

## Carry out scientific or technical investigations

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### Overview

This standard 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.

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**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

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### 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

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### Scope/range

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

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