



PROBLEM SOLVING
SCQF Level 3
40 Hour Unit (F3GD 09)

CORE SKILLS UNIT

ASSESSMENT SUPPORT PACK

Part 1: Information for tutors

What is involved?

Problem Solving 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. The Unit can be broken down into the following:

- ◆ 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 work involved. 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. The activities should relate to the learner's personal, workplace, social, or educational situation. In addition, 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 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 to a simple situation or issue in a context that is simple and familiar to them. They will need support to carry out the problem solving activity.

Learners must use only one problem solving activity to prove that they can meet all of the requirements of the Unit. They should not gather evidence from different problem solving activities.

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 interests of the learner. You can find guidance in Part 2 of this pack on suitable assessment examples.

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 stage of the assessment. You can sign and date these to keep a record of the learner's progress.

There are three stages to the problem solving process that are assessed by this Unit: the critical thinking stage, the planning and organising stage, and the reviewing and evaluating stage.

Critical thinking

You will support learners to recognise and analyse the main factors affecting a simple situation or issue in a context that 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, learners will identify a process that will provide a solution to the problem.

Planning and organising

You will support learners in deciding on a course of action and in preparing an action plan to deal with the problem. At this level the action plan should include a small number of clear steps. If the problem is less familiar to the learners then these steps should be ones selected by the tutor that 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 problem solving activity. Resources might include sources of information, set procedures, people, equipment, and physical resources. Once the action plan has been worked out you will support learners in carrying it out. This could include the allocation of some steps to others.

Reviewing and evaluating

On completion of the problem solving activity you will support learners in identifying the strengths and weaknesses of their action plan. You should use simple, given criteria for this and encourage learners to be aware that the skills they have used in solving this problem are transferable to other 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 could take the form of a log of the steps undertaken. You should retain other supporting evidence, eg notes of discussions, minutes or records of meetings, questionnaires, and observation checklists. Examples are given in Part 3.

Guidance on the Unit

What learners need to know or be able to do

The Unit states that learners will:

- ◆ recognise the main factors affecting a simple situation or issue (eg what are the causes of the problem and why has the situation arisen)
- ◆ decide on a course of action to solve the problem, asking for help if they need it (eg from their tutor or other learners)
- ◆ work out an action plan to deal with the problem (eg what steps do they need to do and in which order should the steps be done)
- ◆ choose what they need to carry out the action plan (eg equipment, information, money, or help from other people)
- ◆ carry out the action plan, checking it is complete
- ◆ decide how effective their action plan was using a checklist suggested by their tutor (eg did their action plan run to time and did they have enough resources)

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

The notes contained in the following paragraphs provide general guidance on each of the three stages.

Critical thinking

Learners will be able to demonstrate their ability, with support, to apply critical thinking to the first stage of the problem solving process. Learners will be able to investigate and analyse a simple situation or issue to identify the main factors that affect the problem. These factors may include identifying the causes of the problem, looking at why the situation has arisen, and identifying who is involved. Learners will need to know what resources are available to them so they can carry out their action 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, with support, to work out an action plan to deal with the problem. In the action plan learners will be able to clearly identify what steps need to be carried out, who should do them, the order in which they need to be carried out, and if any permission is required. They will also identify any limitations that may affect their action plan, eg financial constraints or short timescales. Learners will be able to identify the appropriate resources required and will indicate a timescale to be followed. When the action plan is in place, the learner will 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 which steps.

Reviewing and evaluating

Once all the steps identified in the action plan have been completed, learners will be able to decide, with support, on the effectiveness of the action plan. Simple criteria for evaluating the overall success of the action plan should be given by the tutor. These may include keeping to a timescale, using appropriate resources, and effective allocation of steps. Learners should be able to focus on the strengths and weaknesses of what they have done in light of the chosen criteria.

Gathering evidence

Learners must use only one problem solving activity to prove that they can meet the requirements of the Unit. They should not gather evidence from different problem solving activities. At this level, learners will need support throughout. It may be appropriate for you to gather written evidence produced by learners while carrying out the problem solving activity. However, written evidence is not essential for this Unit and is inappropriate if it disadvantages the learner. You may wish instead to use oral questioning. This requires you to create and complete record sheets comprising a checklist, questions asked, and the learner's 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 that includes all the evidence-gathering items. An alternative would be to provide worksheets that 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 (which could be 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 action plan has been.

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

- ◆ The learner's DVD player is not working properly. He/she consults the instruction manual, asks a friend's advice, and works methodically through checking the components to identify the source of the problem.
- ◆ At school/college the learner finds that he/she is overwhelmed with assignments all due within the next two weeks. The learner looks at the assignments, their relationship to other school/college work, and the available time, and suggests a rescheduled timetable to his/her teachers/tutors.
- ◆ Customers often supply the learner's work placement with the wrong information. The learner looks into this and finds out that some of his/her colleagues send out letters to customers that are not clear. The learner designs a template letter that tells customers exactly what is required.

Disabled learners and/or those with additional support needs

The additional support needs of individual learners should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Part 2: Assessment guidance

You can use the exemplar assessments given in this section in several ways:

- ◆ to help identify the type and amount of evidence that 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 create an assessment task related to the learner's own situation.

Some possible contexts for the problem solving activity are suggested overleaf. Part 3 contains generic exemplar record sheets and assessment checklists that you may use as they are. However, you may also adapt these to reflect the detail of the problem solving activity.

Using skills to solve a simple problem

Contexts

Personal/social context

The learner is asked to solve the following problem:

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 steps within the action plan that the learner 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 all the parts are in the pack.
- 5 Check you have the 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 and the manual, and checking its ability to function as a bookcase.

Educational context

The learner is asked to solve the following problem:

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 steps.

Here are some of the steps within the action plan that the learner 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 selected topic.
- 3 Check how much time there is to do your research.
- 4 Work out how much any research will cost.
- 5 Organise any resources you will need, eg a computer.
- 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

The learner is asked to solve the following problem:

Your company is situated in a fast-growing industrial estate that 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 steps within the action plan that the learner might have to carry out:

- 1 Look at the existing directions.
- 2 Investigate the new road and building layouts that 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 the resources you will need to proceed.
- 7 Produce a new instruction leaflet.
- 8 Check with colleagues, customers, and suppliers to find out if it is helpful.

Stages

As the tutor, you might find it useful to think about these points when you are managing the assessment.

Critical thinking: Stage 1 of the problem solving activity

- ◆ You could encourage the learner to think of situations where they have been called upon to solve problems.
- ◆ You could explain the problem solving process in the light of the learner's prior experiences.
- ◆ You could explain how the Unit will be assessed, eg by the learner keeping logs and/or providing written notes.
- ◆ You could observe and ask questions.
- ◆ The learner, with your support, will consider the problem solving activity and identify factors that affect the situation, eg what are the causes of the situation, who is involved, and why has the situation arisen.
- ◆ The learner, with your support and help/information from any others involved, will decide on a course of action to solve the problem.

Planning and organising: Stage 2 of the problem solving activity

- ◆ You could help the learner to work out an action plan of steps to help him/her solve the problem.
- ◆ You could help the learner to identify and obtain any resources needed.
- ◆ The learner will work through the steps in the action plan.
- ◆ You could help the learner check that the steps in the action plan have been completed.

Reviewing and evaluating: Stage 3 of the problem solving activity

- ◆ You will help the learner to decide how effective the action plan has been by suggesting criteria such as did the action plan keep to time, did everyone carry out their allotted steps, and did you allocate appropriate resources.
- ◆ The learner will review the action plan, focusing on its strengths and weaknesses.

Part 3: Exemplar recording documentation

This section provides sample forms that can be used by learners and tutors to gather evidence and record assessment decisions.

Assessment record sheets

Assessment record sheets are provided for each of the following stages:

- ◆ Stage 1: Critical thinking
- ◆ Stage 2: Planning and organising
- ◆ Stage 3: Reviewing and evaluating

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

Assessment checklists

You can use these to record the learner's achievement through each stage. Each checklist identifies the skills that learners must demonstrate.

Summary checklist

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

Assessment record sheet – Stage 1

Learner:	
Tutor:	
Stage 1: Critical thinking	
What is the problem you have been given to solve?	
What are the main factors affecting your problem? You could consider 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:

Assessment record sheet – Stage 2

Learner:			Tutor:	
Stage 2: Planning and organising				
Work out an action plan to solve your problem. The headings at the top of the first four columns ask for information on your action plan. The last column is for you to keep a record of what happened as you carried out your action plan.				
What needs to be done? You should show what steps need to be carried out in the correct order.	Who might I need to ask for help, advice, or information?	What resources might I need?	What limitations are there? Consider the effect limitations such as time or cost might have.	What happened? As you carry out the steps in your action plan make a note of what happened.
Tutor comments:				
Tutor signature:			Date:	

Assessment record sheet – Stage 3

Learner:	
Tutor:	
Stage 3: Reviewing and evaluating	
Now you have completed your action plan to solve your problem decide how effective your action plan has been. You should think about the strengths and weaknesses of different parts of your action plan and how it worked out. Keep a record of your review and evaluation on the sheet below using the appropriate columns.	
Tutor's criteria	
Strengths	
Weaknesses	
Tutor comments:	
Tutor signature:	Date:

Assessment checklists

Learner:	
Checklist for Stage 1: 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 you need it	
Tutor signature:	Date:

Learner	
Checklist for Stage 2: 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 Stage 3: Reviewing and evaluating	
Skills	Achieved
Decide how effective your action plan was, using criteria suggested by your tutor	
Tutor signature:	Date:

Summary checklist

Learner:	
Learner number:	
Centre:	
Problem Solving at SCQF level 3	Date achieved
Critical thinking	
Planning and organising	
Reviewing and evaluating	
Tutor signature:	Date:

ADMINISTRATIVE INFORMATION

Credit value

6 SCQF credit points (1 SQA credit) at SCQF level 3



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