



SVQ in Laboratory and Associated
Technical Activities (Industrial
Science) at SCQF Level 7

Qualification Reference Number
GR49 47

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PERSONAL COMPETENCE SUMMARY

Name	Company/Centre
Job Title	GQA Registration Number

Unit Number	MANDATORY UNITS	SCQF Level	SCQF Credit	ASSESSOR SIGNATURE	DATE
LATA 3.03	Carry out scientific or technical testing operations (8 credits)	6	8		
LAT 3.04	Assess and communicate scientific or technical information to authorised personnel	6	6		
LATA 3.05	Provide technical advice and guidance for scientific or technical activities	7	12		
LATA 2.02	Maintain effective and efficient working relationships for scientific or technical activities	6	3		
LATA 3.01	Maintain health and safety in a scientific or technical workplace	6	9		

OPTIONAL UNITS- CANDIDATES MUST COMPLETE 3 OPTIONAL UNITS-ALL 3 OPTIONAL UNITS COULD BE TAKEN FROM OPTIONAL GROUP 1, OR 2 UNITS FROM THIS GROUP AND 1 UNIT FROM OPTIONAL GROUP 2

RELIABLE EVIDENCE: The forms of evidence available include (☐ as appropriate)

Observation in the workplace		Simulation(s)	
Oral assessment of knowledge		Work records	
Written work/assignment		Photographs/Video	
Witness statement(s)		Audio	
Testimonial(s)		Products	
Other (please state)			

Candidate ID Photo

	Name and Signature	Date
Candidate		
Lead Assessor		
Internal Verifier		
EQA		

INTRODUCTION TO THE QUALIFICATION

Who is this qualification for?

This qualification provides recognition of the skills and knowledge of individuals working in laboratory and associated technical activities, specifically in an industrial environment, and has been developed from the relevant National Occupational Standards (NOS).

It is not expected that all candidates for this qualification will all carry out the same activities, so the qualification is structured to ensure that there is a high degree of flexibility in the choice of units.

What is required from candidates?

To achieve the qualification learners must complete 5 Mandatory Units and 3 Optional Units, at least 2 of which must be taken from Option Group A. All 3 Optional Units may be taken from Group A or 1 Optional Unit may be taken from Group B.

Guidance on the evidence that will be acceptable is contained in the introduction to each unit.

Unit Number	Mandatory Units	Level	Credit Value
LATA 3.03	Carry out scientific or technical testing operations (8 credits)	6	8
LATA 3.04	Assess and communicate scientific or technical information to authorised personnel	6	6
LATA 3.05	Provide technical advice and guidance for scientific or technical activities	7	12
LATA 2.02	Maintain effective and efficient working relationships for scientific or technical activities	6	3
LATA 3.01	Maintain health and safety in a scientific or technical workplace	6	9
OPTIONAL UNITS-CANDIDATES MUST COMPLETE 3 OPTIONAL UNITS-ALL 3 OPTIONAL UNITS COULD BE TAKEN FROM OPTIONAL GROUP 1, OR 2 UNITS FROM THIS GROUP AND 1 UNIT FROM OPTIONAL GROUP 2			
Group 1			
LATA 3.06	Plan scientific or technical sampling and testing activities	7	8
LATA 3.07	Carry out complex scientific or technical testing operations	7	12
LATA 3.08	Carry out complex scientific or technical sampling operations	7	8
LATA 3.09	Carry out scientific or technical investigations	7	9
LATA 3.10	Carry out small scale processing	6	6
LATA 3.11	Diagnose faults, repair and maintain scientific or technical equipment for workplace activities	7	8
LATA 3.12	Measure, weigh and prepare compounds and solutions for laboratory use	7	16
LATA 3.21	Improve the quality and reliability of scientific or technical activities in the workplace	8	10
LATA 2.05	Maintain stocks of resources, equipment and consumables in life sciences and related industries	6	4
Group 2			
LATA 3.14	Make presentations for scientific or technical activities in the workplace	8	8
LATA 3.15	Assess your own scientific or technical knowledge and skills for workplace activities	7	4
LATA 3.16	Provide training for scientific or technical activities in the workplace	8	10

Assessment Guidance

Evidence should show that the candidate can cover the scope of performance outlined for each relevant unit consistently over an appropriate period of time.

Types of evidence:

Evidence of performance and knowledge is required. Evidence of performance should be demonstrated by activities and outcomes, and should be generated in the workplace only, unless indicated under potential sources of evidence (see below). Evidence of knowledge can be demonstrated through performance or by responding to questions.

Potential sources of evidence:

The main sources of evidence for each unit will be observation of performance and questions to show underpinning knowledge. This can be supplemented by the following types of physical or documentary evidence:

- Work products
- Organisational documentation
- Audio/photographic/video
- Delivery records
- Witness testimony
- Professional Discussion
- Inspection reports
- Notes and memos
- Candidate statements
- Organisational reports
- Simulation of accident or emergency

Please Note that photocopied or downloaded documents such as manufacturers' or industry guidance, H&S policies, Risk Assessments etc, are not normally acceptable evidence for GQA qualifications unless accompanied by a record of a professional discussion or Assessor statement confirming candidate knowledge of the subject. If you are in any doubt about the validity of evidence, please contact your GQA External Quality Advisor.

GQA QUALIFICATION IMPLEMENTATION REQUIREMENTS COVERING CENTRE APPROVAL, CANDIDATE ASSESSMENT AND ONGOING QUALITY ASSURANCE

This document indicates the requirements of Approved Centres delivering GQA qualifications and / or units of credit.

1. Equality of Opportunity

Equality of access to fair and valid assessment is necessary for all candidates undergoing assessment. This may mean making reasonable adjustments to normal assessment methods for candidates with particular or special assessment requirements. Candidates work patterns should not become a barrier to assessment, the organisation of which may have to be flexible. In the same way, reasonable adjustment arrangements may be necessary for candidates with a disability. For example, a candidate who is unable, through disability, to produce oral or written evidence, may be allowed to use the method they normally use as a substitute for the required form of communication. Reasonable adjustments need to be approved by GQA.

2. Recognised/Approved Assessment Centres

2.1 Individual centres must be approved by GQA to offer specific qualifications and / or units of credit. A centre may be a single organisation or a partnership of two or more organisations. It may operate at a single location or have satellites. For further details see the GQA booklet “Guide to Centre Approval”. The Centre Approval process is carried out by a GQA approved EQA. Each Centre must maintain a centre file. It is important to be clear what the steps in the assessment process are:

- plan evidence collection and opportunities for assessment
- collect evidence
- judge evidence
- determine whether sufficient evidence has been presented
- make an assessment decision and give feedback to the candidate

NB Any deviation from the norm must be approved by a GQA EQA

2.2 Assessors and Verifiers

All Assessors of candidate performance must be competent, to make qualitative judgements, both in the skills they are assessing and in the assessment of candidates and hold the appropriate Assessor national award. Assessor occupational knowledge related to the qualifications being assessed is essential and must be illustrated to GQA prior to approval.

Internal Verifiers are responsible for the quality assurance of the assessment process within a centre. They should have a relevant occupational background, be competent in internal verification and hold the Internal Verifier national award. It is recommended that Internal Verifiers work towards national recognition of assessor competence.

EQAs are responsible for ensuring accurate and consistent standards of assessment across centres, qualifications, units of credit and over time. They should have a relevant occupational background, be competent in external quality assurance and hold the EQA national award.

GQA will approve and licence all individuals involved in the assessment and verification of its approved qualifications and / or units of credit. Individuals who are working towards the Assessor or Internal Verifier national awards can only be provisionally licensed. The judgement of provisional licence holders will need to be agreed/authorised by a fully qualified and GQA licensed individual who cannot carry out a dual role in relation to a specific candidate.

All GQA Assessors and Verifiers must undertake a minimum of 2 significant CPD activities in both occupational areas and assessment and verification. Reflective CPD records must be maintained and made available to GQA EQAs for review.

2.3 Centre Approval, Monitoring Reviews and Quality Assurance

The centre recognition/approval process is the start of a significant part of the awarding body's quality assurance system. The Approval process will begin with an EQA review of centre procedures to ascertain the potential centres ability to deliver GQA qualifications and / or units of credit. Centres will be expected to meet the relevant regulatory authority criteria for delivery of qualifications prior to initial approval; continued compliance with the criteria will be monitored through regular EQA visits. It is recommended that centre reviews are conducted at minimum every six months by a GQA EQA.

New or multi-site centres may be required to undertake quarterly or more frequent EV reviews to ensure that different locations can be seen to satisfy the national requirements.

GQA will ensure that unacceptable barriers relating to the assessment and internal verification of candidates in small companies do not deny recognition of competence to competent young workers. In such circumstances, GQA will demonstrate that its quality assurance procedures remain sufficient and rigorous to ensure that the competence outcomes have standing and credibility in the occupational area.

Enhanced quality procedures to ensure consistency of assessment and verification will be necessary and will include:

- a high level of sampling of assessment decisions N.B. In some instances the EQA may visit each assessment location and qualification / unit of credit candidate (e.g. single candidates dispersed throughout different small companies on government funded programmes)
- an in-depth scrutiny of assessment plans, materials and records
- specific centre guidance aimed at the successful implementation of qualifications and / or units of credit in SMEs via approved centre partnerships. This can include guidance on the quantity and quality of valid, authentic, and transferable evidence expected to be attributed to individual candidates
- ensuring centres are following the requirements prescribed in any appropriate assessment strategies and applicable codes of practice
- the identification and publication of good practice in centres

As part of the Quality Assurance process Proskills require an Enhanced External Verification process. This will be in the form of 1 significant underpinning knowledge question answered by the candidate for each unit of the qualification. The questions will be decided by GQA, and guideline answers must be submitted for approval and once approved kept in the Centre File to allow independent assessment

3. Qualification / Unit of Credit Candidates

All candidates must register with a GQA recognised/approved centre. The centre must maintain appropriate candidate personal details for external audit purposes etc.

The centre will provide candidates with advice and guidance on how to prepare for assessment and allocate an Assessor who will assess candidate ability to meet the requirements of the relevant qualifications / unit of credit. It is the candidate's responsibility to demonstrate competence and to do this they must:

- prove they can consistently meet all the qualification and / or unit of credit criteria
- provide evidence from work, that they can perform competently in all the contexts specified in the qualification / unit of credit requirements
- prove that they have the knowledge and understanding required to perform competently, even where they have not provided evidence from the workplace

It is therefore critical that quality evidence is provided in a format to allow the Assessor to make a decision and for the Internal Verifier to audit/verify his/her decision.

4. Evidence

A qualification and / or credit is awarded when a person has achieved the necessary outcomes of the qualification and / or unit of credit.

The specific combination of units necessary to achieve a qualification is detailed in the qualification structure.

Certificates of Unit Credit can be awarded when candidates achieve any one, or more, units from the qualification.

The evidence the candidate brings forward is primarily evidence of performance of what he/she can do, not just what he/she knows. The assessment criteria / qualification requirements are described within the qualification and / or unit of credit itself and can incorporate practical skills and knowledge.

The assessor's role is to judge each relevant item of evidence. Each must be judged against the qualification and / or unit of credit requirements. It is not sensible to collect evidence against individual criteria. Nor is it effective. If items of evidence were collected for each of the criteria, the candidate may have to produce many items of evidence, well above the number actually required. GQA recommend holistic assessment.

When judging each item of evidence, the assessor is deciding whether the evidence:

- is authentic – i.e. actually produced by the candidate
- meets the criteria
- relates as appropriate to a context defined within the qualification and / or unit of credit
- confirms that the candidate has the required underpinning knowledge in the qualification and / or unit of credit over time and range of work. The assessor must judge how long a time period is enough to be confident that the candidate can perform reliably to the standard. Unsupported evidence i.e. based on a single assessment/visit will not normally prove consistency.

When the assessor makes a decision about the candidate's competence, he or she examines all the evidence available to determine:

- if the evidence, as a whole, covers all the evidence of achievement
- whether the evidence indicates consistency in competent performance
- whether there is enough evidence on which to base an inference of competence

The answer can only be:

- yes (the candidate is competent)
- no (the candidate is not yet competent)
- there is insufficient evidence to make a decision

Consistency means that the individual is likely to achieve the standard in their work role, in the different activities defined

Performance evidence

Performance evidence can be what the individual actually produces, or the way the individual achieves the standard. One is called product evidence and the other process evidence.

Product evidence is tangible – you can look at it and feel it. Products can be inspected and the candidate can be asked questions about them.

In order to make a fair and objective assessment, the assessor must be able to answer the question: Is there sufficient evidence that the candidate can consistently meet the requirements of the qualification and / or unit of credit?

Process evidence describes the way the candidate has achieved an outcome – how they went about it. This may be, for example, the way the quality of products is checked or the way customer complaints are handled. This usually means observing the candidate in action.

Performance evidence may cover a number of outcomes. It makes sense to plan evidence collection so that what the candidate does, in the normal course of their job, can be related to different outcomes and units. The activities that clearly link to the qualification and / or unit of credit requirements are the things to concentrate on when planning evidence collection and assessment and when monitoring the candidate's progress. Look for opportunities in the candidate's job when evidence can be collected against a number of units at the same time.

Performance evidence can be:

- Naturally occurring – evidence produced in the normal course of work. Evidence of this sort is usually of high quality and reliable. It is also cost effective to collect naturally occurring evidence
- Taken from previous achievements – the candidate may be able to bring forward evidence from previous work experience to show that they are still competent to the standard.
- Evidence of prior achievement can be used when it can be shown to support a judgment that the candidate can still achieve the standard. So, the assessor must be satisfied that the evidence of prior achievement is sufficiently reliable to justify saying that the candidate is currently competent.
- Simulated – from circumstances specially designed to enable the candidate's performance to be assessed.

Simulation is generally not acceptable. The exceptions to this are:

- o Dealing with emergencies
- o Dealing with accidents
- o Certain pre-approved real time simulators
- o Limited other procedures that cannot be practically performed in the workplace, and for which sufficient evidence can be collected through other means.

NB: It is not always possible or feasible to collect naturally occurring evidence. It is likely that some simulation may be needed, when it may take too long to wait for the evidence to arise e.g. it may be an aspect of performance which occurs infrequently. An example of this may be evidence of how to deal with emergencies i.e. it makes sense to look for evidence from sources other than naturally occurring ones, rather than for, say, waiting for the building to burn down. Centres must obtain GQA EQA approval prior to the use of simulation.

Knowledge evidence

Being able to achieve a standard requires the ability to put knowledge to work. The qualification and / or unit of credit indicates the knowledge each person should use if they are to perform competently.

It should not be necessary to test all of the candidate's knowledge separately; however, any exception to this would be detailed in the relevant Assessment Strategy. Performance evidence could show that the candidate knows what

he or she is doing. When this is not the case, or if the assessor is not convinced from the performance evidence, it may be necessary to check the individual's knowledge separately.

Oral or written assessments must clearly provide a suitable means of checking the breadth and depth of an individual's knowledge. Assessors will need to judge the best mix of knowledge evidence according to individual circumstances. Knowledge evidence is useful when deciding the quality of performance evidence, but must not be used in isolation to judge competence or as an alternative to performance evidence. Care must be taken that candidate evidence is auditable and verifiable.

NB: These Qualification implementation guidelines are generic across the full range of GQA qualifications. Further guidance on acceptable evidence on each qualification will be found in the Introduction to the Qualification section of the candidate booklet

SVQ CANDIDATE DECLARATION

Candidate Name.....

Centre/Company Name.....

Assessor(s) Name(s)

I acknowledge receipt of this copy of the GQA qualification booklet. The unit structure provides information on which units must be achieved to be awarded the SVQ. The individual units detail the necessary requirements etc that I must achieve. I understand that I will have an important role in preparing for and planning assessments and with guidance from the assessor I will collect and record relevant evidence.

I understand that all evidence should be produced by me or be directly attributable to me.

I have been informed of the appeals system and have been issued with a copy of the appeals procedure, should I want to appeal against any part of the assessment process.

I understand the assessments will be carried out with regard to the company/centre Equal Opportunities Policy.

Candidate Signature

Date

UNIT LATA 3-03 CARRY OUT SCIENTIFIC OR TECHNICAL TESTING OPERATIONS (Level 6, 8 Credits)

Unit Overview

This unit covers the competences you need to carry out scientific or technical testing operations in a science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate that you can select the appropriate testing methods from procedures for the testing requirements, prepare and carry out the tests in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Identify conditions for scientific or technical tests to be done
- P4. Establish the requirements for the scientific or technical tests to be done
- P5. Select the appropriate testing methods from procedures for the testing requirements
- P6. Prepare the resources needed for the testing operations
- P7. Prepare the test samples in accordance with the procedures and check their integrity
- P8. Carry out the required tests in accordance with the procedures
- P9. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

1. Identify conditions for scientific or technical test that include two of the following:
 - 1.1 test environment
 - 1.2 time recording system
 - 1.3 test criteria
 - 1.4 cleanliness
 - 1.5 safety factors
 - 1.6 external influence that can variations
2. Establish requirements for one of the following types of test:
 - 2.1 plastics/polymers
 - 2.2 petroleum/petrochemical
 - 2.3 product/process quality
 - 2.4 metal/metallurgy
 - 2.5 chemicals/pharmaceuticals
 - 2.6 omissions/leaks/contamination
 - 2.7 material/physical properties
 - 2.8 mechanical properties
 - 2.9 other (please specify)
3. Prepare all of the following resources for testing operations:
 - 3.1 consumables
 - 3.2 utilities/facilities

- 3.3 instruments
- 3.4 test materials
- 3.5 equipment

4. Carry out two of the following pre-test check on equipment and test instruments:

- 4.1 calibration
- 4.2 cleanliness
- 4.3 serviceability
- 4.4 setup conditions

5. Carry out integrity checks that include three of the following:

- 5.1 free from subsequent defects
- 5.2 damage and decomposition
- 5.3 homogeneity

6. Record and communicate details of work done, to the appropriate people, using:

- 6.1 verbal report

Plus one method from the following:

- 6.2 written or typed report
- 6.3 computer-based record
- 6.4 specific workplace documentation
- 6.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace (e.g. access or aseptic conditions)
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. Why it is important to follow safe operating procedures when using equipment and / or materials

- K10. The principles and procedures for testing
- K11. The purposes of testing, and the specific use to which the test results are to be put
- K12. The relevant testing methods that can be used to achieve the purpose of testing
- K13. Why calibration is important and how to check calibration
- K14. How to check the sample identity and it's integrity
- K15. The range of methods used to prepare samples
- K16. How to identify defective equipment and the appropriate action to take
- K17. The methods can be used for controlling test variables
- K18. The concepts of repeatability and reproducibility
- K19. The range of equipment available for testing, and how to choose the most appropriate equipment
- K20. The potential impact of the test on health, safety and the environment
- K21. The methods can be used for dealing with the handling, storage and disposal of materials
- K22. The cleaning materials and the methods for their use
- K23. The methods of safe storage that can be used
- K24. The document control and reporting procedures that should be used
- K25. The reasons why effective communication is important and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-04 ASSESS AND COMMUNICATE SCIENTIFIC OR TECHNICAL INFORMATION TO AUTHORISED PERSONNEL (Level 6, 6 Credits)

Unit Overview

This unit covers the competences you need to assess and communicate scientific or technical information to authorised personnel in a science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate that you can access and produce the relevant laboratory information/reports and circulate the information to the required personnel. You will demonstrate you can maintain security and confidentiality in accordance with approved procedures and practices. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Ensure the data integrity of the laboratory information system
- P4. Follow procedures correctly to ensure the security and confidentiality of laboratory information
- P5. Assess existing and record new information on the laboratory information system
- P6. Produce and distribute laboratory information system reports in accordance with procedures
- P7. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Search and access data from the information system for three of the following:
 - 1.1 test/sample information
 - 1.2 output quality information
 - 1.3 work delivery information
 - 1.4 process information
 - 1.5 cost/budget information
 - 1.6 other (please specify)
- 2. Communicate scientific or technical information to three of the following customers:
 - 2.1 other department
 - 2.2 team members
 - 2.3 other (please specify)
 - 2.4 technical expert
 - 2.5 external organisation
- 3. Communicate four of the following types of information:
 - 3.1 instructions
 - 3.2 progress/analysis report
 - 3.3 services available
 - 3.4 test results
 - 3.5 work requirements
 - 3.6 other (please specify)

4. Ensure the integrity of the laboratory information system by all of the following:
 - 4.1 using the correct startup/shutdown procedures
 - 4.2 information is passed to authorised people only
 - 4.3 following good practice for logging on/off
 - 4.4 following anti-virus protocols

5. Record and communicate details of work done, to the appropriate people, using:
 - 5.1 verbal report

Plus one method from the following:

- 5.2 written or typed report
- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational policies that exist for the use and application of licensed computer software
- K7. The organisational policies that exist for the use of antivirus and anti-spy software protection
- K8. The organisational policies that exist on data protection and the data protection act
- K9. The organisational requirements for maintaining the security of the workplace (e.g. access or aseptic conditions)
- K10. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K11. The limits of your own authority and to whom you should report if you have problems that you cannot resolve.
- K12. The basic set-up and operation of the laboratory records system and the peripheral devices that are used.
- K13. The correct start-up and shutdown procedures to be used for the computer system
- K14. How to access the computer information database and the use of software manuals and related documents to aid efficient operation of the relevant scientific or technical records
- K15. How to deal with system problems messages received, peripherals which do not respond as expected
- K16. How to access and communicate data effectively, and how to identify key information when recording and forwarding messages accurately
- K17. Where to obtain the information that you need to carry out your job, the form in which the information is expressed and why it should be up to date
- K18. The different forms of communication available to you, and how they are used
- K19. Why it is important to communicate clearly and to give all of the information necessary to the audience
- K20. The organisational and/or workplace procedures for acknowledging and responding to incoming and outgoing information

K21. The organisational and/or workplace procedures for recording scientific or technical information

K22. The document control and reporting procedures that should be used

K23. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-05 PROVIDE TECHNICAL ADVICE AND GUIDANCE FOR SCIENTIFIC OR TECHNICAL ACTIVITIES (Level 7, 12 Credits)

Unit Overview

This unit covers the competences you need to provide technical advice and guidance for scientific or technical activities in science related work activities, in accordance with approved procedures and practices. You will need to ensure you have accurate, up-to-date information, analyse problems and provide appropriate information, advice and guidance to a range of people. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Work safely at all times, complying with health and safety legislation, regulations and other relevant guidelines
- P4. Ensure that you have accurate and up-to-date information on the scientific or technical activities for which advice and guidance is being sought
- P5. Determine the extent of the advice and guidance required
- P6. Provide valid and up-to-date information, advice and guidance, as necessary
- P7. Analyse any problems in full and provide effective advice that will maintain the quality and progress of the work
- P8. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Provide technical advice and guidance for two of the following groups of people:
 - 1.1 colleagues
 - 1.2 customers (e.g. distributors, end users, clients)
 - 1.3 contractors
 - 1.4 others in related technical activity areas
- 2. Provide technical support for two of the following scientific or technical activities:
 - 2.1 providing technical support
 - 2.2 complex sampling
 - 2.3 demonstration and instruction
 - 2.4 planning sampling and testing
 - 2.5 carrying out investigations
 - 2.6 team leading/coaching
 - 2.7 complex testing
 - 2.8 small scale processing
- 3. Provide technical advice and guidance on four of the following:
 - 3.1 equipment operating detail (function)

- 3.2 specific or specialist equipment required
- 3.3 equipment performance parameters
- 3.4 resource usage
- 3.5 physical characteristics (dimensions, weight)
- 3.6 timing/delivery details
- 3.7 environment considerations/operating conditions
- 3.8 cost/budget estimation/details
- 3.9 scientific or technical methods
- 3.10 quality requirements/control
- 3.11 processing requirements
- 3.12 maintenance/cleaning/calibration frequency
- 3.13 work instructions or procedures
- 3.14 aseptic procedures
- 3.15 output volume required
- 3.16 training required
- 3.17 resource requirements
- 3.18 customer interface requirements
- 3.19 equipment/component interfacing
- 3.20 safety/regulations/guideline requirements

4. Deal appropriately with all of the following:

- 4.1 reported problems found during the scientific or technical activity
- 4.2 recorded deviations from agreed plans and schedules
- 4.3 customer requests/complaints

5. Record and communicate details of work done, to the appropriate people, using:

- 5.1 verbal report

Plus one method from the following:

- 5.2 written or typed report
- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve

- K9. The regulations and guidelines that are relevant to the work area
- K10. How to obtain information on regulations and guidelines
- K11. How to obtain and interpret drawings, charts, specifications and other documents that can be used when giving technical advice and guidance
- K12. A sound understanding of the activities in which the technical guidance is being given
- K13. How to identify opportunities for giving technical advice, guidance and support
- K14. How to plan and prepare for providing technical guidance
- K15. The methods and techniques involved in problem solving
- K16. How to deal with customer complaints and requests
- K17. How to review and adjust approaches to the provision of technical guidance, in the light of experience gained
- K18. The techniques for offering and providing technical guidance
- K19. How to use a variety of communication methods, in appropriate combination
- K20. The document control and reporting procedures that should be used
- K21. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 2-02 MAINTAIN EFFECTIVE AND EFFICIENT WORKING RELATIONSHIPS FOR SCIENTIFIC OR TECHNICAL ACTIVITIES (Level 6, 3 Credits)

Unit Overview

This unit covers the competences you need to work effectively in science related work activities, in accordance with approved procedures and practices. You will be required to demonstrate how you can establish and maintain relationships and how you deal with others. You will demonstrate how to deal with disagreements. The learner will meet organisational standards for behaviour in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection clothing and equipment (PPE) when doing scientific or technical activities
- P3. Establish and maintain effective working relationships in the workplace
- P4. Meet workplace standards for timekeeping, appearance and behaviour
- P5. Deal with disagreements in an amicable and constructive way, so that good relationships are maintained

- P6. Maintain communication with others, to ensure that they are kept informed about any work plans or activities which may affect them
- P7. Be aware of the limits of your skills, and seek assistance from others in a polite and courteous way without causing undue disruption to normal work activities
- P8. Review your personal performance and development, with the appropriate people, at regular intervals

- P9. Communicate the required information about the work done, to authorised people, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Sustain positive working relationships by all of the following:
 - 1.1 working in teams
 - 1.2 being cooperative and flexible
 - 1.3 supporting others
 - 1.4 providing clear and accurate information

- 2. Maintain working relationships with two of the following:
 - 2.1 colleagues in your own working group
 - 2.2 colleagues outside your normal working group
 - 2.3 supervisors/managers
 - 2.4 persons external to your organisation
 - 2.5 more senior professionals/scientists

- 3. Review personal development objectives and targets, to include one of the following:

- 3.1 dual or multi-skilling
- 3.2 increased responsibility
- 3.3 training on new equipment/technology
- 3.4 other specific requirements
- 3.5 understanding of company working practices, procedures, plans and policies

4. Record details of work done, and communicate the details to the appropriate people, using:

- 4.1 verbal report

Plus one method from the following:

- 4.2 written or typed report
- 4.3 computer-based record
- 4.4 specific company documentation
- 4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The interactions which take place between your scientific or technical speciality and others where the same speciality is used
- K7. How your scientific or technical work activities may affect others within the department and the work place
- K8. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K9. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K10. The lines of accountability within the department
- K11. The reasons why good working relationships are important
- K12. How to create and maintain good working relationships
- K13. The methods of working effectively with others
- K14. The problems that can affect relationships in the workplace
- K15. The procedures for dealing with disagreements within the workplace
- K16. The departmental performance review process, and your role in this process
- K17. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-01 MAINTAIN HEALTH AND SAFETY IN A SCIENTIFIC OR TECHNICAL WORKPLACE (Level 6, 9 Credits)

Unit Overview

This unit covers the competences you need to maintain health and safety in science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate that you can use safe working practices throughout and will understand your responsibility for taking the necessary safeguards to protect yourself and others in the work place. You must also know what actions to take in case of an emergency in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Accurately assess health and safety in relation to your work and the workplace
- P3. Use safe practices and the appropriate personal protective clothing and equipment for the work
- P4. Identify and rectify any breaches to health and safety procedures and report them to the appropriate person as soon as possible
- P5. Maintain the security of the workplace, in accordance with organisational requirements
- P6. Maintain and keep tidy your work area to a standard of health and safety which is consistent with local policies and legal requirements
- P7. Use equipment and materials in accordance with manufacturers' instructions and local safety regulations

- P8. Dispose of waste materials and substances safely and correctly
- P9. Take the appropriate precautions to protect yourself and others during work activities
- P10. Follow the correct procedure when an emergency arises or is suspected
- P11. Identify and recommend health and safety improvements to your work area and/or environment
- P12. Communicate the required information about the work done, to authorised people, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Identify health and safety workplace procedures for all of the following:
 - 1.1 workplace hazards
 - 1.2 unsafe practices
 - 1.3 spillages
 - 1.4 manual handling
 - 1.5 VDU & RSI policies
 - 1.6 other (please specify)

- 2. Use safe handling practices for three of the following, in accordance with approved procedures:
 - 2.1 flammables (liquid or solid)
 - 2.2 radioactive material
 - 2.3 pyrophoric material

- 2.4 corrosive material
- 2.5 water reactive material
- 2.6 oxidiser
- 2.7 equipment or tools
- 2.8 explosive material
- 2.9 unstable reactive
- 2.10 toxic/harmful material
- 2.11 extreme temperature
- 2.12 sensitising/irritant substance
- 2.13 biological material
- 2.14 compressed gas
- 2.15 manual handling/lifting loads

3. Comply with established procedures for both of the following:

- 3.1 workplace emergency (e.g. injury, spillage)
- 3.2 workplace evacuation (e.g. fire, gas leak)

4. Make recommendations on, or if appropriate, take action on both of the following:

- 4.1 areas where the work practices do not fully comply with health and safety requirements
- 4.2 improvements to handling and/or storage of materials, substances or equipment

5. Record details of the work activities, and communicate the details to the appropriate people, using:

- 5.1 verbal report

Plus one method from the following:

- 5.2 written or typed report
- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The workplace procedures, as set down in local operating manuals and schemes of work
- K4. The importance of following manufacturers' instructions
- K5. The techniques and processes you must use correctly in the workplace
- K6. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K7. The specific safety precautions to be taken when working with scientific or technical equipment and computer-based systems
- K8. The identity of health and safety representatives
- K9. The location and correct use of emergency equipment
- K10. The organisational requirements for maintaining the security of the workplace
- K11. The lines of communication and responsibilities in your department, and their links with the rest of the organisation

- K12. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K13. Why risks in the workplace should be assessed, and the correct action to be taken
- K14. Local procedures for emergency evacuation
- K15. The location of fire alarm call points and how to operate them
- K16. The location of spillage kits and the procedures to follow in the event of spillages of chemicals and/or biological fluids and materials
- K17. How to identify and recommend health and safety improvements to your work area and/or environment
- K18. The control of substances hazardous to health (COSHH) regulations, and their application in the workplace
- K19. The range of signs and symbols used for the warning of workplace hazards and prohibited practices
- K20. The types of hazards which may be present in the workplace and how these can be minimised
- K21. The correct storage and disposal procedures for hazardous materials
- K22. The hazards associated with chemicals, radioactive substances and/or biological materials
- K23. What constitutes dangerous occurrences and hazardous malfunctions in the workplace and why these must be reported
- K24. How to lift and carry loads safely, and use the manual and mechanical aids available in the workplace
- K25. The importance of safe storage of tools, equipment and materials
- K26. The reasons for cleaning work surfaces and equipment
- K27. Why it is important to differentiate and segregate categories of waste
- K28. The correct procedures for the storage, transport and disposal of waste

Assessor Comments/Feedback

UNIT LATA 3-06 PLAN SCIENTIFIC OR TECHNICAL SAMPLING AND TESTING ACTIVITIES (Level 7, 8 Credits)

Unit Overview

This unit covers the competences you need to plan scientific or technical sampling and testing activities in a science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate that you can perform scientific or technical sampling, establishing which methods are required and what resources are to be used, in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Collect the information needed to prepare the plan
- P4. Identify health and safety issues and safe working practices and procedures that must be followed
- P5. Identify the operations to be carried out and determine their sequence
- P6. Establish which methods are required and what resources are to be used
- P7. Identify any special requirements and incorporate them in the plan
- P8. Deal effectively with problems within your control and report those that cannot be solved
- P9. Communicate the required information about the work done, to authorised people, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Carry out all of the following when determining and producing the plans:
 - 1.1 use the correct issue of workplace information
 - 1.2 check that all essential information and data needed to produce the plans is available
 - 1.3 collect relevant information on the scientific or technical requirements, operations, methods and resources
 - 1.4 determine the availability of resources required
 - 1.5 ensure that the activities to be carried out fall within budget constraints
 - 1.6 ensure that health and safety regulations and safe working practices are taken into account
 - 1.7 ensure that the influence of working conditions is recognised and included in the plans
 - 1.8 present the plans in the appropriate formats
- 2. Produce plans for both of the following scientific or technical activities:
 - 2.1 testing
 - 2.2 sampling
- 3. Provide technical advice and guidance on four of the following:
 - 3.1 space required
 - 3.2 cost/budget
 - 3.3 timescales
 - 3.4 utilities required

- 3.5 description of the activities to be carried out
- 3.6 the sequence in which the activities will take place
- 3.7 the documentation to be used (such as drawings, specifications, quality assurance, surveys)
- 3.8 people required who have the necessary skills and knowledge
- 3.9 the raw materials required (such as type of material, form of material, amount of material)
- 3.10 consumable materials required (such as chemicals, reagents)
- 3.11 environmental/legislative requirements that must be met
- 3.12 special/specific safety equipment required (such as fume extraction, fire equipment)

4. Carry out all of the following on completion of the planning activities:

- 4.1 validation and evaluation of the planning systems and procedures used
- 4.2 suggested improvements to your process of planning
- 4.3 recommendations for improvements or changes to the scientific or technical activities that were planned

5. Record and communicate details of the work done, to the appropriate people, using:

- 5.1 verbal report

Plus one method from the following:

- 5.2 written or typed report
- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. How to access information on health and safety regulations and guidelines relating to the sampling and testing activities to be used and plans being produced

- K10. The implications of not taking account of legislation, regulations, standards and guidelines when producing the laboratory plans
- K11. How to access and use the appropriate information and documentation systems
- K12. The materials, formats, codes and conventions that are used in preparing the plans
- K13. The main planning methods and techniques in use, and what problems could occur in them
- K14. The factors to be taken into account when preparing the plans, especially those covering working conditions and safety
- K15. The main types of resources involved with different types of sampling and testing activity, and the typical timescales for providing them
- K16. The normal timescales for carrying out specific sampling and testing activities, and how and why they vary
- K17. The development of the sampling and testing plans
- K18. How to prepare the plans
- K19. The process used in the organisation to validate the plans produced
- K20. The control procedure for ensuring that the plans are maintained up to date
- K21. The procedures for changing the plans and why control procedures are needed
- K22. The importance of maintaining records; what needs to be recorded and where records are kept
- K23. Problems that can occur during the implementation of the plan and how these problems can be rectified
- K24. The document control and reporting procedures that should be used
- K25. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-07 CARRY OUT COMPLEX SCIENTIFIC OR TECHNICAL TESTING OPERATIONS (Level 7, 12 Credits)

Unit Overview

This unit covers the competences you need to carry out complex scientific or technical testing operations in a science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate that you can prepare and carry out the required scientific or technical tests in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Identify conditions for the complex scientific or technical tests to be done
- P4. Establish the requirements for the tests to be done
- P5. Identify hazards and assess risks against testing requirements
- P6. Select the appropriate testing methods from procedures for the testing requirements
- P7. Prepare the resources needed for the testing operations
- P8. Prepare the test samples in accordance with the procedures and check their integrity
- P9. Carry out the required tests in accordance with the procedures
- P10. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Carry out testing operations that have two of the following complex components:
 - 1.1 multi stage testing operations
 - 1.2 very cold/hot test temperatures involved
 - 1.3 multitasking testing
 - 1.4 noisy/vibrating/turbulent elements involved
 - 1.5 multi-parameter or control factors
 - 1.6 involves substances hazardous to health
 - 1.7 environmentally sensitive outcomes
 - 1.8 high level of skill/experience needed
 - 1.9 spontaneity/suddenness of test event
 - 1.10 complex sample components
- 2. Identify conditions for the test that include two of the following:
 - 2.1 test environment
 - 2.2 safety factors
 - 2.3 cleanliness
 - 2.4 test criteria
 - 2.5 time recording system

2.6 external influence/factors

3. Prepare all of the following resources for the testing operations:

- 3.1 consumables
- 3.2 utilities/facilities
- 3.3 test instruments
- 3.4 test materials
- 3.5 equipment

4. Carry out two of the following pre-test check on equipment and test instruments:

- 4.1 calibration
- 4.2 serviceability
- 4.3 cleanliness
- 4.4 setup conditions

5. Check three of the following test sample integrity factors:

- 5.1 free from defects
- 5.2 arrangement of like parts
- 5.3 damage and decomposition
- 5.4 common elements or characteristics

6. Record and communicate details of work done, to the appropriate people, using:

- 6.1 verbal report

Plus one method from the following:

- 6.2 written or typed report
- 6.3 computer-based record
- 6.4 specific workplace documentation
- 6.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. Why it is important to follow safe operating procedures when using equipment and/or materials
- K10. The principles and procedures for the scientific or technical testing
- K11. The purposes of testing, and the specific use to which the test results are to be put
- K12. The hazards/difficulties associated with complex testing
- K13. The relevant testing methods that can be used to achieve the purpose of testing

- K14. Why calibration is important and how to check calibration
- K15. How to check the sample identity and its integrity
- K16. The range of methods used to prepare samples
- K17. How to identify defective equipment and the appropriate action to take
- K18. The methods that can be used for controlling test variables
- K19. The concepts of repeatability and reproducibility
- K20. The range of equipment available for testing, and how to choose the most appropriate equipment
- K21. The potential impact of the test on health, safety and the environment
- K22. The methods that can be used for dealing with the handling, storage and disposal of materials
- K23. The cleaning materials and the methods for their use
- K24. The methods of safe storage that can be used
- K25. The document control and reporting procedures that should be used
- K26. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-08 CARRY OUT COMPLEX SCIENTIFIC OR TECHNICAL SAMPLING OPERATIONS (Level 7, 8 Credits)

Unit Overview

This unit covers the competences you need to carry out complex scientific or technical sampling operations in a science related work activity in accordance with approved procedures and practices. You will be required to demonstrate that you can prepare and carry out the required scientific or technical sampling in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Identify conditions for the scientific or technical sampling to be done
- P4. Establish the requirements for the sampling to be done
- P5. Identify hazards and assess risks against sampling requirements
- P6. Select the appropriate sampling methods from procedures for the sampling requirements
- P7. Prepare the resources needed for the sampling operations
- P8. Carry out the required sampling in accordance with the procedures
- P9. Label, package and store collected samples in accordance with the procedures
- P10. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Carry out sampling operations that have two of the following complex components:
 - 1.1 multi stage sampling operations
 - 1.2 very cold/hot sample temperatures involved
 - 1.3 multitasking sampling
 - 1.4 noisy/vibrating/turbulent elements involved
 - 1.5 multi-parameter or control factors
 - 1.6 involves substances hazardous to health
 - 1.7 environmentally sensitive outcomes
 - 1.8 high level of skill/experience needed
 - 1.9 spontaneity/suddenness of sample event
 - 1.10 complex sample components
- 2. Identify conditions for sample that include two of the following:
 - 2.1 sample environment
 - 2.2 time recording system
 - 2.3 sample criteria
 - 2.4 cleanliness
 - 2.5 safety factors
 - 2.6 external influence that can variations

3. Prepare all of the following resources for sampling operations:
 - 3.1 consumables
 - 3.2 sample equipment/instruments
 - 3.3 utilities/facilities
4. Record and communicate details of work done, to the appropriate people, using:
 - 4.1 verbal report

Plus one method from the following:

 - 4.2 written or typed report
 - 4.3 computer-based record
 - 4.4 specific workplace documentation
 - 4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. Why it is important to follow safe operating procedures when using equipment and/or materials
- K10. The principles and procedures for sampling
- K11. The purposes of sampling, and the specific use to which the sample results are to be put
- K12. The hazards/difficulties associated with complex sampling
- K13. The relevant sampling methods that can be used to achieve the purpose of sampling
- K14. The range of methods used to collect samples
- K15. How to identify defective sampling equipment and the appropriate action to take
- K16. The methods that can be used for controlling sample variables
- K17. The range of equipment available for sampling, and how to choose the most appropriate equipment
- K18. The potential impact of the sample on health, safety and the environment
- K19. The range of methods used for labelling, packaging, handling, storage of samples
- K20. The sample records database and tracking system
- K21. The types of handling and sorting system used, and the procedures and practices used for transferring samples within the workplace
- K22. The document control and reporting procedures that should be used
- K23. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-09 CARRY OUT SCIENTIFIC OR TECHNICAL INVESTIGATIONS (Level 7, 9 Credits)

Unit Overview

This unit covers the competences you need to carry out scientific or technical investigations in a science related work activity, in accordance with approved procedures and practices. You will be required to demonstrate you can show you have selected and used appropriate scientific or technical skills, methods and procedures. You will use appropriate investigation to inform actions and review how effective these methods have been in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Obtain and collate appropriate scientific or technical information which assists the investigation
- P4. Analyse the information correctly and evaluate it against the objective of the investigation
- P5. Prioritise the tasks within the investigation and follow the appropriate procedures
- P6. Use the specified resources required to complete the investigations
- P7. Follow set procedures to deal with contingencies arising during investigations
- P8. Conduct investigations in accordance with the established plans
- P9. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Carry out investigations into one of the following:
 - 1.1 a non-compliance problem
 - 1.2 the properties of a new material
 - 1.3 applications of a new material
 - 1.4 identifying a substance
 - 1.5 resolution technical problem
 - 1.6 cost reduction programme
 - 1.7 quality assurance review
 - 1.8 hazard/accident
- 2. Evaluation information from two of the following sources:
 - 2.1 new external standards/regulations
 - 2.2 manufacturer's instructions
 - 2.3 equipment technical reviews
 - 2.4 material technical reviews
 - 2.5 COSHH data sheets
 - 2.6 environmental reports
 - 2.7 in-company archives
 - 2.8 operating procedures

- 2.9 test reports
- 2.10 accident reports
- 2.11 health and safety documentation

3. Use two of the following resources to complete the investigations:

- 3.1 other staff
- 3.2 equipment
- 3.3 materials
- 3.4 allotted time

4. Deal with contingencies for one of the following:

- 4.1 equipment failure
- 4.2 changes in variables
- 4.3 delays
- 4.4 safety/environmental change

5. Record and communicate details of work done, to the appropriate people, using:

- 5.1 verbal report

Plus one method from the following:

- 5.2 written or typed report
- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. The principles and procedures for investigations

- K10. The techniques that are relevant to the scientific or technical investigation
- K11. How to source and access relevant standards
- K12. The acceptable operating conditions for conducting investigations
- K13. The implications of deviations from set procedures
- K14. The essential features of an investigation plan and why this must be followed
- K15. The range of equipment used for investigations
- K16. The procedures for recording and reporting the investigations done
- K17. How to identify and deal with contingencies
- K18. The limits and constraints for investigations that are done
- K19. The procedures used to deal with deviations from investigation plans
- K20. What the procedures are for using contingency plans when deviations from investigation plans occur
- K21. The document control and reporting procedures that should be used
- K22. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-10 CARRY OUT SMALL SCALE PROCESSING (Level 6, 6 Credits)

Unit Overview

This unit covers the competences you need to carry out small scale processing in a science related work activity in accordance with approved procedures and practices. You will be required to demonstrate that you can select and produce appropriate small quantities required against specification in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Set the conditions for small scale processing and take the appropriate action to maintain them
- P4. Confirm the calibration status of equipment and prepare it correctly for the processing operation
- P5. Produce small scale quantities required against specification
- P6. Maintain the specified controlled conditions for processing and record required information
- P7. Take specified action in the event of abnormal occurrences and report them to the relevant people
- P8. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Produce small scale processing qualifies for one of the following:
 - 1.1 testing the viability of a proposed large-scale manufacturing method
 - 1.2 meeting a customer's requirements for a specialist product not required in any great quantity
 - 1.3 producing small quantities of products to be used in sampling
 - 1.4 testing or other investigations such as reference standards or design evaluation
- 2. Maintain two of the following controlled conditions during processing:
 - 2.1 health and safety
 - 2.2 allotted time
 - 2.3 cleanliness & hygiene
 - 2.4 environment
 - 2.5 recording systems
- 3. Record all of the following processing information:
 - 3.1 sample identification
 - 3.2 results of small scale processing
 - 3.3 calculations and data
 - 3.4 conditions of in-process test
- 4. Record and communicate details of work done, to the appropriate people, using:

4.1 verbal report

Plus one method from the following:

4.2 written or typed report

4.3 computer-based record

4.4 specific workplace documentation

4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. The principles and procedures for small scale processing
- K10. The essential features of a process plan and how to follow it
- K11. How to source and access relevant standards
- K12. The operating conditions that are necessary to conduct the small scale processing, and how to maintain them
- K13. Why it is important to follow set procedures
- K14. The range of equipment used for small scale processing
- K15. Why it is important to follow the correct data recording and reporting procedures
- K16. The methods that can be used for dealing with the handling, storage and disposal of materials
- K17. The cleaning materials and methods that should be used
- K18. The range of resources needed for small scale processing
- K19. The reporting procedure in the event of deviations from processing plans
- K20. The document control and reporting procedures that should be used
- K21. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-11 DIAGNOSE FAULTS, REPAIR AND MAINTAIN SCIENTIFIC OR TECHNICAL EQUIPMENT FOR WORKPLACE ACTIVITIES (Level 7, 8 Credits)

Unit Overview

This unit covers the competences you need to maintain and control stocks of all resources, equipment and consumables for workplace scientific or technical activities in accordance with approved procedures and practices. You will be required to demonstrate that you can accurately identify equipment faults. You will perform repair and maintenance in accordance with manufacturer's drawings/instructions. You will ensure equipment is returned back into service in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when doing scientific or technical activities
- P3. Confirm that the scientific or technical equipment is in a safe and usable condition, according to established procedures
- P4. Identify accurately any equipment faults or problems and report those outside your control to the relevant people
- P5. Identify and interpret the required information from the manufacturers' instructions and diagrams, in accordance with established operating procedure
- P6. Employ the appropriate test equipment and measurement to locate the source of the fault
- P7. Perform repair or maintenance in accordance with manufacturers' instructions, diagrams and relevant health and safety procedures
- P8. Organise the repair of defective equipment when other specialists are required
- P9. Dispose of defective equipment that is beyond repair, in accordance with workplace procedures

- P10. Test and confirm that the equipment is operating correctly, within calibration specifications, in accordance with workplace procedures
- P11. Maintain records of repairs, maintenance and checks completed in accordance with workplace procedures
- P12. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Carry out all of the following operations:
 - 1.1 adhere to procedures or systems in place for risk assessment, COSHH, use of personal protective equipment, electricity at work and other relevant safety regulations
 - 1.2 ensure the safe isolation of scientific or technical equipment (such as electrical and fluids supply)
 - 1.3 follow manufacturers' instructions, drawings and procedures for repair or maintenance
 - 1.4 check that the tools and equipment used are in a safe and usable condition
 - 1.5 ensure that the scientific or technical equipment is kept free from foreign objects, dirt or other contamination
 - 1.6 carry out auditory and visual checks on the operation of the equipment

- 1.7 identify fault and isolate components where appropriate to determine the corrective action
 - 1.8 confirm that the equipment is ready for use
 - 1.9 return all repair and maintenance tools, equipment and waste to the correct locations on completion of the activities
 - 1.10 ensure that accurate, complete and legible records are kept of the repair and maintenance activities
2. Carry out maintenance and cleaning on two of the following scientific or technical categories:
- 2.1 biological equipment and/or instruments
 - 2.2 chemical equipment and/or instruments
 - 2.3 electronic equipment and/or instruments
 - 2.4 weighing and measuring equipment and/or instruments
 - 2.5 information technology equipment
 - 2.6 engineering machines, equipment and/or instruments
 - 2.7 other technical equipment or instruments
3. Record and communicate details of work done, to the appropriate people, using:
- 3.1 verbal report
- Plus one method from the following:
- 3.2 written or typed report
 - 3.3 computer-based record
 - 3.4 specific workplace documentation
 - 3.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and the links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. The manufacturers' specifications and recommendations for the maintenance and calibration of the scientific or technical equipment

- K10. Where to obtain, and how to interpret drawings, circuit diagrams, specifications, manufacturers' manuals and other technical documents needed for the fault-finding or maintenance activities
- K11. The methods used for visually checking, and cleaning, of scientific or technical equipment
- K12. The different types, condition and quantities of consumables required for the range of scientific or technical equipment maintained
- K13. The methods for maintaining personal health and safety during the maintenance of equipment
- K14. The methods for maintaining personal hygiene
- K15. How to check that the scientific or technical equipment is working correctly and in accordance with the manufacturer's specifications
- K16. How to evaluate the different types of equipment fault, and how these must be dealt with
- K17. How to use appropriate tools and equipment to locate the source of a fault or carry out maintenance activities
- K18. The procedures to be followed to investigate faults or maintenance activities
- K19. The department or person to whom equipment faults should be reported
- K20. The methods used for keeping records of the maintenance, cleaning and calibration of scientific or technical equipment, and why this is important
- K21. The procedure for the disposal of any waste produced and any equipment beyond repair
- K22. The document control and reporting procedures that should be used
- K23. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-12 MEASURE, WEIGH AND PREPARE COMPOUNDS AND SOLUTIONS FOR LABORATORY USE (Level 7, 16 Credits)

Unit Overview

Measure, weigh and prepare compounds and solutions for laboratory use in accordance with approved procedures and practices. You will be required to demonstrate that you can measure, weigh and prepare compounds and solutions in a laboratory environment in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with standard operating procedures
- P2. Wear the appropriate personal protection equipment (PPE) when handling materials
- P3. Use laboratory scales for accurately weighing out materials, using metric/imperial measures
- P4. Accurately measure pH and conductivity of solutions in the laboratory, using correctly calibrated meters

- P5. Measure out aliquots of liquids into tubes and microtrays for laboratory use and analysis
- P6. Measure liquids and solids for laboratory use and analysis
- P7. Communicate the required information about the work done, to authorised people, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Use three of the following types of protective clothing and equipment:
 - 1.1 laboratory coat
 - 1.2 gloves
 - 1.3 other (please specify)
 - 1.4 face mask
 - 1.5 safety glasses

- 2. Carry out weighing activities using balances (scales), using two of the following accuracies:
 - 2.1 grams
 - 2.2 milligrams
 - 2.3 micrograms

- 3. Measure out aliquots of solutions, using four of the following:
 - 3.1 automated pipettes
 - 3.2 graduated cylinders/beakers/tubes
 - 3.3 volumetric flasks
 - 3.4 graduated/bulb pipettes
 - 3.5 other (please specify)
 - 3.6 syringes
 - 3.7 burettes

- 4. Measure pH and/or conductivity, using two of the following:

- 4.1 handheld pH meter
 - 4.2 combined pH/conductivity meter
 - 4.3 conductivity meter
 - 4.4 bench top pH meter
 - 4.5 other (please specify)
5. Calibrate or check the calibration for two of the following:
- 5.1 pH meter
 - 5.2 conductivity meter
 - 5.3 other (please specify)
 - 5.4 balance
 - 5.5 pipettes
6. Calculate the concentrations of solutions, the amounts and volumes required, using four of the following:
- 6.1 moles per litre
 - 6.2 parts per million
 - 6.3 other (please specify)
 - 6.4 grams per litre
 - 6.5 mass percent
7. Make up known volumes of solutions to a specified concentration, using both of the following: 7.1 by measuring and dissolving the correct amount of solute in the correct volume of diluent/solvent
7.2 by dilution from a concentrated stock solution
8. Weigh and prepare three of the following types of compound or solution:
- 8.1 powders/granulations that do not readily lose or gain weight (moisture or solvent)
 - 8.2 solids that readily lose or gain weight (moisture or solvent)
 - 8.3 liquid samples (by difference)
 - 8.4 liquid samples (direct)
9. Record details of the work, and communicate the details to the appropriate people, using:
- 9.1 verbal report
- Plus one method from the following:
- 9.2 written or typed report (eg, laboratory notebook)
 - 9.3 computer-based record
 - 9.4 specific company documentation
 - 9.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the laboratory activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting laboratory activities
- K3. The principles of Good Laboratory Practice (GLP) and/or Good Clinical practice (GCP)/Good Manufacturing Practice (GMP) applied in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection when handling specimens/samples
- K5. The importance of correct identification, and any unique organisational or laboratory numbers

- K6. The lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K7. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K8. How to calculate mass/mole calculations in metric and/or imperial measures
- K9. How to select the appropriate balance and scale for less than 100mg, 100mg to 5g, and 5g and above
- K10. How to check that a pipette is clean, dry, free of chips and ready for use
- K11. How to check the calibration on a pipette
- K12. How to calibrate and check the calibration on a pH meter
- K13. How to calibrate and check the calibration on a balance
- K14. How to calibrate and check the calibration on a conductivity meter
- K15. How to measure and weigh solids and liquids for laboratory use
- K16. How to convert between different units of concentration
- K17. How to calculate dilution factors and dilution volumes to make solutions from concentrated stock solutions
- K18. The pH scale as a logarithmic scale for the measurement of the acidity of aqueous solutions, and the importance of pH to biological systems and processes
- K19. How to choose the appropriate measuring equipment for the scale, accuracy and precision required for the task
- K20. How to clean and maintain the pipettes, balances, pH meter probes and conductivity meter probes

Assessor Comments/Feedback

UNIT LATA 3-21 IMPROVE THE QUALITY AND RELIABILITY OF SCIENTIFIC OR TECHNICAL ACTIVITIES IN THE WORKPLACE (Level 8, 10 Credits)

Unit Overview

This unit covers the competences you need to demonstrate how to improve the quality and reliability of scientific or technical activities in the workplace in accordance with approved procedures and practices. You will be required to demonstrate that you can make recommendations for improvements to working practices or the work area, which are consistent with the objectives of your team and your organisation in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Monitor activities at intervals in order to identify potential improvements in working practices or the work area
- P4. Obtain views, when appropriate, of relevant people on potential improvements to the working practices or the work area
- P5. Agree plans for improvements and timescales with relevant people in sufficient detail to allow effective planning
- P6. Identify any considerations which may affect the implementation of potential improvements
- P7. Make recommendations for improvements to working practices or the work area which are consistent with the objectives of your team and your organisation
- P8. Monitor the implementation of improvements to identify any problems and take appropriate action
- P9. Evaluate the effectiveness of the improvement
- P10. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines
- P11. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

1. Discuss quality improvements with one of the following people:
 - 1.1 supervisor
 - 1.2 team leader
 - 1.3 health and safety officer
 - 1.4 manager
 - 1.5 head of department
 - 1.6 teacher or trainer
2. Consider all of the following for potential quality improvements:
 - 2.1 adherence to COSHH and other relevant safety regulations
 - 2.2 changes required to quality control specifications and related documents

- 2.3 estimated costs v benefits, implementation timescales and other inputs required
- 2.4 the approval needed to implement the identified quality improvement activities
- 2.5 all the personnel and workplace processes that will be effected by quality improvement activities

3. Identify potential quality improvements related to two of the following scientific or technical activities:

- 3.1 biological equipment and/or instruments
- 3.2 chemical equipment and/or instruments
- 3.3 electronic equipment and/or instruments
- 3.4 weighing and measuring equipment and/or instruments
- 3.5 information technology equipment
- 3.6 engineering machines, equipment and/or instruments
- 3.7 other technical equipment or instruments

4. Record and communicate details of work done, to the appropriate people, using:

- 4.1 verbal report

Plus one method from the following:

- 4.2 written or typed report
- 4.3 computer-based record
- 4.4 specific workplace documentation
- 4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace.
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and the links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. The organisational procedures for determining when and how quality assurance activities should be undertaken

- K10. The processes and specifications for the activity being quality assured
- K11. How to obtain the quality criteria that could be used for the different types of scientific or technical processes
- K12. The current quality assurance methods that are in use
- K13. The people who should be involved in the quality assurance process
- K14. The impact that quality assurance methods have on the organisation
- K15. The people who require information on quality assurance, and the procedures for informing them
- K16. How to make recommendations for improvement
- K17. How to ensure that the recommendations are consistent with objectives of your team and/or your workplace
- K18. How to communicate suggestions for change and improvements
- K19. What methods can be used to implement the improvements
- K20. How to plan and agree appropriate timescales for improvements
- K21. How to identify problems and the actions that are appropriate to take in the event of them
- K22. How to evaluate and monitor improvements
- K23. How to ensure that quality improvement recommendations are followed up
- K24. The importance of making sure that all information used is accurate
- K25. The format and procedure for maintaining quality assurance records
- K26. The document control and reporting procedures that should be used
- K27. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LS 2-05 MAINTAIN STOCKS OF RESOURCES, EQUIPMENT AND CONSUMABLES IN LIFE SCIENCES AND RELATED INDUSTRIES (Level 6, 4 Credits)

Unit Overview

This unit covers the skills you need to assist with the maintenance and control of stocks of resources, equipment and consumables for scientific or similar uses, in accordance with approved procedures, organisational policy and practices. You will complete tasks and procedures, exercise autonomy and judgement subject to overall direction or guidance. You will report any problems with the activities, materials or equipment that you cannot personally resolve. You will work under a team leader whilst taking responsibility for the quality and accuracy of the work that you carry out.

Maintaining stocks at the right level, within critical limits and in the right environment is important for the smooth running of the workplace. Stock levels should be accurately labelled, recorded, handled, transported, stored and disposed of according to workplace procedures. Failure to do so will result in incorrect stock levels, incorrect labelling and contribute to inefficiency and wastage. Your underpinning knowledge will provide a good understanding of scientific or similar facts, procedures, workplace processes and ideas to complete well-defined generally routine tasks and address straightforward problems in the workplace.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures, health and safety, environmental and other relevant regulations and guidelines
- P2. Count stocks, confirm that they are within the maximum/minimum levels required for the scientific and related activities and update records in the information system
- P3. Check the packaging information on individual stock items, and confirm that critical details are within acceptable limits
- P4. Identify, record and communicate requirements to replenish stocks at specified re-order levels
- P5. Check new stocks received against purchase orders and delivery notes and notify relevant people of any discrepancies or breakages
- P6. Label and store items in the correct environment and location and update records in the information system
- P7. Correctly handle and transport stock items, using the appropriate methods and techniques
- P8. Dispose, in the appropriate manner and locations, of stock or items that are damaged or outside acceptable limits for scientific and related uses
- P9. Communicate the required information about the work done to authorised people

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Check stock levels for **three** of the following:
 - 1.1 biological specimens and materials
 - 1.2 electrical/electronic components/subassemblies
 - 1.3 scientific chemicals
 - 1.4 analysers, equipment or instruments
 - 1.5 scientific or technical consumables

1.6 other (please specify)

2. Check packaging for **five** of the following information:

- 2.1 batch numbers
- 2.2 expiry dates
- 2.3 quantities
- 2.4 safety data sheets
- 2.5 delivery dates
- 2.6 hazard labels
- 2.7 volumes
- 2.8 weights
- 2.9 condition received

3. Handle and transport **both** of the following types of material:

- 3.1 scientific or technical chemicals
- 3.2 scientific or technical equipment

4. Check stock items held in **four** of the following storage environments:

- 4.1 ambient temperature locations
- 4.2 refrigerators/freezers
- 4.3 zero or low light locations
- 4.4 hazardous chemical locations
- 4.5 equipment locations
- 4.6 consumable item locations

5. Access and update information on the information system for **all** of the following:

- 5.1 booking items out from stock
- 5.2 booking items into stock
- 5.3 stock check levels
- 5.4 stock usage

6. Record details of the stock control, and communicate the details to the appropriate people, using:

- 6.1 verbal report

Plus one method from the following:

- 6.2 written or typed report
- 6.3 specific workplace documentation
- 6.4 computer-based record
- 6.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety and other legislative requirements of the area in which you are carrying out the scientific or similar activities
- K2. The scientific or similar techniques and processes you must use correctly in the workplace
- K3. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K4. The importance of correct identification, and any unique workplace coding system
- K5. Why it is important to maintain accurate records for scientific or similar resources, equipment and consumables

- K6. The types and range of scientific or similar resources, equipment and consumables used in the workplace, and how they have to be checked
- K7. How to check the packaging information on stock (such as batch numbers and expiry dates), labelling new stock items correctly and recording in the information system
- K8. The range of storage environments used to store scientific or similar resources, equipment and consumables for workplace use
- K9. How to monitor and control stock levels for scientific or similar uses
- K10. How to dispose of waste or damaged stock items, in accordance with workplace procedures
- K11. How to resolve issues with delivered damaged or incomplete replacement stock

Assessor Comments/Feedbacks

UNIT LATA 2-16 FOLLOW ASEPTIC PROCEDURES IN THE LABORATORY ENVIRONMENT (Level 6, 9 Credits)

Unit Overview

This unit covers the competences you need to follow aseptic procedures in the laboratory environment in accordance with approved procedures and practices. You will be required to demonstrate that you can work to the relevant standard operating procedures, legislation and organisational policy. You will follow Good Laboratory Practice (GLP) and/or Good Clinical Practice (GCP)/Good Manufacturing Practice (GMP) in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with standard operating procedures
- P2. Dress in the appropriate personal protection equipment (PPE) required for the clean room or clean work area environment, in accordance with the correct procedure
- P3. Carry out visual quality checks on your personal protection equipment prior to entering the working environment
- P4. Follow the correct procedures for entering and exiting the clean room or clean work area
- P5. Follow aseptic techniques in the laboratory
- P6. Remove personal protection equipment on completion of clean room or clean work area activities, and dispose/store in line with the correct procedure
- P7. Communicate the required information about the work done, to authorised people, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

1. Prior to entering clean room, carry out all of the following:
 - 1.1 use the correct issue of job instructions and specifications
 - 1.2 follow risk assessment procedures and COSHH regulations
 - 1.3 ensure that you are appropriately dressed and uncontaminated before entering the area
 - 1.4 carry out your activities in line with organisational procedures
 - 1.5 store accurate records of your activities, in accordance with appropriate procedures
2. Satisfy all the following company clean room/clean work area requirements:
 - 2.1 use appropriate clothing/personal protective equipment (PPE) (such as suits, gowns, coats, hoods, hats, caps, helmets, other headwear, boots, overshoes, other forms of footwear, safety goggles, visors, gloves)
 - 2.2 comply with hazard protection (such as breathing apparatus, gloves, apron/smock, other forms of PPE or clothing required)
 - 2.3 deal appropriately with damaged or dirty clothing/PPE (such as reporting damage, replacement, safe removal and cleaning or disposal, subjected to acid/hazardous substance spills, damaged/dirty labelling)
 - 2.4 store specified clothing/PPE correctly when not in use
 - 2.5 ensure the proper cleaning/laundrying/maintenance of clothing/PPE
 - 2.6 dispose of single-use clothing and equipment in the correct location
 - 2.7 report any hazards or breaches of protocol
3. Use three of the following types of personal protective equipment for clean room working:

- 3.1 body suit
 - 3.2 gloves
 - 3.3 air supply
 - 3.4 face mask
 - 3.5 respirator
 - 3.6 other (please specify)
4. Use personal protective equipment in one of the following clean room environments:
- 4.1 health/disease screening
 - 4.2 drug development
 - 4.3 biochemical processing
 - 4.4 agro-biotech research
 - 4.5 biotechnology processing
 - 4.6 other (please specify)
5. Identify and follow protocol methods and procedures that satisfy all of the following
- 5.1 the safety of people
 - 5.2 containment/integrity of the clean room/work area
 - 5.3 containment/integrity of the specimen/product
 - 5.4 appropriate industry standards and protocols
6. Record details of the work activity, and communicate the details to the appropriate people, using:
- 6.1 verbal report
- Plus one method from the following:
- 6.2 written or typed report
 - 6.3 computer-based record
 - 6.4 specific company documentation
 - 6.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the laboratory activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting laboratory activities
- K3. The principles of Good Laboratory Practice (GLP) and/or Good Clinical practice (GCP)/Good Manufacturing Practice (GMP) applied in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection when handling materials and the equipment used to contain and process them
- K5. The manufactured materials and batch process tracking and records system
- K6. The types of handling and sorting system, and the procedures used for materials undergoing processing in the laboratory facilities
- K7. The importance of correct identification, and any unique organisational or laboratory numbers
- K8. The organisational requirements for maintaining the security of the workplace
- K9. The lines of communication and responsibilities in your department, and their links with the rest of the organisation

- K10. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K11. The specific safety precautions to be taken when working in a clean room or clean work area environment
- K12. The correct fitting and use of clothing and personal protective equipment that must be worn in a clean room or clean work area
- K13. Hazards associated with working in a clean room or clean work area, with laboratory equipment
- K14. How to put on clean room clothing and footwear correctly
- K15. The procedures for entering and exiting the clean room or clean work area, and the authority needed to do so
- K16. The classification of the relevant clean room or clean work area, and how this impacts upon you
- K17. The industry standards/classifications for clean rooms and clean work areas
- K18. The company requirements for clothing and personal protective equipment, and the reasons why such clothing and equipment must be used
- K19. The procedures and methods for maintaining issued clothing and personal protective equipment
- K20. How to apply procedures for dealing with damaged or dirty clothing and personal protective equipment
- K21. How to store clothing and personal protective equipment correctly
- K22. The laundering/cleaning/maintenance procedures relating to the issued clothing and personal protective equipment
- K23. The aseptic techniques that are applied and used in the laboratory
- K24. How to dispose correctly of single-use personal protective equipment
- K25. The policy and procedures relating to personal items

Assessor Comments/Feedback

UNIT LATA 3-14 MAKE PRESENTATIONS FOR SCIENTIFIC OR TECHNICAL ACTIVITIES IN THE WORKPLACE (Level 8, 8 Credits)

Unit Overview

This unit covers the competences you need to make presentations for scientific or technical activities in the workplace in accordance with approved procedures and practices. You will be required to demonstrate that you have established the scope of the presentation and how it will need to reflect audience and work practices in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when doing scientific or technical activities
- P3. Work safely at all times, complying with health and safety and other relevant regulations and guidelines

- P4. Establish the scope and purpose of the development/research presentation to be delivered
- P5. Determine quality, cost and delivery issues, and the resources needed to deliver the presentation
- P6. Present the data in an appropriate format and structure for the audience
- P7. Obtain appropriate equipment, facilities and resources, and verify its fitness for purpose
- P8. Ensure the venue and equipment are suitable and in good order for the presentation
- P9. Deliver the prepared presentation in the correct media for the audience
- P10. Ensure that the audience has the appropriate post-presentation media to support the presentation
- P11. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Complete all of the following for planning and delivering the presentation:
 - 1.1 plan the presentation in a logical and structured way for the brief
 - 1.2 prepare the content to meet the needs of the target audience
 - 1.3 rehearse the presentation and amend as appropriate for the content and delivery timescale
 - 1.4 prepare supporting materials (such as, handouts, copies of slides)
 - 1.5 prepare answers to anticipated questions
 - 1.6 use the equipment correctly to deliver the planned presentation
 - 1.7 answer audience questions
 - 1.8 issue the appropriate handouts to the audience following the presentation
- 2. Deliver presentations to both of the following audiences:
 - 2.1 small groups
 - 2.2 large groups
- 3. Make presentations for two of the following scientific or technical activities:
 - 3.1 providing scientific or technical support

- 3.2 demonstration of a new/existing process
- 3.3 demonstration of equipment or a system
- 3.4 team leading/coaching
- 3.5 review of skills or techniques
- 3.6 other (please specify)
- 3.7 curriculum/training activity or investigation

4. Record and communicate details of the work done, to the appropriate people, using:

- 4.1 verbal report

Plus one method from the following:

- 4.2 written or typed report
- 4.3 computer-based record
- 4.4 specific workplace documentation
- 4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and the links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. The different types of audience and their scientific or technical information needs
- K10. How to gather relevant and accurate information for the presentation
- K11. The purpose of the presentation and the key messages to be delivered
- K12. How to ensure the content of the presentation is balanced and accurate
- K13. The time available to make presentations
- K14. The advantages and disadvantages of different methods of presentation delivery
- K15. The materials that are appropriate to support presentations
- K16. How to use the presentation equipment correctly
- K17. The scientific or technical questions you might expect to receive as a result of the presentation
- K18. How to judge the effectiveness of the presentation
- K19. Factors that can affect or influence the impact of a presentation
- K20. The venue health and safety considerations to be taken into account at any presentation
- K21. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-15 ASSESS YOUR OWN SCIENTIFIC OR TECHNICAL KNOWLEDGE AND SKILLS FOR WORKPLACE ACTIVITIES (Level 7, 4 Credits)

Unit Overview

This unit covers the competences you require to assess your own scientific or technical knowledge and skills for workplace activities in accordance with approved procedures and practices. You will be required to demonstrate that you can identify the scientific or technical requirements of your role and identify any personal knowledge or skills gaps. This will be followed up by you agreeing and following a personal development plan to address any knowledge or skills gaps and reviewing the impact this has had on your performance in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3. Identify and agree the scientific or technical requirements of your role in the workplace
- P4. Discuss and agree personal work objectives and how you will measure progress
- P5. Identify any scientific or technical knowledge, understanding and personal skills gaps for your workplace role
- P6. Discuss and agree a development plan to address any identified knowledge, understanding and skills gaps
- P7. Undertake agreed development actions and evaluate how they have contributed to your improved performance
- P8. Obtain regular feedback on your scientific or technical performance to meet workplace requirements and milestones
- P9. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines
- P10. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

- 1. Discuss and agree workplace performance with one of the following people:
 - 1.1 supervisor
 - 1.2 team leader
 - 1.3 health and safety officer
 - 1.4 manager
 - 1.5 head of department
 - 1.6 teacher or trainer
- 2. Agree scientific or technical work objectives that are all the following:
 - 2.1 specific
 - 2.2 achievable
 - 2.3 time-bound

2.4 measurable

2.5 realistic

3. Record and communicate details of the work done, to the appropriate people, using:

3.1 verbal report

Plus one method from the following:

3.2 written or typed report

3.3 computer-based record

3.4 specific workplace documentation

3.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and the links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. How to identify and assess the scientific or technical requirements of a work role
- K10. The different ways in which you are set your agreed personal work objectives
- K11. How to assess and identify gaps in your current scientific or technical knowledge, understanding and skills
- K12. How to measure your progress against scientific or technical work objectives
- K13. The type of development activities that can be undertaken to address identified scientific or technical gaps in knowledge, understanding and skills
- K14. How to identify development needs to address any gaps between the requirements of your work role and your current scientific or technical knowledge, understanding and skills
- K15. How to identify whether/how development activities have contributed to your performance
- K16. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

UNIT LATA 3-16 PROVIDE TRAINING FOR SCIENTIFIC OR TECHNICAL ACTIVITIES IN THE WORKPLACE (Level 8, 10 Credits)

Unit Overview

This unit covers the competences you need to provide training for scientific or technical activities in the workplace in accordance with approved procedures and practices. You will be required to demonstrate that you can discuss the training or instructional activities required with the relevant personnel. You will select and prepare relevant training materials/resources. You will monitor and review the trainee's progress adapting and refining to improve the trainee's attainment of the required scientific or technical skills in accordance with the relevant workplace procedures. The activity is likely to be undertaken by someone whose work role carries out science related work activities. This could include individuals working in hospitals, scientific laboratories, schools and universities.

Unit Detail

Performance Criteria

You must be able to:

- P1. Ensure that your work is carried out in accordance with workplace procedures
- P2. Use safe practices and the appropriate personal protection equipment (PPE) when doing scientific or technical activities
- P3. Discuss the training and instruction activities needed with the relevant person or persons
- P4. Analyse the training needs of the individuals to be trained
- P5. Assess and manage risks associated with the training and instruction to be delivered
- P6. Select and prepare training and instruction resources to deliver these activities
- P7. Evaluate and review trainee progress during the training process
- P8. Monitor and refine training activities to improve the trainee's attainment of required scientific or technical skills

- P9. Communicate the required information about the work done, in accordance with departmental and organisational procedures

Scope of the unit

The scope items specified (below) indicate the minimum requirements for this unit. You must

1. Discuss training activities with:

- 1.1 trainee

Plus one of the following:

- 1.2 supervisor
- 1.3 team leader
- 1.4 technical expert
- 1.5 training coordinator
- 1.6 manager
- 1.7 head of department
- 1.8 training provider
- 1.9 head teacher

2. Carry out training for two of the following people:

- 2.1 trainee technician

- 2.2 newly qualified person
- 2.3 technician
- 2.4 teacher
- 2.5 trainer

3. Select and prepare four of the following training requirements:

- 3.1 induction
- 3.2 appraisal or CPD review
- 3.3 off site activity
- 3.4 risk assessment
- 3.5 resources/worksheets
- 3.6 curriculum/course modification
- 3.7 problem solving task
- 3.8 equipment
- 3.9 scientific or technical technique
- 3.10 organisation policy change
- 3.11 department directives

4. Record and communicate details of the work done, to the appropriate people, using:

- 4.1 verbal report

Plus one method from the following:

- 4.2 written or typed report
- 4.3 computer-based record
- 4.4 specific workplace documentation
- 4.5 electronic mail

Knowledge and Understanding

You need to know and understand:

- K1. The health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2. The implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3. The scientific or technical techniques and processes you must use correctly in the workplace
- K4. The importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5. The importance of correct identification, and any unique workplace coding system
- K6. The organisational requirements for maintaining the security of the workplace
- K7. The lines of communication and responsibilities in your department, and the links with the rest of the organisation
- K8. The limits of your own authority and to whom you should report if you have problems that you cannot resolve
- K9. How to assess the scientific or technical skills of new trainees
- K10. How to conduct a training needs analysis
- K11. The checks to be made to ensure trainees can learn safely and apply job skills in the workplace
- K12. How to identify and deliver a training plan for trainees
- K13. How to give trainees on-the-job instruction and supervising their work
- K14. How to assess the trainee's progress in acquiring and applying job skills and skills in working with others
- K15. How to gather trainee feedback on their progress and achievements

- K16. The methods used for giving the training feedback on their progress and achievements
- K17. The procedures for keeping training records
- K18. The procedures for reporting trainees' progress and update performance and development records
- K19. How to work with colleagues and make use of unplanned opportunities
- K20. How to ensure resources are available for training and timescales are realistic
- K21. How to ensure you show fairness, integrity and consistency in your decision making
- K22. What is meant by SMART (specific, measurable, achievable, realistic and time-bound) learning objectives
- K23. How to evaluate effectiveness of training completed and feedback to the relevant people
- K24. The organisational requirements for maintaining the security and confidentiality of any training records kept
- K25. The document control and reporting procedures that should be used
- K26. The reasons why effective communication is important, and the methods used for communicating effectively

Assessor Comments/Feedback

NOTES



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