its customers and the industry.
6. What are the relevant accreditation and regulatory requirements relating to quality objectives as they affect individual work role.
7. What are the organisational goals and quality requirements associated with individual job function and work area and how these can be the basis for decision-making and action.
8. What are the organisational procedures for recording and reporting quality control data.
9. How to ensure quality control data meets criteria for accuracy, completeness, validity, consistency, uniqueness, timeliness and fitness for purpose.
10. What are the typical types of problems and instances of quality non-conformance that can occur in the laboratory environment.
11. Who are the relevant persons that should be consulted and reported to when addressing quality system matters and what specific matters should each person address.
12. How to implement actions to improve performance, working individually or as part of a team.
13. How to effectively monitor work practices, procedures and processes or equipment performance to determine compliance with quality system requirements.
14. What is the relationship between risk management and quality system management and improvement.
15. How to use analytical tools and methods to identify possible causes for sub-optimal performance of work practices, procedures, processes or equipment.

16. What are the relevant specifications for laboratory products and services in the work area.
17. What are the best practices for preparing and submitting recommendations to superiors.
18. How to implement actions to improve performance in work practices, procedures, processes or equipment.
19. What is the value of implementing schedules for quality control and equipment calibration and maintenance.
20. Why internal and external audits are important in achieving quality system objectives.
21. What are the organisational requirements for recording, reporting and document control.
22. What are the principles of continuous improvement.
23. What are the typical opportunities for improvement relating to the job role.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on more than one occasion.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidates must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

UA58802 Identify and respond to routine standard operating procedures

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to interpret and respond appropriately to standard operating procedures in printed or digital formats, such as work processes, pre-operational safety checklists, protective and emergency equipment lists or steps that should be undertaken when using equipment.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Prepare to review standard operating procedures	1.1 Identify and confirm specific reasons for reviewing standard operating procedures documentation with relevant persons.
	1.2 Identify the purpose and the intended audience of standard operating procedures in accordance with organisational requirements.
	1.3 Identify text features, including structure and presence of any visuals in the documentation, in a manner that avoids ambiguity or confusion.
	1.4 Identify distinguishing language features of procedures documents in a manner that avoids ambiguity or confusion.
2. Interpret operating procedures	2.1 Locate and identify information relevant to individual work roles using the structure and navigational features of the document.
	2.2 Identify and confirm the meaning of procedural workplace terminology with relevant persons and reference resources in a manner that avoids ambiguity or confusion.
3. Clarify understanding and respond to procedures	3.1 Confirm with relevant persons that information in standard operating procedures was reviewed and has been interpreted in a manner that avoids ambiguity or confusion.

3.2 Identify and confirm with relevant persons the appropriate actions to be undertaken in work roles based on relevant information in the procedures.

3.3 Perform work tasks in a manner that demonstrates appropriate responsiveness to standard operating procedures.

3.4 Document completed work tasks in accordance with standard operating procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Relevant persons** may include but are not limited to**:**

    - Supervisors/management
    - Authorities having jurisdiction (AHJ)
    - Manufacturers' representatives

2. **Reference resources** may include but are not limited to:

    - Glossary of terms
    - Dictionary
    - Search engines

Distinguishing language features may include but are not limited to:

- Command language (e.g. direct instructions)
- Sequential language (e.g. step by step formats)
- Passive/active voice
- Diagrams and illustrations
- Technical vocabulary

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the main reasons for reading operating procedures.
2. Who are the relevant persons to be consulted regarding standard operating procedures.
3. What are the benefits of using Standard Operating Procedures (SOPs).
4. What are the typical audiences of standard workplace operating procedures.
5. How to identify text features, including the structure and presence of any visuals in the documentation.
6. How to identify distinguishing language features of procedures documents.
7. How to locate and identify information relevant to individual work role in SOPs.
8. What are the various techniques that can be used to navigate routine SOPs to locate information.
9. What are the various reading strategies that can be used to interpret relevant information and construct meaning.
10. What techniques can be employed to self-monitor reading for sense and accuracy.
11. What techniques can be employed to integrate information from visual and written texts.
12. How to find the meanings of workplace terminology and other words in standard operating procedures.
13. Why it is important to confirm with relevant persons that the correct information in SOPs was reviewed and has been correctly interpreted.
14. What responses to routine SOPs are suitable and appropriate.
15. How to document completed work tasks.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on more than one occasion.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidates must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U82403 Manage yourself

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required for candidates to take responsibility for managing themselves to meet the current and future requirements of their work, support their personal and career development and meet objectives.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Develop knowledge and skills	1.1 Develop and demonstrate core knowledge in own area of expertise and requirements of the work role.
	1.2 Monitor and evaluate trends and developments in own area of expertise and the impact on own role.
	1.3 Evaluate the current and future requirements of own work role at intervals.
	1.4 Identify and take into account personal learning styles which work best when identifying developmental activities.
	1.5 Identify and address gaps in knowledge, skills, attitudes and current and future requirements of own work role.
	1.6 Discuss and agree upon development plans which address gaps in knowledge, skills and attitudes and seek support for personal and career goals.
2. Develop knowledge of the work role	2.1 Establish the purpose of the work role and how it contributes to achieving the organisation's vision and mission.
	2.2 Develop objectives which are compatible with own work role and the vision, mission and values of the organisation.
	2.3 Evaluate and resolve conflict with the organisation's vision, mission and values.
3. Manage time	3.1 Manage work hours to achieve prioritised objectives.

	3.2	Delegate responsibilities in an appropriate manner where possible.
	3.3	Use technology to assist in achieving objectives.
	3.4	Identify and eliminate activities that do not support the achievement of objectives.
	3.5	Identify new opportunities and urgent situations and make appropriate responses in accordance with organisational procedures.
	3.6	Confirm that personal emotions are managed according to organisational procedures.
	3.7	Manage relationships with others in ways that assist in achieving objectives.
4. Review performance	4.1	Review development plans in light of own performance and update developmental activities in a timely manner.
	4.2	Obtain specific and valid feedback on performance from relevant persons.
	4.3	Adjust own performance based on feedback.

RANGE STATEMENT

All range statements must be assessed:

1. **Learning styles** may include but are not limited to:

   - Visual
   - Auditory
   - Kinaesthetic

2. **Objectives** may include but are not limited to:

   - Work and personal
   - Organisational policies and requirements

3. **Conflicts** may include but are not limited to:

   - Differences in personalities
   - Conflict in assigned tasks
   - Value perceptions
   - Behaviour (i.e. passive v aggressive)

4. **Feedback** may include but is not limited to:

   - Oral
   - Written

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the work role and core knowledge requirements in your area of expertise and how to develop these further.
2. What are the principles that underpin professional development.
3. How to evaluate the current requirements of a work role and how these may evolve in the future.
4. How to monitor changes, trends and developments.
5. How to evaluate the impact of different factors on own work role.
6. What is the range of different learning styles and how to identify which style works best for you.
7. How to identify development needs to address any identified gaps between the requirements of your work role and current knowledge, skills and attitudes.
8. What an effective development plan should contain and the length of time that it should cover.
9. What are your own career and personal goals and why it is important to take account of them when planning professional development.
10. What are the types of developmental activities that can be undertaken to address identified gaps in your knowledge, skills and attitudes.
11. What are the requirements of own work role including the limits of own responsibilities.
12. How to analyse own work role and how it relates to other roles in the organisation.
13. How to gather and validate information.
14. Why it is important to recognise and respect the value perceptions of others.
15. How to evaluate the impact of different factors on your own role.
16. Why managing resources (particularly knowledge, skills and time) is important.
17. How to set work objectives which are SMART (Specific, Measurable, Achievable, Realistic and Time-bound).
18. How to delegate responsibilities.
19. How to measure progress against work objectives.
20. How to manage personal emotions effectively and what are the organisational procedures for doing so.
21. How to update development plans in light of own performance, any development activities undertaken and any wider changes.
22. How to evaluate the extent to which development activities have contributed to your performance.

23. How to update work objectives based on performance feedback or changes in organisational priorities.
24. How to identify, reflect on and use appropriate sources of feedback on own performance.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real work environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

Level 2 Glossary of Terms

Assessment methods

The methods which can be used to determine competence in performance and underpinning knowledge.

Assessors

The Assessor guides and assesses the candidate. His/her role is to determine whether evidence presented by a candidate for assessment within the programme meets the required standard of competence in the relevant unit or element. The Assessor needs to be competent to assess to national standards in the area under assessment.

Approved Centre

Organisation/Centre approved by the TVET Council to offer full National Vocational Qualifications.

Case Studies

In situations where it is difficult for workplace assessment to take place, case studies can offer the candidate an opportunity to demonstrate potential competence.

A case study is a description of an actual or imaginary situation presented in some detail. The way the case study is presented will vary depending upon the qualification, but the most usual methods are written, taped or filmed.

The main advantage of a case study is the amount of evidence of underpinning knowledge they can generate and the specific nature of the evidence produced.

Competence

In the context of vocational qualifications, competence means: the ability to carry out prescribed activities to nationally pre-determined standards in an occupation. The definition embraces cognitive, practical and behavioural skills, underpinning knowledge and understanding and the ability to react appropriately in contingency situations.

Element

An element is a description of an activity which a person should be able to do. It is a description of an action, behaviour or outcome which a person should be able to demonstrate.

Level 2 Glossary of Terms

Explanation of NVQ Levels

NVQs cover five (5) levels of competence, from entry level staff at Level 1 through to senior management at Level 5.

Level 1 - Entry Level

Recognises competence in a range of varied work activities performed in a variety of contexts. Most work activities are simple and routine. Collaboration with others through work groups or teams may often be a requirement. Substantial supervision is required especially during the early months evolving into more autonomy with time.

Level 2 - Skilled Occupations

Recognises competence in a broad range of diverse work activities performed in a variety of contexts. Some of these may be complex and non-routine and involve some responsibility and autonomy. Collaboration with others through work groups or teams and guidance of others may be required.

Level 3 - Technician and Supervisory Occupations

Recognise competence in a broad range of complex, technical or professional work activities performed in a wide variety of contexts, with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources are often a requirement. The individual is capable of self-directed application, exhibits problem solving, planning, designing and supervisory capabilities.

Level 4 - Technical Specialist and Middle Management Occupations

Recognises competence involving the application of a range of fundamental principles and complex techniques across a wide and unpredictable variety of contexts. Requires very substantial personal autonomy and often significant responsibility for the work of others, the allocation of resources, as well as personal accountability for analysis, diagnosis, design, planning, execution and evaluation.

Level 5 - Chartered, Professional and Senior Management Occupations

Recognises the ability to exercise personal professional responsibility for the design, development or improvement of a product, process, system or service. Recognises technical and management competencies at the highest level and includes those who have occupied positions of the highest responsibility and made outstanding contribution to the promotion and practice of their occupation.

Level 2 Glossary of Terms

External Verifier

The External Verifier is trained and appointed by the TVET Council and is competent to approve and ensure an approved Centre's quality of provision.

Internal Verifier

The Internal Verifier acts in a supporting role for Assessors to ensure consistent quality of assessment and competence. They need to be competent to assess to national standards in the area under assessment.

NVQ

National Vocational Qualifications (NVQs) are work-based qualifications that assess an individual's competence in a work situation and certify that the individual can perform the work role to the standards expected in employment.

NVQs are based on national occupational standards of competence drawn up by standards-setting bodies known as Industry Lead Bodies. The standards describe the level and breadth of performance that is expected of persons working in the industry or sector which the NVQ covers.

NVQ Coordinator

The NVQ Coordinator is the centre contact within each approved Centre offering NVQs. He/she has overall responsibility for the operation and administration of the NVQ system.

Observation

Observation of the candidate carrying out his/her job in the workplace is the assessment method recommended in the vast majority of units and elements. Observation of staff carrying out their duties is something that most supervisors and managers do every day.

Performance Criteria

Performance criteria indicate what is required for the successful achievement of an element. They are descriptions of what you would expect to see in competent performance.

Product of Work

This could be items produced during the normal course of work, which can be used for evidence purposes such as reports, menus, promotional literature, training plans, etc.

Level 2 Glossary of Terms

Questioning

Questioning is one of the most appropriate ways to collect evidence to assess a candidate's underpinning knowledge and understanding.

Questioning can also be used to assess a candidate in those areas of work listed in the range which cannot be assessed by observation. Guidance on when this assessment method can be used is given in the assessment guidance of each individual element.

As an assessment method, questioning ensures you have all of the evidence about a candidate's performance. It also allows you to clarify situations.

Range statements

The range puts the element of competence into context. A range statement is a description of the range of situations to which an element and its performance criteria is intended to apply.

Range statements are prescriptive; therefore each category must be assessed.

Role-plays

Role-plays are simulations where the candidate is asked to act out a situation in the way he/she considers "real" people would behave. By using role-play situations to assess a candidate you are able to collect evidence and make a judgment about how the candidate is most likely to perform. This may be necessary if the range specified includes a situation in which the candidate is unlikely to find himself/herself in the normal course of their work, or where the candidate needs to develop competence, before being judged competently, for example, in a disciplinary situation,

Simulations

Where possible, assessment should always be carried out by observing **natural performance** in the workplace. **Simulated performance,** however, can be used where specified to collect evidence about an aspect of the candidate's work which occurs infrequently or is potentially hazardous, for example, dealing with fires.

By designing the simulated situation, briefing the candidate and observing his/her performance, you will be able to elicit evidence which will help you judge how a candidate is **most likely** to perform in real life.

Level 2 Glossary of Terms

Supplementary evidence

Supplementary evidence can be used to confirm and support performance evidence. Types of supplementary evidence include witness testimonies, reports, journals or diaries, records of activities, personal statements, simulation (see note in glossary).

Underpinning knowledge

Underpinning knowledge indicates what knowledge is essential for a person to possess in order to successfully achieve an element and prove total competence.

Units

A unit of competence describes one or more activities which form a significant part of an individual's work. Units are accredited separately but in combination can make up a vocational qualification. There are three categories of units:
Mandatory units - are core to a qualification and must be completed.
Optional units - candidates must choose the required number of individual units, specified in the qualification structure, to achieve the qualification.

Work-based projects

Work-based projects are a useful way for you to collect evidence to support any decision you make about a candidate's performance. They are particularly appropriate in determining the level of a candidate's underpinning knowledge and understanding where it may be insufficient to rely only on questioning observation.

A project often involves the identification of a solution to a specific problem identified by you and/or the candidate (such as looking at ways to redress a recent drop in sales), or may be a structured programme of work built around a central situation or idea (such as the introduction of a new job rostering process).