



PROBLEM SOLVING
SCQF Level 4
40 Hour Unit (F3GD 10)

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 straightforward problems and will require limited support to carry out the work involved. The Unit is designed for those who have some experience in solving simple and routine problems.

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 4 are required to deal with finding a solution to a situation or issue that is straightforward and familiar to them. They will need your support to decide on an approach to solve the problem and with identifying suitable evaluation criteria when they have completed their 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 that 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

Learners will recognise and analyse the main factors affecting a straightforward situation or issue in a context that is familiar to them. There will be a small number of variables and the relationships between them will be clear to the learners. Learners will then evaluate the situation by summarising, explaining, or drawing conclusions. From this evaluation learners will devise a strategy to deal with the situation. There may be several possible strategies/approaches and with your support learners will devise the most appropriate one. Approaches should be obvious, straightforward, and may include making a simple change to a known process.

Planning and organising

Learners will each develop an action plan. The relationships between the component steps should be clear. The action plan will be linear and will include appropriate resources familiar to the learners. Resources might include sources of information, set procedures, people, equipment, and physical resources. Once the action plan has been worked out you will support the 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 the learners will decide on a small number of criteria to identify the strengths and weaknesses of their action plan. You should 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 the 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:

- ◆ identify the main factors affecting a straightforward situation or issue (eg what are the causes)
- ◆ consider what could be done and then decide on an approach to solve the problem and, if it's appropriate, ask for information and help from others (eg their tutor or other learners)
- ◆ work out an action plan to deal with the problem (eg what steps are involved, in which order should the steps be done, who should do each step, are there any limitations that must be worked within, and is permission needed to carry out any steps in the action plan)
- ◆ choose and obtain the resources needed to carry out the action plan (eg equipment, information, money, and input from other people)
- ◆ carry out the action plan and check whether it is complete
- ◆ identify the strengths and weaknesses of their action plan (eg did the action plan run to time, did everyone carry out the steps they were given, and were their resources appropriate to the steps)
- ◆ based on this experience, draw conclusions and, if appropriate, consider alternative ways of solving similar problems in the future

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 to apply critical thinking to the first stage of the problem solving process. They will be able to investigate and analyse a straightforward 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 may ask for information or help from others, eg the tutor, and will be able to decide on an approach to solve the problem. Learners may need some support with deciding on an approach.

Planning and organising

Learners will be able to use the results of their critical thinking 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 needs to do them, the order in which they need to be carried out, and if any permission is required. Learners will be able to identify any limitations that may affect their action plan, eg financial constraints or availability of personnel. Learners will be able to choose and obtain any resources needed to carry out the action plan and will indicate a timescale to be followed. When the action plan is complete learners will be able to put it into practice and either undertake steps themselves or oversee the completion of steps where they have been allocated to others.

Reviewing and evaluating

Once all the steps specified in the action plan are complete and the solution to the problem has been reached, learners will be able to decide on the effectiveness of their action plan. Learners, with the support of the tutor, will be able to decide on simple criteria for evaluating the success of the action plan. They may choose, for example, criteria such as keeping to a time schedule, allocating resources, and allocating steps to others. Learners will then apply the selected criteria to the action plan and be able to focus on the strengths and weaknesses of the action plan. Having carried out this evaluation learners may suggest alternative ways of solving similar problems in the future.

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 may need some support with deciding on a problem solving approach and identifying criteria for reviewing and evaluating. 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 wants to redecorate his/her bedroom. The learner decides which tasks need to be done by himself/herself or trades people, chooses materials, and works out a timetable and budget.
- ◆ The learner wants to learn how to speak Spanish for his/her holiday next year. The learner researches the types of courses available, the costs, locations, level of difficulty, class times, etc, and decides on the option which is most suitable.
- ◆ The learner keeps running out of the parts required for a particular repair job at work. He/she looks at the reasons for this and sets up a system for re-ordering parts to make sure parts are always available.
- ◆ The learner is deciding on course choices for the next school session. The learner researches what subjects would be the most appropriate for his/her choice of career or move to further/higher education on leaving

school. The learner makes a choice of subjects based on the information he/she has gathered.

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 straightforward problem

Contexts

Personal/social context

The learner is asked to solve the following problem:

A popular neighbour is leaving the area and you are organising a farewell meal for approximately 20 people. You will need to find a venue for this event taking into account cost, location, suitability of premises, and variety of menus to cater for different tastes and cultural requirements.

Here are some of the steps within the action plan which the learner might have to carry out:

- 1 Contact neighbours to find out preferences and cultural requirements.
- 2 Summarise what you have found out and decide how best to proceed.
- 3 Make a list of restaurants in your area.
- 4 Contact restaurants for details of costs, menus, premises, and availability.
- 5 Make a note of your findings and reject any that are unavailable or unsuitable.
- 6 Contact neighbours with your findings to find most popular choice.
- 7 Contact restaurant to book meal.
- 8 Inform neighbours of time/place.
- 9 Collect deposit.
- 10 Confirm numbers with restaurant and pay deposit.

Educational context

The learner is asked to solve the following problem:

You will soon complete a National Qualification at your local college, but have found the travelling very time-consuming. Research the types of courses available to you when you have completed your present course, looking at the subjects available, levels of difficulty, costs, equipment needed, and assessment requirements. Choose the option that is most suitable for you.

Here are some of the steps within the action plan which the learner might have to carry out:

- 1 Use the internet to find out which colleges offer distance learning versions of the types of courses you might be interested in following.
- 2 Make a note of the information on each course – cost, enrolment dates, support provided, resources you would need, such as a computer, etc.
- 3 Contact friends to find out if any have experiences of distance learning.
- 4 Draw up a short list of the five courses which look most suitable.
- 5 Contact colleges for further details of these five courses.
- 6 Think about questions you will need to ask, eg support available, assessment procedures, and software requirements.
- 7 Arrange to call in to or telephone colleges and discuss with course tutors the details of your chosen course.
- 8 Find out if funding is available for you.
- 9 Decide which course you would most like to do.

Workplace context

The learner is asked to solve the following problem:

The canteen in your workplace has recently introduced a new range of healthy menus; unfortunately the response to this has not been as good as expected. You have been asked to publicise the new menus within the workplace.

Here are some of the steps within the action plan which the learner might have to carry out:

- 1 Find out about the new range of foods.
- 2 Decide how you can best market the new range of food.
- 3 Decide where to distribute/display publicity.
- 4 Devise publicity materials.
- 5 Organise any resources you may need.
- 6 Create publicity materials.
- 7 Distribute publicity materials.
- 8 Evaluate the success of your campaign.

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 discuss the problem solving process in 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 will consider the problem solving activity and identify some 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 identify some potential approaches to solving the problem and decide on a course of action to solve the problem.

Planning and organising: Stage 2 of the problem solving activity

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

Reviewing and evaluating: Stage 3 of the problem solving activity

- ◆ You could help the learner to decide how effective the action plan has been by suggesting and agreeing criteria that the learner can use to review and evaluate the action plan, such as did the action plan keep to time, were the steps in the action plan logical, was anything missed out, and were appropriate resources allocated.
- ◆ The learner will review the action plan, focusing on its strengths and weaknesses.
- ◆ The learner will use the results of the review and evaluation to draw conclusions about how effective the action plan has been, what has been learned, and how this will impact on his/her approach to solving similar problems in the future.

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 what are the causes of the problem, why has the problem arisen, and who is involved.	
Suggest ways in which you could solve this problem then decide on which you think is the best approach to take.	
You might need some information, advice, or help from others. Who might you need to help you?	
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	
<p>With your tutor, decide what criteria you can use to review and evaluate your problem solving skills. You should consider both the critical thinking and planning and organising stages. What were the main strengths of your action plan? Did you decide on the best approach to solving your problem, did you follow all the steps in your action plan, and did you identify the correct resources?</p> <p>What were the main weaknesses of your action plan? Did you miss anything out at the planning stage?</p> <p>Based on your experience, what conclusions can you make about how effective your action plan was? If appropriate, what alternative ways of solving a similar problem might you consider in future?</p>	
Criteria	
Step of action plan	
How effective was it? What were the strengths and weaknesses?	
What evidence do you have to support your evaluation?	
Tutor comments:	
Tutor signature:	Date:

Assessment checklists

Learner:	
Checklist for Stage 1: Critical thinking	
Skills	Achieved
Identify the main factors affecting a straightforward situation or issue	
Consider what could be done and then decide on an approach to solve the problem, asking for information and help from others, if appropriate	
Tutor signature:	Date:

Learner:	
Checklist for Stage 2: Planning and organising	
Skills	Achieved
Work out an action plan to deal with the problem	
Choose and obtain 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
Identify the strengths and weaknesses of your action plan	
Based on your experience with the problem solving activity, draw conclusions and, if appropriate, consider alternative ways of solving similar problems in the future	
Tutor signature:	Date:

Summary checklist

Learner:	
Learner number:	
Centre:	
Problem Solving at SCQF level 4	Date achieved
Stage 1: Critical thinking	
Stage 2: Planning and organising	
Stage 3: Reviewing and evaluating	
Tutor signature:	Date:

ADMINISTRATIVE INFORMATION

Credit value

6 SCQF credit points (1 SQA credit) at SCQF level 4



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