

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities



Overview

This unit covers the competences you need to plan scientific or technical sampling and testing activities, in accordance with approved procedures and practices. You will be expected to identify and use relevant understanding, methods and skills to complete tasks and address problems that, whilst well defined, have a measure of complexity. You will be expected to initiate and complete tasks and procedures as well as exercise autonomy and judgement within limited parameters. You will also be aware of different perspectives or approaches used within the workplace.

On completion of workplace activities, you will be required to show you have addressed problems that, whilst well defined, may be complex and non-routine. You will be expected to show you have identified, 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.

Your responsibilities will require you to comply with organisational policy and procedures for the scientific or technical operations undertaken, and to report any problems with the activities, materials or equipment that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will be expected to initiate and complete tasks and procedures, including, where relevant, responsibility for supervising or guiding others. You will be expected to exercise autonomy and judgement within limited parameters, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out. You will be expected to work to instructions, with a minimum of supervision, either on your own or as part of a team

Your underpinning knowledge will enable you to use factual, procedural and theoretical understanding to complete scientific or technical tasks and address problems that, whilst well defined, may be complex and non-routine. You will be able to interpret and evaluate relevant workplace information and ideas. You will have an understanding of the scientific or technical process used, and its application, and will know about the equipment, materials and consumables in adequate depth to provide a sound background for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out scientific or technical activities. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities

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

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities

Knowledge and understanding

You need to know and understand:

Sector specific

- 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

You need to know and understand:

Organisation specific

- 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

You need to know and understand:

Equipment/Process specific

- 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 (to include both master documents and working instructions, along with their purpose, content and status)
- K18 how to prepare the plans (to include the structure, style, clarity and

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities

- compliance with relevant standards)
- 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

Additional Information

Scope/range related to performance criteria

You must be able to:

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 reportplus **one** method from the following:
 - 5.2 written or typed report

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities

- 5.3 computer-based record
- 5.4 specific workplace documentation
- 5.5 electronic mail

SEMLATA3-06 - SQA Unit Code H00P 04

Plan scientific or technical sampling and testing activities

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