Assessor's Guidelines for the SVQs 2 and 3 Laboratory and Associated Technical Activities SCQF level 6 and 7

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About this guide

This guide provides some practical examples of how to assess your candidates for the **SVQs 2 and 3 in Laboratory and Associated Technical Activities SCQF level 6 and 7**. You may be able to think of other ways of assessing your candidates and recording your decisions about their competence.

Using assessments based on these examples does not guarantee successful verification — it is still your responsibility to ensure that internal quality assurance procedures are followed.

Introduction

This introduction provides a brief overview of SVQs and how they are assessed in the workplace. If you are already familiar with the concept of SVQs, you may wish to go to the next section.

About SVQs and the SCQF

Scottish Vocational Qualifications (SVQs) are work-based qualifications which set the level of occupational competence for each sector of the economy and are usually delivered in the workplace or in partnership with a college or other training provider. The qualifications have been designed by standards-setting bodies made up of experienced practitioners who represent employers, professional bodies, trade unions, education and voluntary organisations.

Each standards-setting body is responsible for developing national standards which define *what* employees (or potential employees) must be able to do, *how well*, and *in what circumstances*, to show that they are competent in their work.

Each SVQ which a standards-setting body develops has to fit into a broad framework which allows qualifications in the UK and throughout Europe to be compared.

There are SVQs for nearly all occupations in Scotland and they are available at SVQ levels 1–5. SVQs are currently notionally placed in the SCQF as the individual SVQs may be at differing SCQF levels and have differing amount of credit points, depending on the structure and context of the SVQ. SVQs are a means of recognising the skills and knowledge people need in employment, ie job competence. Successful completion of an SVQ provides clear evidence that the learner works to nationally recognised occupational standards.

Each Unit defines one aspect of a job or work-role, and says what it is to be competent in that aspect of the job. To be awarded a full SVQ, learners must achieve each of the SVQ Units which make it up by demonstrating that they are competent in that aspect of the job. The Units which make up the SVQ can also be taken as freestanding awards. Some SVQs or SVQ Units are incorporated into other awards or programmes including HNCs and Modern Apprenticeships.

Explanation of levels

SVQ1 (SCQF level 4)	Competence involves the application of knowledge and skills in the performance of a range of varied work activities, most of which may be routine or predictable.
SVQ2 (SCQF level 5)	Competence involves the application of knowledge and skills in a significant range of varied work activities, performed in a variety of contexts. At this level, there will be activities, which are complex or non-routine and there is some individual responsibility and autonomy. Collaboration with others, perhaps through membership of a work group or team, may often be a requirement.
SVQ3 (either SCQF level 6 or 7)	Competence involves the application of knowledge and skills in a broad range of varied work activities, most of which are complex and non-routine. There is considerable responsibility and autonomy, and control or guidance of others is often present.
SVQ4 (either SCQF level 8 or 9)	Competence involves the application of knowledge and skills in a broad range of complex technical or professional work activities, performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.
SVQ5 (SCQF level 11)	Competence involves the application of skills and a significant range of fundamental principles across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountability.

For further information on SCQF go to **www.scqf.org.uk**.

How are standards defined in SVQs?

All SVQs consist of standards which can be broken down into various parts.

Units define the broad functions carried out in the sector, and are made up of a number of Elements. These **Elements** describe the activities which employees have to perform, and will require candidates to demonstrate certain skills or Knowledge and Understanding.

The quality of performance in what people must be able to do — how well they have to perform — is described by **Performance Criteria**. These may also be called **statements of competence** or **what candidates should do**.

The section on **Knowledge and Understanding** says what candidates must know and understand, and how this knowledge applies to their jobs.

You may also come across standards containing statements on **scope**. These statements could, for example, list the equipment that candidates are expected to be familiar with and use in their occupational area.

Increasingly, you may see changes to this format as standards become more user-friendly and are written in plain English. For example, there may be some standards containing **Range Statements** or **Evidence Requirements**, but over time these should disappear. You may, however, find that information on the context, nature and amount of evidence which is required to prove competence (which used to be given in Range Statements and Evidence Requirements) is now defined in the **assessment guidance** for the qualification. Assessment guidance is drawn up by the awarding body and is packaged along with the standards to form the SVQ.

Who is involved in SVQs?

There are several roles:

- **the candidate:** the person who wants to achieve the SVQ (eg an employee)
- **the assessor*:** the person who assesses the candidates and decides if they are competent (eg supervisor)
- **the internal verifier*:** an individual nominated by the centre (eg a company) who ensures that assessors apply the standards uniformly and consistently (eg supervisor's line manager)
- **the External Verifier*:** an individual appointed by SQA who ensures that standards are being applied uniformly and consistently across all centres offering the SVQ

*Assessors and verifiers in centres will be asked by SQA to prove they have the appropriate occupational competence to assess and verify the SVQ. Occupational competence has been defined by the standards-setting body in the Assessment Strategy for this SVQ(s) — see SQA's website: **www.sqa.org.uk**.

Assessors and verifiers are also expected to obtain an appropriate qualification in assessment and verification — this can be the Assessor/Verifier Units (the national standards for assessment and verification), or an alternative qualification which SQA also recognises.

The steps involved in assessing a candidate for an SVQ

In deciding whether a candidate should achieve an SVQ, you will go through these stages:

- planning for assessment
- generating and collecting evidence of the candidate's competence in the Units
- judging the evidence of the candidate's ability and making an assessment decision based on the evidence
- recording the assessment decision and the candidate's achievement

1 The SVQs 2 and 3 Laboratory and Associated Technical Activities SCQF level 6 and 7

The SVQs in Laboratory and Associated Technical Activities have been developed by SEMTA (the Sector Skills Council for Science, Engineering and Manufacturing Technologies in the UK) and are intended for people working in the science and bioscience sectors.

These people may be working as laboratory technicians. They will require skills and knowledge in health and safety, working relationships, using information recording systems, communicating scientific or technical information, carrying out routine maintenance and calibration of scientific or technical equipment, maintaining and preparing stocks, resources and equipment for scientific or technical use or learning activities, preparing samples and carrying out scientific or technical tests and processing to the principles of Good Laboratory Practice (GLP) and/or Good Clinical Practice (GCP)/Good Manufacturing Practice (GMP).

The SVQs are designed to be assessed in the workplace, or in conditions of the workplace. Examples of the settings or centres in which the SVQs are likely to be delivered include: science and bioscience laboratories in the industrial and educational sectors.

Structure of the SVQs

This section lists the Units which form the SVQs in Laboratory and Associated Technical Activities.

SVQ2 in Laboratory and Associated Technical Activities (Industrial Science) SCQF level 6 (GE49 22)

Three mandatory Units and three optional Units, including two from Group A must be completed.

Mandatory Units

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
FY9W 04	5	8	01	Follow Health and Safety Procedures for Scientific or Technical Activities
H00A 04	6	3	02	Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities
H00B 04	6	6	03	Use Information Recording Systems for Scientific or Technical Activities

Optional Units — Group A

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00C 04	6	7	12	Carry Out Simple Scientific or Technical Tests Using Manual Equipment
H00D 04	6	10	13	Carry Out Simple Scientific or Technical Tests Using Automated Equipment
H00E 04	6	8	14	Prepare Scientific or Technical Samples for Testing Activities
H00F 04	6	5	15	Carry Out Sampling Operations for Scientific or Technical Tests

Optional Units — Group B

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00G 04	6	6	04	Carry Out Routine Maintenance, Cleaning and Checking of Scientific or Technical Equipment
H00H 04	6	4	05	Maintain Stocks of Resources, Equipment and Consumables for Scientific or Technical Use
H00J 04	6	12	06	Prepare Compounds and Solutions for Scientific or Technical Use
F7XY 04	6	9	16	Following Aseptic Procedures in the Laboratory Environment

SVQ3 in Laboratory and Associated Technical Activities (Industrial Science) SCQF level 7 (GE4C 23)

Two common mandatory Units and six mandatory/optional Units must be completed.

Mandatory Units

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00K 04	6	9	01	Maintain Health and Safety in a Scientific or Technical Workplace
H00A 04	6	3	02	Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities
H00L 04	6	12	03	Carry Out Scientific or Technical Testing Operations
H00M 04	6	6	04	Access and Communicate Scientific or Technical Information to Authorized Personnel
H00N 04	7	12	05	Provide Technical Advice and Guidance for Scientific or Technical Activities

Optional Units — Group A (minimum of two)

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00P 04	7	8	06	Plan Scientific or Technical Sampling and Testing Activities
H00S 04	7	12	07	Carry Out Complex Scientific or Technical Testing Operations
H00T 04	7	8	08	Carry Out Complex Scientific or Technical Sampling Operations
H00V 04	7	9	09	Carry Out Scientific or Technical Investigations
H00W 04	6	8	10	Carry Out Small Scale Processing
H00X 04	6	8	11	Diagnose Faults, Repair and Maintain Scientific or Technical Equipment for Workplace Activities
F7YH 04	7	16	12	Measuring, Weighing and Preparing Compounds and Solutions for Laboratory Use

Optional Units — Group B

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00Y 04	6	4	13	Maintain and Control Stocks of all Resources, Equipment and Consumables for Workplace Scientific or Technical Activities
H011 04	7	6	14	Make Presentations for Scientific or Technical Activities in the Workplace
H012 04	6	4	15	Assess Your Own Scientific or Technical Knowledge and Skills for Workplace Activities
H013 04	7	8	16	Provide Training for Scientific or Technical Activities in the Workplace
H014 04	8	16	17	Provide Scientific or Technical Leadership for a Workplace Team
F7XY 04	6	9	18	Following Aseptic Procedures in the Laboratory Environment

SVQ3 in Laboratory and Associated Technical Activities (Education Science) SCQF level 7 (GE4A 23)

Mandatory Unit

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H015 04	6	6	19	Evaluate and Provide Scientific or Technical Assistance for Learning Activities

Optional Units — Group A (minimum of three)

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00X 04	6	8	11	Diagnose Faults, Repair and Maintain Scientific or Technical Equipment for Workplace Activities
H013 04	7	8	16	Provide Training for Scientific or Technical Activities in the Workplace
H016 04	7	8	20	Demonstrate Scientific or Technical Methods, Techniques and Skills to Others in the Workplace
H017 04	8	10	21	Improve the quality and reliability of scientific or technical activities in the workplace
H018 04	7	12	22	Test and Evaluate New Scientific or Technical Methods and Equipment for Teaching Activities
H019 04	7	10	23	Provide Technical Support for Computer Application Software and Equipment for learning Activities

Optional Units — Group B

SQA ref	SCQF level	SCQF credit points	SSC ref	Title
H00Y 04	6	4	13	Maintain and Control Stocks of all Resources, Equipment and Consumables for Workplace Scientific or Technical Activities
H011 04	7	6	14	Make Presentations for Scientific or Technical Activities in the Workplace
H012 04	6	4	15	Assess Your Own Scientific or Technical Knowledge and Skills for Workplace Activities
H014 04	8	16	17	Provide Scientific or Technical Leadership for a Workplace Team

An Assessment Strategy for the SVQ

As part of their review of the SVQ(s), the standards-setting body SEMTA has developed an Assessment Strategy which defines a range of requirements:

- the occupational expertise of assessors and verifiers
- a definition of simulation
- definition of the workplace
- information on a model of independent assessment or external quality control

The relevant parts of the Assessment Strategy are published on SQA's website (**www.sqa.org.uk**), and both SQA and centres must comply with these requirements.

Why would people be interested in the SVQ?

People will take SVQs for a variety of reasons: to gain promotion, to prove their job competence, or for personal development. There will be other reasons too. One of the first things to do is to find out why your candidates want to do the SVQ, and to advise them of the appropriateness of the qualification. If anyone is acting as a coach or mentor to your candidates, they might help you to do this.

How do candidates begin?

Choosing the SVQ

You should make sure that candidates get guidance before starting out on an SVQ — they need advice to ensure that their existing job remit, skills, experience, and their plans for progression, are matched to the SVQ selected. It does not have to be you as the assessor, who carried out the matching process, but whoever has responsibility for this should ensure that the assessment opportunities available to the candidate are also considered.

Example

Kevin had worked in the laboratory areas for the company for two years but did not possess any formal qualifications. He wanted to do a qualification which would give him national recognition of the skills he already had. As he had a lot of general experience in the laboratory and also recently had been moved to the sampling and testing area, the Training and Development Manager advised him to consider an SVQ2 in Laboratory and Associated Technical Activities (Industrial Science).

When the T&D Manager matched Kevin's job remit, existing skills and experience with the SVQ, it emerged that Kevin should be able to generate sufficient evidence to meet the requirements of the following SVQ units:

- Follow Health and Safety Procedures for Scientific or Technical Activities
- Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities
- Maintain Stocks of Resources, Equipment and Consumables for Scientific or Technical Use

The T&D Manager arranged for an assessor within the company to provide Kevin with guidance on how to collect evidence and construct a portfolio to achieve these Units.

Kevin also had experience in relation to two further Units, however, some planning was required in order to provide him with the opportunity to demonstrate competence in these areas.

The Units were:

- Use Information Recording Systems for Scientific or Technical Activities
- Carry Out Sampling Operations for Scientific or Technical Tests

The T&D manager arranged for the assessor to accompany Kevin on a tour to observe and assess him for the first of these Units and plans were made to assess the second Unit through a combination of observation, questioning and assessment of work products.

Kevin had little experience of the areas covered by the final Unit, which they agreed would be:

- Prepare Scientific or Technical Samples for Testing Activities

Where Kevin's job remit would not cover all areas of the requirements of the SVQ Units, the T&D Manager arranged for him to attend a local Further Education College and to shadow a senior member of staff for observation and practice in relation to the laboratory.

All these arrangements were agreed by everyone involved and then written up in an assessment plan for Kevin.

2 Preparing to assess the SVQ

This section offers practical advice on how to begin to go about assessing your candidates for the SVQ. This advice is offered as examples of good practice — you may develop your own approaches to assessing your candidates which also work well.

Your role and your candidate's role

Assessing the SVQ will involve several stages. Both you and the candidate should be clear on your roles in the assessment process before you begin.

Your role

- ensure candidates understand what is to be assessed and how it is to be assessed
- ensure the conditions and resources required for assessment are available
- help candidates to identify and gather evidence
- observe and record candidates carrying out the activities described in the standards — records should say what has been observed, how it was carried out, and what it demonstrates
- assess products of the candidate's own work
- question candidates and record results
- help candidates to present evidence
- authenticate the evidence candidates provide
- judge evidence and make assessment decisions
- identify gaps or shortfalls in candidates' competence
- provide feedback to candidates throughout the assessment process
- record achievement

Candidates' role

- prepare for assessment — become familiar with the standards, what is to be assessed and how it is to be assessed
- help to identify sources of evidence and how these could be assessed
- carry out activities, and/or produce products of own work, and/or answer questions
- gather and present evidence
- receive and act on feedback from the assessor

Planning

In planning for assessment, you will find it helpful to meet with your candidate and plan what is to be assessed, in what way, and when and where the assessment is to take place. This discussion can be confirmed in the form of an agreed assessment plan between you and your candidate.

You should treat assessment plans as working documents — they can be updated and changed as you review progress with your candidate.

As you are planning assessment, don't forget to make the most of opportunities to *integrate* assessment. This means planning to assess an activity which draws on the contents of different Units or Elements. It can be a practical and cost-effective way of assessing your candidate's competence.

If you are a new assessor working towards your A/V Units (the national standards in assessment and verification) you will need copies of completed assessment plans as part of your evidence.

To help you plan for assessment, we have produced an assessment plan which covers Units:

- Follow Health and Safety Procedures for Scientific or Technical Activities
- Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities

You will notice that we have included spaces to enter dates when the assessment plan has been reviewed. Any gaps identified during these reviews should be discussed with your candidates and noted for action in the assessment plan.

Assessment plan

Units	01 — Follow Health and Safety Procedures for Scientific or Technical Activities 02 — Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities
Elements	

Activities	**Performance Criteria (PC)**	**Method of assessment/ Sources of evidence**	**Date of assessment**	**Evidence already available**	**Links to other Units (PC and range)**
Routine laboratory work, including contributions to the team as it covers the daily workload (taking into account current health and safety practices)	01 (a)-(h) 02 (a)-(d), (f), (g), (i)	Observation Witness testimonies Personal statement Witness testimonies	23/01/12 25/01/12 23/01/12 25/01/12	Successful completion and certification of in-house training Successful completion and certification of in-house training Performance review	03 (a), (f)-(i) 05 (a), (b), (k) 14 (a), (b), (g)-(i) 15 (a)-(d), (g)
Questioning for knowledge and understanding not apparent from performance to be identified from 2nd review	01 (i) 02 (e), (h)				

Assessor's signature Diane Morgan **1st review due** 30/01/12

Candidate's signature Kevin McDonald **2nd review due** 13/02/12

Date of agreement 09/01/12 **Date of completion**

Selecting methods of assessment

The methods of assessment you use should be valid, reliable and practicable.

- By *valid* we mean that the assessment method should be appropriate to the standards.
- By *reliable* we mean that the assessment method should ensure consistent results when used with different candidates, different assessors and on different occasions.
- By *practicable* we mean that the method ensures that the assessment makes best use of available resources, equipment and time.

Before you assess a candidate, you must make sure that the methods of assessment you have chosen to use, along with any assessment materials (such as questions and sample answers) have been agreed within your centre through its system of internal quality assurance. This system is often called *internal verification* — its purpose is to help to ensure that assessment methods are valid, reliable and practicable.

There are both benefits and challenges when you are assessing SVQs in the workplace, or in conditions of the workplace. When you select methods of assessment, you should try to offer the candidate the benefits of workplace assessment and minimise any potential difficulties.

The benefits might be:

- familiarity/good relationship between candidate and assessor
- familiar surroundings, equipment and working environment
- assessment progresses at candidate's pace of learning
- can be planned around routine working practices
- can take advantage of rare opportunities to gather evidence, eg fire alarm, spillages, etc

The challenges might be:

- shift working, preventing candidate and assessor working at the same time
- too busy due to deadlines/pressure of work/staff shortages/interruptions
- lack of production
- confidentiality/restricted access

Example

You might agree with a candidate who works in a laboratory and has to demonstrate how to prepare a sample for a scientific or technical testing activity that this will be carried out by observation when the candidate is next due to carry out a suitable procedure. If you are an assessor working in this area, then you should be well placed to observe the candidate's performance. It is normal during observation to use a prepared checklist, and if necessary to question the candidate afterwards. However, the environment (eg a clean area) may be such that the paperwork may have to be completed after the assessment. In such a case, an expert witness may be the best person to observe the activity. The expert witness must meet the criteria specified in the appropriate Science Assessment Strategy.

Methods of assessment

Assessment may involve a range of assessment methods. For SVQs, some of the most commonly used methods are observation, product evidence, and questioning.

Observation

Observation by an assessor is considered to be the most valid and reliable method of assessment. It can be organised in a variety of ways:

- working alongside the candidate
- arranging to visit when naturally-occurring activities are carried out by the candidate
- arranging for activities to take place

Observation by the assessor can often be supplemented by other types of assessment methods such as questioning. For example, it may be appropriate to ask oral questions of candidates as they carry out naturally-occurring activities.

The best way of observing a candidate's competence is by working together over a period of time. This allows the assessor to record the consistency of the candidate's performance, rather than placing the emphasis on a series of single assessments.

Observation could be used to demonstrate the candidate's competence in decontamination and disposal of waste products using safe working practices. This would give the assessor the opportunity to authenticate the candidate's evidence against the Performance Statements.

Product evidence

As candidates work towards achieving the SVQ, they will produce evidence in the form of products of their work. The nature of this evidence can vary widely depending on what the candidate's job entails, but examples of product evidence include:

- stock records
- laboratory log book or data sheets
- completed batch records to GMP standards
- computer records from company's information system

Product evaluation can be used when the procedure being assessed is fairly lengthy and it may not be possible for the assessor to shadow the candidate for this length of time. The candidate would be set the task and assessed on the final result, ie the work product. This would be decided when the assessor has judged that the candidate has shown the required skills over a period of time. The assessor must be satisfied that the evidence produced is authentic, valid and reliable.

Questioning

Candidates have to show that they can meet the knowledge specifications for the SVQs. For these SVQs, Knowledge and Understanding is specified for each Unit. Much of a candidate's knowledge and understanding will be apparent from what they do or produce as part of their work, but this will not always be the case, and questioning can be a useful way of confirming what candidates know and understand.

Questions can be asked in a variety of forms, such as oral questions, short answer written questions, and multiple-choice.

You should be careful that the method of questioning does not go beyond the competence required for the SVQ and become a barrier to fair assessment. For example, some candidates will feel more comfortable with oral questions than written.

Q Why must you wear protective clothing in the laboratory?
A To ensure that personal clothing does not become contaminated, to provide a barrier to infective agents and chemicals and to protect the sample.

Q What is the importance of Standard Operating Procedures?
A To ensure that all personnel follow the same procedure and use correct equipment.

Q If a product to be used in a laboratory procedure is found to be out of date, what would you do?
A The relevant form would be completed, the material removed from stock and placed in the quarantine area. A new batch which is in date would be used for the procedure.

Other methods of assessment

These methods, like questioning, are often used for authentication. See Section 3 for more about authenticating candidates' evidence.

Personal statements

You might sometimes find it helpful to ask a candidate to give an account of why they did an activity in a certain way or how they produced a product of their work. This is often referred to as a *personal statement*. You should take care to ensure that by asking candidates to produce such statements, you are not asking them to demonstrate competence beyond what is required by the standards. You should also be selective in the use of personal statements, and make sure they have not been produced as a substitute to a more valid, reliable and practical method of assessment.

A personal statement describes how the candidate has dealt with a specific, perhaps unplanned situation, when the assessor has not been available to witness the situation. The personal statement should be confirmed by a reliable witness and/or further questioning by the assessor to authenticate it as valid.

Another example may be when the candidate produces a storyboard about a relevant task during the course of their work, eg calibrating a balance, disposal of waste material, etc.

Witness testimony

For practical reasons, you may not be able to observe all the activities carried out by your candidates, but might feel that other people may be able to provide a statement on what your candidates have been doing or producing as part of their work. Statements of this kind are called *witness testimony*, and are often used to support other evidence produced by candidates. If witness testimony is used, you should, ideally, identify witnesses and opportunities for using their testimony as part of assessment planning.

You should bear in mind that the weight of the evidence will vary, depending on the knowledge and expertise of the person providing the witness testimony. You will have to take these factors into account as you make your judgement.

Strongest	Someone with considerable occupational expertise in the candidate's area of work and who is familiar with the standards. This person may also be an assessor or internal verifier qualified with the A/V Units or 'D-Units'.
	Someone with considerable occupational expertise in the candidate's area of work and who is familiar with the standards.
	Someone with considerable occupational expertise in the candidate's area of work, but with no knowledge of the standards.
	Someone who may be a colleague of the candidate, but with no knowledge of the standards.
Weakest	Someone with no or little knowledge of the candidate's work or no knowledge of the standards.

Witness testimony is unlikely to be sufficient in itself for a decision about the candidate's competence, and would normally be supplemented by questioning candidates.

Witness testimony can be used when it is not possible for the assessor to be present or available. The witness must have expertise in the area being assessed and have been given guidance into the SQA procedures and standards. The assessor may not have detailed knowledge of certain systems or equipment that others in the team have, and therefore it may advisable to utilise the knowledge of an expert witness in order to carry out the assessment, or provide questions regarding the underpinning knowledge required to confirm competence.

It is not necessary for the expert witness to hold assessor qualifications, as the qualified assessor must make the assessment decision based on the evidence submitted. However, if the expert witness is likely to be used on a regular basis, it would be good practice to encourage them to gain the appropriate assessor award.

Simulation

Simulation is any structured assessment exercise involving a specific task which reproduces real-life situations.

On some occasions, it may not be practical to assess a candidate in real work. Examples might be where the standards require candidates to carry out emergency or contingency procedures, or where client confidentiality is an issue, or where a candidate's job role does not cover all aspects of the qualification.

SEMTA has defined what it regards as simulation, and has specified in the standards when simulation is and is not acceptable. The standards also state when candidates must demonstrate competence in the workplace.

For more details on simulation and what constitutes performance in the workplace, look at the Assessment Strategy on SQA's website: **www.sqa.org.uk**.

Examples where simulation is acceptable include:

- emergency scenarios
- health, safety and environmental issues
- infrequent operations at work
- the response to faults and problems for which no opportunity has presented for the use of naturally-occurring workplace evidence of candidate competence

Other sources of evidence

Other sources of evidence can be previous experience or learning, case studies or assignments.

SQA's *Guide to Assessment* (see section 5) has more advice on methods of assessment and how to ensure that your assessment is valid, reliable and practicable.

3 Generating evidence

The methods of assessment you use should generate sufficient evidence to demonstrate the candidate's competence.

We described earlier the circumstances in which you might choose to use different methods of assessment. Starting on the next page, this section gives you examples of forms which you can use to record and present evidence of:

- observation (by the assessor)
- questions and candidate responses
- personal statement (produced by the candidate)
- witness testimony

There are blank forms which you can copy and use in assessment in Appendix 1.

Observation

For observation, note that the form asks you to record the skills and activities observed. This helps you to make a judgement on how the activity was carried out and what it demonstrates.

Observation record

Unit	01 Follow Health and Safety Procedures for Scientific or Technical Activities
Candidate	Kevin McDonald
Evidence index number	1
Date of observation	23/01/12

Skills/activities observed	**Performance Criteria covered**
The candidate identified all health and safety regulations and guidelines relevant to his area of responsibility. This included internal policy and procedures and the Health and Safety at Work Act. This information was gained by approaching the health and safety officer who indicated the correct documentation. The candidate was observed photocopying the relevant pages of policy. The candidate was observed delivering a brief presentation to his team during a health and safety training session. This presentation highlighted the team's duties and responsibilities. This involved discussing a variety of issues with team members, including how the team can make improvements to the work environment and the procedures for dealing with accidents such as spillages, as this was the area that colleagues felt unsure of. It was agreed that the candidate would approach the relevant line manager for clarification and guidance on the process.	(b), (g) 1.1-1.5

Knowledge and understanding apparent from this observation
Sector specific: S1-S5 Organisation specific: O1-O6
Equipment/Process specific: E1, E2, E4-E10

Other Units/Elements to which this evidence may contribute
O2 (a), (b), (f), (i) O3 (a), (j), (h) O5 (a), (b), (i) 14 (a), (b), (g), (h) 15 (a), (b)

Assessor's comments and feedback to candidate
The above evidence was gathered during the routine working day. You have demonstrated competence in the area of maintaining a healthy, safe and productive environment. However, in order to identify consistency, we shall need to observe the same or similar performance again during normal work practices. Nonetheless, you have done extremely well, both in practical performance and in backing this up with underpinning knowledge.

I can confirm the candidate's performance was satisfactory.

Assessor's signature Diane Morgan **Date** 30/01/12

Candidate's signature Kevin McDonald **Date** 23/01/12

Questions and candidate responses

This form can be used to record any questions you might ask the candidate to establish what they know and understand. You should note the candidate's responses on this form too.

Note that there is a space near the top of the form for you to record when, where, how and why you asked the questions.

Where you want to give the candidate written questions, this form could also be used.

Record of questions and candidate's answers

Unit	02 Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities
Element(s)	e, g 2.1, 3.2, 3.3 S1-S3, O3-O6, E2-E6
Evidence index number	2
Circumstances of assessment	
Ensuring all knowledge and understanding is covered. Much had been covered during direct observation sessions and witness testimony on previous occasions. The function of this method of assessment is to ensure that the candidate fully understands why it is important to work effectively with colleagues in their own team and with supervisors/managers	
List of questions and candidate's responses	
Q	What would you do if asked to use a piece of equipment which you felt you were not trained to use?
A	I would not attempt to use the equipment without first approaching my supervisor and asking for help and training according to SOPs.
Q	How would you deal with a conflict between team members?
A	The standards of work and behavior expected need to be made clear to team members. You need to be available to discuss and deal with problems as soon as they arise, in ways which minimize disruption and bad feeling. You need to be aware of your own limitations in dealing with certain situations and know when to refer to your supervisor. In some cases it may be necessary to keep an accurate record of conflict situations and how you resolved them
Q	How would you gain the trust and support of your colleagues?
A	You need to consult with them on proposed activities, keep them informed about your work and offer the appropriate support when required. You need to ensure you treat then with respect, keep promises made to them and discuss issues with them frankly and openly.
Q	
A	

Assessor's signature Diane Morgan **Date** 30/01/12

Candidate's signature Kevin McDonald **Date** 30/01/12

Candidate’s personal statement

If a personal statement is being used as evidence, it should be completed by the candidate. The statement should record what they did, how and why they chose to carry out an activity or produce work in a certain way. Where other people may have been present during an activity and they may be able to provide witness testimony, the candidate should record how the statement links to other evidence in the column provided.

Personal statement

Date	Evidence index number	Details of statement	Links to other evidence (enter numbers)	Unit, Elements, Performance Criteria, Performance statements, scope covered
23/01/12	3	Before starting my work, I put on my lab coat and the necessary PPE. I prepared the work area according to the company's SOPs. I then collected the industrial samples, identified, labelled and prepared them for testing according to the company's SOPs. I then informed a colleague who collected them to be put through the various testing procedures. All remaining hazardous chemical material was transferred and stored appropriately until it could be disposed of. I cleaned the work area and disposed of the contaminated cleaning equipment according to the company's SOPs. I then completed the necessary paperwork, copied it and passed this to my supervisor.		O1 (a), (b), (c), (g), (h) 1.1, 1.2, 2.2, 2.3, 2.14 O2 (a), (b), (c), (f), (i) 1.2-1.4, 2.1, 2.2, 3.3, 4.3 O3 (a), (g), (h), (i) 1.1, 2.1, 2.3, 2.5, 2.6, 5.3 O5 (a), (b), 3.1, 3.2 14 (a)-(i) 1.2, 1.3, 2.3, 2.8, 3.1, 3.3, 4.1, 4.3 15 (a)-(g) 1.1-1.8, 2.1-2.5, 3.1, 3.2, 4.1, 4.3

Candidate's signature Kevin McDonald **Date** 23/01/12

Witness testimony

Remember when you begin to use witness testimony that it must be capable of being authenticated — even if the testimony itself is being used to authenticate a candidate's claim to competence.

To make sure the witness testimony is genuine, you must ensure that you have a record of who is acting as a witness, their relationship to the candidate (eg supervisor, client) address, telephone number and the date. There are spaces for this information in the form.

Witness testimony

SVQ title and level	SVQ2 Laboratory and Associated Technical Activities (Industrial Science) SCQF level 6
Candidate's name	Kevin McDonald
Evidence index no	4
Index no of other evidence which this testimony relates to (if any)	1, 3
Element(s)	O1 (d), (g), (h), (i), 1.1, 1.5, 2.2, 2.4, 2.14, 3.1 O2 (c), (f), (i), 1.4. 2.2, 4.1, 4.3
Date of evidence	25/01/12
Name of witness	Brian Miller
Designation/relationship to candidate	Supervisor

Details of testimony

While I was about to receive the samples for testing from Kevin, who was clearing up after preparation of the samples, he dropped a container of hazardous material which then leaked out over the floor. He immediately located the hazard notice stand to isolate the area to ensure no other staff could enter the area. He contacted his supervisor to inform her of the hazard, located the spillage kit and instructions and dealt with the accident appropriately. He then filled in the necessary documentation and passed it on to his supervisor.

I can confirm the candidate's performance was satisfactory.

Witness's signature *Brian Miller* **Date** *25/01/12*

Witness (please select the appropriate box)**:**

☐ Holds A1/A2 or D32/D33 qualifications

☑ Is familiar with the SVQ standards to which the candidate is working

Filling the gaps

There may come a time when your candidate has provided evidence for most of the Unit (or SVQ), but there are some gaps. For example, you may find that certain situations, such as handling contingencies, have not arisen during assessment. Often these will relate to dealing with health and safety issues, or unexpected problems with workflow like delays in receiving information from another part of the organisation.

In this SVQ, such gaps are likely to occur in generating evidence for:

- dealing with emergency or hazardous situations
- a specific part of the process due to shift patterns/work rota

You may be able to overcome these by:

- simulation/questioning
- storyboards written by the candidate to confirm their knowledge and understanding
- change of shift/secondment to another department

Guidance and support to candidates

At all times during the assessment process — from planning through to making your assessment decision — feedback should be on-going, clear and constructive. Feedback should be given against the national standards by relating it to the evidence provided, including the knowledge specifications.

Where there are any shortfalls in a candidate's competence, you should discuss these with your candidate and make plans for re-assessment.

Judging candidate evidence and making an assessment decision

In judging candidate evidence, you must be satisfied that your candidates can work consistently to the required standard, and that the evidence they have produced is their own. You must consider whether your candidate understands and applies the knowledge evidence and how this links to performance evidence.

Evidence must:

- be relevant to the SVQ
- be authentic
- show current competence
- be sufficient to help you form a decision about the candidate's competence

Insufficient evidence

You have to judge whether the candidate has produced enough evidence required by the standards for you to reach a decision about their evidence.

Where there is insufficient evidence, you should say this to your candidate. You should tell them that it is not that they are not yet competent — there is simply not enough evidence on which to make a decision.

In this situation, your feedback to your candidates must help them produce more evidence and/or plan for further assessment.

Authenticating candidates' evidence

Authentication is required where you have not observed candidates' performance at first hand.

You can check whether a candidate has produced evidence which they claim shows their competence by questioning them or, if this is appropriate, asking them to produce a personal statement, using witness testimony, or seeking peer reports from other colleagues of the candidate.

Example

Your candidate may produce evidence that is of a higher quality than you have either seen them produce before or expected them to be capable of, eg a difficult technique. While you should be reluctant to dismiss the evidence out of hand, it is not unreasonable to:

- ask a senior colleague for a witness testimony
- use questions and answers to consolidate the candidate's knowledge and understanding of the technique
- ask the candidate to demonstrate the technique again in order to confirm the result can be reproduced and the reliability of competence

4 Recording achievement

You should retain all evidence — clearly referenced — for internal and external verification.

The candidate's evidence is normally kept in a file, often called a *portfolio*. These documents help you and your candidates to collect, present and cross-reference the evidence to the national standards. They are also a means of recording your assessment decisions, and they tell an External Verifier what stage a candidate has reached in achieving the SVQ.

Examples of recording documents are included in these guidelines and in Appendix 1.

Recording documents do not need to be paper-based — it is possible to use an electronic format for collecting and structuring the evidence. Whatever format you and your candidates choose to use, the documents must show what evidence was generated, the assessment decisions you made, how the evidence meets the standards, and where the evidence can be located. You should avoid photocopying items simply to put them in a portfolio — a clear explanation of where the evidence can be found (for example, in a filing cabinet) may be sufficient for the External Verifier to follow it up and include it in the visit.

There are various reasons why record-keeping is so important:

- it provides a way of tracking a candidate's progress in achieving an SVQ
- it helps candidates to make claims for certification of their competence
- internal verifiers and External Verifiers use the records to sample assessment decisions
- it helps us to monitor the quality assurance of our qualifications

If your candidates' evidence is incomplete, or cannot be located, or if there is inaccurate cross-referencing to the standards, there is a risk that an internal verifier or External Verifier will be unable to confirm your assessment decisions.

To help you and your candidate present evidence and record your assessment decision, we have provided examples of the forms which you and your candidate might use to compile the portfolio.

- Completing the Unit progress record
- Using the evidence index
- Completing the Element achievement record

These forms are also used in SQA's portfolio.

Completing the Unit progress record

You should complete this form each time your candidate achieves a Unit from the SVQ by adding your signature and the date next to the relevant Unit.

At this stage, candidates should make sure they have completed the recording documents correctly and that their evidence can be easily located. Only then should they circle the relevant Unit number at the top of the form. This enables both of you to see at a glance what stage the candidate is at in their SVQ.

Unit progress record

Qualification and level SVQ2 Laboratory and Associated Technical Activities (Industrial Science) SCQF level 6

Candidate Kevin McDonald

To achieve the whole qualification, you must prove competence in three **mandatory** Units and three **optional** Units.

Unit Checklist

Mandatory	01	02	03						
Optional	05	14	15						

Mandatory Units achieved

Unit number	Title	Assessor's signature	Date
01	Follow Health and Safety Procedures for Scientific or Technical Activities	Diane Morgan	29/02/12
02	Maintain Effective and Efficient Working Relationships for Scientific or Technical Activities	Diane Morgan	29/02/12
03	Use Information Recording Systems for Scientific or Technical Activities		

Optional Units achieved

Unit number	Title	Assessor's signature	Date
05	Maintain Stocks of Resources, Equipment and Consumables for Scientific or Technical Use	Diane Morgan	29/02/12
14	Prepare Scientific or Technical Samples for Testing Activities		
15	Carry Out Sampling Operations for Scientific or Technical Tests		

Using the index of evidence

The purpose of the index of evidence is to help you locate and work through the candidate's evidence. It should give you a summary of what evidence the candidate has collected, and where (eg in a portfolio) it can be found.

The index of evidence should be completed by entering:

- the index number for each piece of evidence
- a description of each piece of evidence
- the place or location where it can be found
- the initials of the internal verifier and the date (if they have sampled the candidate's evidence)

Ideally, it should be candidates themselves (with your support and encouragement) who complete the index.

You must make sure that the information in the evidence index is accurate when your candidates' portfolios are presented for assessment and verification — particularly the information about where the evidence can be located. This is important because we suggest that anything which has been produced as day-to-day work is kept in its normal location, but anything which has been produced through assessment for the SVQ, eg observation checklists, is filed in the candidate's portfolio. In this way, your candidate can avoid having to photocopy work products just for the sake of including them in a portfolio. It also means that evidence produced as a result of assessment is kept safely in a central file.

If the index of evidence is not completed with an accurate description and location of the evidence, there is a risk that an internal verifier or External Verifier might be unable to confirm your assessment decisions.

Index of evidence

SVQ title and level	SVQ2 Laboratory and Associated Technical Activities (Industrial Science) SCQF level 6

Evidence number	Description of evidence	Included in portfolio (Yes/No) If no, state location	Sampled by the IV (initials and date)
1	Observation	Yes	AS 31/05/12
2	Question and answer	Yes	AS 31/05/12
3	Personal statement	Yes	AS 31/05/12
4	Witness testimony	Yes	AS 31/05/12

Completing the Element achievement record

To help you and your candidates cross-reference the evidence to the standards of the SVQs, we have provided records similar to those produced in the SQA portfolio. Use one record for each Element. The grids should be completed by:

- entering the evidence index number in the first column
- giving a brief description of the evidence in the second
- ticking the relevant boxes for the Performance Criteria (or statements of competence as they are sometimes known)
- entering the areas of knowledge and understanding the piece of evidence covers

If integrated assessment is used (linking PCs or Elements across different Units) the evidence should be cross-referenced back to the relevant Units.

We have provided a completed example to show how to use the record.

Element achievement record

Unit 02 Maintain Effective and Efficient Working Relationships for Scientific and Technical Activities

Element

Evidence index no	Description of evidence	PC/performance statements									Areas of knowledge and understanding/scope								
		a	b	c	d	e	f	g	h	i	1.1	1.2	1.3	1.4	2.1	2.2	3.3	4.1	4.3
1	Observation	x	x				x			x	x			x	x		x	x	
2	Questions and answers					x		x							x		X		
3	Personal statement	x	x	x			x			x		x	x	x	x	x	x		x
4	Witness testimony			x			x			x				x		x		x	x

Unit 02 Maintain Effective and Efficient Working Relationships for Scientific and Technical Activities

Element

Evidence index no	**Description of evidence**	**Knowledge statements**																
		S1	S2	S3	O1	O2	O3	O4	O5	O6	E1	E2	E3	E4	E5	E6	E7	E8
1	Observation	X	X	X	X													
2	Questions and answers	X	X	X			X	X	X	X		X	X	X	X	X		
3	Personal statement	X		X	X			X	X									
4	Witness testimony	X		X	X				X									

Unit Maintain Effective and Efficient Working Relationships for Scientific and Technical Activities

Element

Notes/comments

Areas still to covered are:
Performance statements (d), (h)
Knowledge statements O2, E1, E7, E8

Evidence of Knowledge and Understanding will not be required for those scope items that have not been selected by the candidate (Science Assessment Strategy)

Some of this could be covered by including evidence from in-house training and certificated courses, expanding on the evidence already submitted, more evidence being generated, and/or more questioning.

Evidence for the above must be submitted and checked by the assessor before this Unit can be signed off by the verifier.

The candidate has satisfied the assessor and internal verifier that the performance evidence has been met.

Candidate's signature Kevin McDonald **Date** _____

Assessor's signature _____ **Date** _____

Internal verifier's signature _____ **Date** _____

5 Further information

What else should I read?

The publications listed here provide additional information on how to implement SVQs. Details of these and other SQA publications are available on our website at **www.sqa.org.uk** on the 'Publications, Sales and Downloads' section. They can be ordered from SQA's Business Development and Customer Support Team — telephone 0303 333 0330. Please note that there may be a charge for some of these publications.

Assessor/Verifier Units: assessment guidance

External Verification: A Guide for Centres

Guide to Assessment

Introduction to Assessment Arrangements for Schools and Colleges

SQA's Quality Framework: a guide for centres

Operational Help Centre

The Operational Guide for Centres has been replaced by the online Operational Help Centre on **www.sqa.org.uk**

Appendix 1: Blank recording forms

Unit progress record

Qualification and level _____

Candidate _____

To achieve the whole qualification, you must prove competence in xx **mandatory** Units and xx **optional** Units.

Unit Checklist

Mandatory									
Optional									

Mandatory Units achieved

Unit number	Title	Assessor's signature	Date

Optional Units achieved

Unit number	Title	Assessor's signature	Date

Index of evidence

SVQ title and level	

Evidence number	Description of evidence	Included in portfolio (Yes/No) If no, state location	Sampled by the IV (initials and date)

Element achievement record

Unit

Element

Evidence index no	Description of evidence	PC/performance statements						Areas of knowledge and understanding/scope													

Unit

Element

Evidence index no	Description of evidence	Knowledge statements																					

Unit

Element

Notes/comments

The candidate has satisfied the assessor and internal verifier that the performance evidence has been met.

Candidate's signature _____ **Date** _____

Assessor's signature _____ **Date** _____

Internal verifier's signature _____ **Date** _____

Assessment plan

Units	
Elements	

Activities	**Performance Criteria (PC)**	**Method of assessment/ Sources of evidence**	**Date of assessment**	**Evidence already available**	**Links to other Units (Performance Criteria and Range)**
Questioning for knowledge and understanding not apparent from performance to be identified from 2nd review					

Assessor's signature _____ **1st review due** _____

Candidate's signature _____ **2nd review due** _____

Date of agreement _____ **Date of completion** _____

Personal statement

Date	Evidence index number	Details of statement	Links to other evidence (enter numbers)	Unit, Elements, Performance Criteria, Performance statements, scope covered

Candidate's signature _____ **Date** _____

Observation record

Unit/Element(s) _____
Candidate _____
Evidence index number _____
Date of observation _____

Skills/activities observed	**Performance Criteria covered**

Knowledge and understanding apparent from this observation

Other Units/Elements to which this evidence may contribute

Assessor's comments and feedback to candidate

I can confirm the candidate's performance was satisfactory.

Assessor's signature _____ **Date** _____

Candidate's signature _____ **Date** _____

Witness testimony

SVQ title and level	
Candidate's name	
Evidence index no	
Index no of other evidence which this testimony relates to (if any)	
Element(s)	
Date of evidence	
Name of witness	
Designation/relationship to candidate	
Details of testimony	

I can confirm the candidate's performance was satisfactory.

Witness's signature _____ **Date** _____

Witness (please select the appropriate box)**:**

☐ Holds A1/A2 or D32/D33 qualifications

☐ Is familiar with the SVQ standards to which the candidate is working

Record of questions and candidate's answers

Unit	
Element(s)	
Evidence index number	
Circumstances of assessment	
List of questions and candidate's responses	
Q	
A	
Q	
A	
Q	
A	
Q	
A	
Q	
A	

Assessor's signature _____ **Date** _____

Candidate's signature _____ **Date** _____