



PROBLEM SOLVING
SCQF Level 3
40 Hour Unit

CORE SKILLS UNIT

ASSESSMENT SUPPORT PACK

Part 1: Information for tutors

What is involved?

Problem Solving at SCQF level 3 is about using skills to solve problems in personal, workplace, social and educational situations. The focus of the Unit is on transferable problem solving skills:

- ◆ critical thinking
- ◆ planning and organising
- ◆ reviewing and evaluating

This Unit is designed for delivery in schools, colleges, workplaces, community and other learning environments.

At this level, learners are expected to be able to work with simple problems and will require support to carry out the activities. The Unit is designed for those who have little or no skill and experience in using problem solving skills.

Learner motivation can be maximised by making the problem solving activities as relevant as possible to the learner's likely uses for problem solving. The activities should be drawn from the learner's personal, workplace, social or educational situation. Additionally, integration of the problem solving activities with those of other SQA qualifications being undertaken should be explored. For example, where a learner is undertaking other National Qualifications, motivation for problem solving can be increased if the activities are related to these National Qualifications and the learner can see the direct relevance of the problem solving. If you do decide to adopt this approach, separate records of assessment decisions must be kept for this Unit and evidence for this Unit should be clearly accessible.

Assessment and evidence

Learners at SCQF level 3 are required to deal with finding a solution for a simple situation or issue in a context which is simple and familiar to them. They will need support to carry out the activities required. You should try to identify naturally-occurring opportunities for assessment where possible. For learners who are also working towards vocational Units or subject specific Units, opportunities for assessment of problem solving skills could arise while completing tasks which provide evidence for both the vocational/subject specific Unit and this Unit. Some of the exemplars in this pack could be used or contextualised for this purpose.

Assessment is likely to be by one or more of:

- ◆ written tasks;
- ◆ oral questioning;
- ◆ observation.

Assessment of the unit should be based as far as possible on the everyday activities of the learner. You can find guidance in Part 2 of this pack on suitable assessment activities.

When you are assessing by observation, it is essential to keep a detailed checklist. When you are assessing by oral questioning, you must keep a copy of the questions asked and the answers given.

All items of evidence must be signed and dated by you.

Part 3 of this pack supplies exemplar forms which you can use to record successful completion of each of the unit tasks. You can sign and date these as the learner achieves each task to keep a record of the learner's progress.

Critical Thinking

You will support the learners to recognise and analyse the main factors affecting a simple situation or issue in a context which is familiar to them. There will be a small number of obvious variables and the relationship between these variables will be clear to the learners. If the simple situation or issue is less familiar to the learners, then these variables will be given by you. With your support and/or the support of others, as necessary, the learners will identify a process which will provide a solution to the problem.

Planning and Organising

You will support the learners in deciding on a course of action in which they work out a sequential action plan to deal with the problematic situation or issue. At this level the, action plan should include a small number of clear steps indicating activities to be undertaken. If the problem is less familiar to the learners these steps should be ones selected by the tutor which would be familiar to the learners. You should discuss resources with the learners and these should be selected from a familiar range appropriate to the task.

Resources might include sources of information, set procedures, people, equipment and physical resources. Once the sequential action plan has been worked out you will support the learners in carrying out this plan. This could include the allocation of some activities to others.

Reviewing and Evaluating

On completion of the activities you will support the learners in identifying the strengths and weaknesses of their action plan. You should use simple, given criteria for this and should encourage learners to be aware that the skills they have used in solving this problem are transferable to other problematic situations or issues in the wider context of life. Examples of criteria you might use are keeping within time allocation, using appropriate resources and keeping within a budget.

Evidence from the learners for each of the problem solving skills will take the form of a log of the activities undertaken. You should retain other supporting evidence, notes of discussions, minutes or records of meetings.

Questionnaires for example should also be retained along with observation checklists. Examples are given in Part 3.

Planning

You should work out where opportunities for meeting the standard are likely to arise. Where possible this should be built into the assessment process. You should discuss this assessment process with the learners so that they are quite clear about what is expected from them.

Guidance on the Unit

What learners need to know or be able to do

The Unit states that on completion the learner will know how to:

- ◆ recognise the main factors affecting a simple situation or issue (eg What are the causes of the problem? Why has the situation arisen? Who is involved?);
- ◆ decide on a course of action to solve the problem, asking for help from others, if appropriate (eg their tutor; other learners);
- ◆ work out an action plan to deal with the problem (eg What are the activities involved? In which order should the activities be done? Who should do each activity? Are there any limitations they must work within? Do they need permission to carry out any activities in their action plan?);
- ◆ choose the resources they will need to carry out the action plan (eg equipment, information, money, help from other people);
- ◆ carry out the action plan, checking it is complete;
- ◆ decide how effective their solution to the problem was, using criteria suggested by the tutor (eg Did you recognise the factors affecting the problem? Did the plan run to time? Did everyone carry out their allotted activities? Did they allocate enough resources?);

Assessment guidance, together with some suggested activities, is contained in Part 2

You can break the Unit down into three areas:

- ◆ critical thinking
- ◆ planning and organising
- ◆ reviewing and evaluating

The notes contained in the following paragraphs provide general guidance on the steps involved in meeting the requirements for these three stages.

Critical Thinking

Learners will be able to demonstrate their ability to apply critical thinking as the first stage of the skill of problem solving. At this level they will need support with the task. Learners will be able to investigate and analyse a simple situation or issue to identify the main factors which affect the problem. These factors may include identifying causes of the problem, looking at why the situation has arisen and identifying who is involved. Learners will need to know which resources are available to them so they can carry out their plan. They should be aware of time constraints and any other limitations. Resources may include information, money, equipment and help from other people.

Planning and Organising

Learners will be able to use the results of their critical thinking to work out a sequential action plan to deal with the problem. At this level they will need support with the task. In the sequential action plan learners will be able to clearly identify what activities need to be done, who should do them, the order in which activities need to be carried out and if permission is required for any of the activities. They will also identify any limitations that may affect their plan, eg financial constraints or problems with availability of personnel. Learners will be able to identify appropriate resources required and will indicate a timescale to be followed. When the action plan is in place, the learners and any others involved will then be able to put it into practice. At this stage learners will be able to demonstrate simple task management skills such as deciding who should do what activities.

Reviewing and Evaluating

Once all the activities specified in the action plan have been completed, the learner will be able to decide on the effectiveness of the problem solving process. At this level they will need support with the task. Simple criteria for evaluating the overall success of the action plan will be given by you the tutor. These include keeping to a timescale, using appropriate resources and effective allocation of activities. Learners will be able to focus on the strengths and weaknesses of what they have done in the light of the chosen criteria and will be able to recognise that the skills they have developed in their problem solving activities can be transferred to other life contexts. Problem solving skills may be used in personal and social situations as well as in practical situations involving household organisation and budgeting.

Gathering evidence

It may be appropriate for you to gather written evidence produced by the learner while carrying out the practical activities. However, written evidence is not essential for this Unit and is inappropriate if it disadvantages the learners.

You may wish instead to use oral questioning. This requires you to create and complete record sheets comprising a checklist, questions asked and learners' responses.

From the learner's point of view, it is useful to have the means of keeping all the work of this Unit together. You can help here by creating and providing a workbook which includes all the evidence-gathering items. An alternative would be to provide worksheets which can be made into a portfolio.

If you have chosen to integrate the problem solving work with that of other Units being undertaken by the learners, it may be possible to assess the problem solving as part of a larger single activity. In this case you must keep separate records for this Unit.

The Unit requires learners to investigate a problem in a personal, workplace, social or educational situation, draw up and carry out an action plan to solve the problem and finally review how effective their problem solving activity has been.

This may be achieved in many ways. Some typical activities might be:

- ◆ The learner's DVD player is not working properly. They consult the instruction manual; ask a friend's advice; work methodically through checking the components to identify the source of the problem.
- ◆ At school/college the learner finds that they are overwhelmed with assignments all due within the next two weeks. They look at the assignments, their relationship to other school/college work, the time they have available and suggest a rescheduled timetable to their teachers/tutors.
- ◆ Customers often supply the learner's work placement with the wrong information. They look into this and find out that some of their colleagues send out letters to customers which are not clear. They design a template letter which tells customers exactly what is required.

Learners must use only one problem situation to prove that they can do all of the tasks in this Unit. They should not gather evidence from different problem situations for different tasks.

Part 2: Assessment Guidance

You can use the information given in this section in several ways:

- ◆ to help identify the type and amount of evidence which the learner needs to produce;
- ◆ to help identify the level of complexity in evidence required for the Core Skill at this level;
- ◆ to help you to create an assessment task related to the learner's own situation;
- ◆ to use as an off-the-shelf assessment;

At this level learners are expected to investigate a simple problem, draw up and carry out an action plan to solve the problem and finally review how effective the problem solving activity has been. The learner may have written evidence, such as notes of discussions, the action plan itself, records of activities which undertaken and thoughts on how well things went. In addition, the tutor can/may ask questions and make notes or a recording of what the learner has said.

Learners must complete all three stages of the problem solving task. These are:

- ◆ critical thinking
- ◆ planning and organising
- ◆ reviewing and evaluation

Learners must use only one problem solving situation to prove they can do all the tasks in this Unit. At this level learners will need support throughout.

Some possible contexts for the task are suggested overleaf.

Part 3 contains generic exemplar record sheets which you may use as they are. However, you may also adapt these to reflect the detail of the tasks you decide to set.

Task – using skills to solve simple problem

Personal/social context

You have bought a flat-pack bookcase and have assembled it in a hurry. You realise that it does not look like the picture on the box and will not stand straight and you will have to rebuild it.

Here are some of the tasks which you might have to carry out:

- 1 Take the book case apart and collect all the parts together.
- 2 Find the picture on the box and the instruction manual.
- 3 Read the manual carefully right through.
- 4 Check you have all the parts in the pack.
- 5 Check you have any tools required for assembly.
- 6 Contact a friend who is practical and has experience of assembling flat-packs.
- 7 Build the bookcase following the instructions in the manual.
- 8 Check it is finished by referring to the picture, manual and its ability to function as a bookcase.

Educational Context

As part of one of your college units you have to carry out an investigation into a social issue. Decide on an issue to investigate and the best way to undertake your investigation. You will need to consider how best to find information, any resources you might need, time and financial constraints and if you need to obtain permission for any of your activities.

Here are some of the tasks which you might have to carry out:

- 1 Make a list of possible topics and select one.
- 2 Decide where you can get information relating to your topic.
- 3 Check how long you have to do your research.
- 4 Work out how much any research will cost.
- 5 Organise any resources you will need, eg a PC.
- 6 Carry out your research.
- 7 Write up your findings.
- 8 Look back over what you have done to decide if you did your investigation well.

Workplace Context

Your company is situated in a fast growing industrial estate which has recently doubled in size. There have been complaints from new customers and suppliers that the instruction leaflet explaining how to find your company is unhelpful and your company is difficult to find. Your task is to look at how the current directions can be improved to take account of the new developments around your premises.

Here are some of the tasks which you might have to carry out:

- 1 Look at the existing directions.
- 2 Investigate new road and building layouts which have been built since the original directions were put together.
- 3 Find out the directions from which customers/suppliers are likely to travel.
- 4 Plan how the new directions should be laid out.
- 5 Decide how the information should be presented.
- 6 Find resources you will need to proceed.
- 7 Produce new instruction leaflet.
- 8 Check with colleagues, customers and suppliers to find if it is helpful.

As the tutor, you might find it useful to think about these elements when you are managing the activity:

Critical Thinking: Stage 1 of the problem solving activity

- ◆ you encourage the learner to think of situations where they have been called upon to solve problems;
- ◆ you explain the problem solving process in the light of the learner's prior experiences;
- ◆ you explain how the Unit will be assessed, eg by learners keeping logs and/or providing written notes; you observing and asking questions;
- ◆ the learner, with your support, considers the problem solving task and identifies factors which affect the situation, eg what are the causes of the situation, who is involved, why the situation has arisen;
- ◆ the learner, with your support and help/information from any others involved, decides on a course of action to solve the problem.

Planning and Organising: Stage 2 of the problem solving activity

- ◆ you help the learner to work out an action plan of activities to help them solve the problem
- ◆ you help the learner to identify and obtain any resources they need;
- ◆ the learner works through the activities in the action plan or monitors any other person who has been allocated an activity;
- ◆ with your help the learner checks the activities in the action plan have been completed.

Reviewing and Evaluating: Stage 3 of the problem solving activity

- ◆ you help the learner to decide how effective the action plan has been by suggesting criteria such as did the plan keep to time, did everyone carry out their allotted activities and did you allocate appropriate resources?
- ◆ the learner reviews the action plan focusing on its strengths and weaknesses;

Part 3: Exemplar recording documentation

This section provides sample forms which can be used by the learners and tutor to gather evidence and record assessment decisions.

Record Sheets

Record sheets are provided for each of the three stages of the unit:

- ◆ Task 1: Critical Thinking
- ◆ Task 2: Planning and Organising
- ◆ Task 3: Reviewing and Evaluating

The learners can provide written answers on these forms. Alternatively, if you use oral questioning, you may use them to write down the learners' answers.

Assessment Checklists

You can use these to record the learners' achievement through each task: each checklist identifies the skills which learners must demonstrate.

Summary Checklist

The summary checklist enables you to record the results from the assessment checklist on a single form.

Assessment record sheets

Learner:	
Tutor:	Date:
What is the problem you have been given to solve?	
Stage 1: Critical thinking — Investigating a problem	
What are the main factors affecting your problem? You should give at least three factors such as what are the causes of the problem, why has the problem arisen and who is involved?	
What can you do to solve the problem?	
Who will you need to help you with this?	
Tutor comments:	
Tutor signature:	Date:

Learner:	Tutor:	Date:
Stage 2: Planning and Organising — Work out an action plan		
<p>Work out an action plan to solve your problem. You should use the appropriate column of the sheet below to record what you do. You should show what activities need to be done in the order they should be carried out and you should identify who needs to carry out each activity. This could be you or someone else. You should note any limitations, such as time or cost, to your plan and also identify the resources you will need to use.</p> <p>When your plan is complete, check with your tutor before putting the plan into action. Keep a record of what you do and when you do it as you complete the different activities.</p>		
What needs to be done?		
Who will do it and/or will help?		
What resources are needed?		
Limitations		
Record of what is done		
Tutor's comments		
Tutor signature:		Date:

Learner:	Tutor:	Date:
Stage 3: Review and Evaluate — decide how effective your action plan has been		
<p>Now you have completed your action plan to solve your problem decide how effective your solution to the problem has been. You should think about the strengths and weaknesses of different parts of your plan and how it worked out. Your tutor will suggest what parts of your solution you should look at. Keep a record of your review and evaluation on the sheet below using the appropriate columns.</p>		
Tutor's criteria		
Strengths		
Weaknesses		
Tutor's comments		
Tutor signature:		Date:

Assessment checklist

Learner:	
Checklist for Critical Thinking	
Skills	Achieved
Recognise the main factors affecting a simple situation or issue	
Decide on a course of action to solve the problem, asking for help from others, if appropriate	
Tutor signature:	Date:

Learner	
Checklist for Planning and Organising	
Skills	Achieved
Work out an action plan to deal with the problem	
Choose the resources you will need to carry out the action plan	
Carry out the action plan, checking it is complete	
Tutor signature:	Date:

Learner	
Checklist for Reviewing and Evaluating	
Skills	Achieved
Decide how effective your solution to the problem was, using criteria suggested by your tutor	
Tutor signature:	Date:

Summary checklist

Learner:	
Learner number:	
Centre:	
Problem Solving Access 3	Date achieved
Critical Thinking	
Planning and Organising	
Reviewing and Evaluating	
Tutor signature:	Date:

Part 4: Information for learners

As you work through this Unit, your tutor will need to gather evidence to prove that you have demonstrated all the problem solving skills.

This can be done by:

- ◆ your tutor asking you questions
- ◆ you writing a short report
- ◆ you filling in a work book, worksheet or diary
- ◆ you keeping records of any relevant activities such as discussions or meetings

By the end of the Unit you must show that you can:

- ◆ recognise the main factors affecting a simple situation or issue (eg What are the causes of the problem? Why has the situation arisen? Who is involved?);
- ◆ decide on a course of action to solve the problem, asking for help from others, if appropriate (eg your tutor; other learners);
- ◆ work out an action plan to deal with the problem (eg What are the activities involved? In which order should the activities be done? Who should do each activity? Are there any limitations you must work within? Do you need permission to carry out any activities in your action plan?);
- ◆ choose the resources you will need to carry out the action plan (eg equipment, information, money, help from other people);
- ◆ carry out the action plan, checking it is complete;
- ◆ decide how effective your solution to the problem was, using criteria suggested by your tutor (eg did you recognise the factors affecting the problem? Did the plan run to time? Did everyone carry out their allotted activities? Did you allocate enough resources?).

These are some of the things you might do to provide the evidence:

- ◆ Your DVD player is not working properly. You consult the instruction manual; ask a friend's advice; work methodically through checking the components to identify the source of the problem.
- ◆ At school/college you find that you are overwhelmed with assignments all due within the next two weeks. You look at the assignments, their relationships to other school/college work, the time you have available and suggest a rescheduled timetable to your teachers/tutors.
- ◆ Customers often supply your work placement with the wrong information. You look into this and find out that some of your colleagues send out letters to customers which are not clear. You design a template letter which tells customers exactly what is required.

Learners with disabilities and/or additional support needs

The additional support needs of individual learners should be taken into account when planning learning experiences, selecting the most appropriate assessment activity and considering any reasonable steps which might be necessary to allow the learner to meet the assessment standard.

Further advice can be found in SQA's Assessment Arrangements' web pages (www.sqa.org.uk)

ADMINISTRATIVE INFORMATION



Credit Value

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