

Problem Solving

Section I: Analysing the Problem

[INTERMEDIATE 2]

Part 1: Introduction to the section	3
Part 2: Some activities to get you started	5
Part 3: Mini project	11
– Evaluating the mini project	14
Part 4: Assessment tasks 2–6	15

Introduction to the section

This section is the first of a series of three self study packs that are intended to guide you through the skills required to complete Problem Solving at Intermediate 2.

The whole series is composed of the following sections:

- Section One:* Analysing the problem
Section Two: Planning your project
Section Three: Evaluating your project.

The sections should be worked through one after the other.

You are encouraged to integrate your work in Problem Solving with other study areas where feasible. However, you must discuss this with your subject tutors before you begin any work.

Assessment explained

This first section will cover the first outcome.

Problem Solving (Intermediate 2), Outcome 1:

You will need to

- break the problem down into 'bite-sized' pieces
- decide how to go about tackling the problem in a series of steps or stages
- be able to explain why the approach you have taken will work.

Aims and objectives of this section

This section will help you to:

- understand what is meant by Problem Solving activity
- understand how to break down a problem into manageable pieces.

By the end of this section, you should be able to:

- identify a non-routine issue that can be used as a Problem Solving activity for the purposes of this section
- break this problem down into at least three factors
- develop an overall approach to a Problem Solving activity.

Symbols used in the pack



This symbol denotes a numbered Self Assessed Activity – a short exercise that you are encouraged to do for yourself. Comment and feedback for all the Activities can be found on the following page, but you should try to do the Activity before reading this. Your responses don't need to be shown to your tutor.



This denotes a Tutor Assessed Activity. These are different from Self Assessed Activities because there is no comment given after them (the tools for answering Assessment Tasks are included in the section however) and you should show this work to your tutor. Your tutor will mark this work and give you feedback.



This symbol denotes a Tutor Checkpoint and alerts you to the fact that it is now time to meet your tutor to discuss your progress. (There is further explanation of this on the page on Attendance/tutor contact requirements in the Student Introductory Guide.)

Tutor support

Although you may be studying Problem Solving at Intermediate 2 as a flexible learning student, this does not mean that you have no support. Please do not hesitate to contact your tutor about any problems you are having, and talk to him/her about any parts of the section that are unclear.

Possible solution

Did you consider the following?

- What type of placement matches your skills and experience?
- What kind of organisation would you like to work for?
- How much time do you want to devote to a work placement?
- How much time are you required to spend in the placement?
- Are you restricted to a specific geographical area because of transport considerations?
- Will you have to make any special arrangements with the placement in terms of a contract or health and safety checks?
- Will you need to provide your own protective clothing or safety footwear?
- Were there other factors that you considered relevant to your own vocational area?

Problem B**Case study**

Carole has a two-year-old son called Ben. She was an administration assistant before she stopped working three years ago. She has enjoyed being at home with Ben for the past two years but is now considering going back to work. She is not sure about what kind of childcare facilities are available and is anxious about leaving Ben all day. She isn't really sure how much she will earn or how much childcare will cost. She is concerned about how working might change the benefits that she is entitled to. Although she enjoyed her work and was good at it, she has lost a bit of confidence and thinks that some of her IT skills are out of date.

There is more than one problem here. What do you think the problems are?

1. _____

2. _____

3. _____

4. _____

Suggest possible solutions to these problems.

1. _____

2. _____

3. _____

4. _____

Suggested answers are on page 8.

Suggested answers for Problem B

There is more than one problem here. You may have suggested:

1. Carole needs information about childcare.
2. Her confidence needs building up.
3. She needs to update her IT skills.
4. She needs to talk to someone about her benefits.

Possible solutions might be:

1. Most Social Work Departments have an under 5s Coordinator, so she could phone or make an appointment to talk to that person.
2. She could do a 'back to work' course. Most colleges have these and most courses include an element of confidence building.
3. Again, there will be courses she can do to help her with this. Most of them provide free childcare.
4. She should make an appointment to speak to someone from the Benefits Agency or Job Centre.

T

These activities should have convinced you that you already have many of the skills required for problem solving.

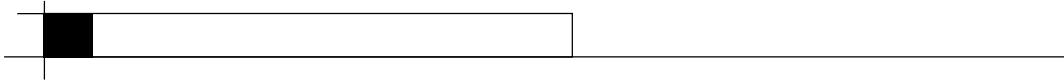
Problem solving isn't just about solving puzzles. It is about how you tackle the problems that face you in your everyday life at home, at school or college and at work. Now rate your own problem solving skills.

Tick the box that describes most accurately your level of confidence when you have to:

	1	2	3	4
1. Cope well with everyday problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Be methodical about your approach to problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Talk to people you don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Work on your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Work in a group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Find out information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Manage your time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Set a deadline and work towards it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Look at your own work critically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Learn from mistakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | |
|---|---|-----------------------|
| 1 | = | I can't do this |
| 2 | = | I find this difficult |
| 3 | = | I can just manage |
| 4 | = | I can do this |

Which of the above problem solving skills could you improve upon?





Mini project

The main part of this unit requires you to solve a problem of your own choosing. In order to practise some of the skills that you will need, select a mini project topic from the list below. The mini project should take no more than 3–5 hours to complete.

Topics:

- Plan a holiday for a group of friends or for your family
- Design a health information leaflet for Primary 7 children. (The subject may include healthy eating, dental hygiene or smoking.)
- Design a study programme for yourself
- Agree another topic with your tutor.

My mini project topic will be:

Once you have selected a problem try to break it down into bite-sized pieces. For example, when planning a holiday there are lots of factors to think about – when, where and how much the holiday will cost.

Suggest three key factors that you will have to consider in order to solve the problem:

1. _____

2. _____

3. _____

The solution to this problem will have to fulfil certain criteria. You should therefore make a list of **musts** and **wants**. **Musts** are the basic requirements without which the solution will be unacceptable. **Wants** are those qualities that are desirable in any solution.

For example:

Margaret and Eleanor are looking for a bigger flat nearer to where they both work. Their musts and wants are as follows:

Musts	Wants
Within five miles of work	Older property with some character
Two bedrooms	Carpets included
Less than £60,000	Good decor
Good standard of fixtures and fittings	

What are the musts and wants for your solution?

Musts

Wants

How will you tackle the problem? What are your key steps?

I will:

1. _____
2. _____
3. _____
4. _____

(Add further steps if necessary.)

How long will each key step will take you?

1. _____
2. _____
3. _____
4. _____

You will need (resources such as the library or access to the Internet):

1. _____
2. _____
3. _____
4. _____

Go ahead now and complete the tasks that you have set yourself.

Evaluating the mini project

How did you get on with the mini project? Did you find a successful solution? Look back at your 'musts' and 'wants' and decide how far you succeeded.

Musts (how far did I succeed?)

Wants (how far did I succeed?)

Did you encounter any problems? If so how did you tackle them?

What did you learn from completing the mini project?

If you had to do this task again, what would you change about your approach?

Beginning the assessment tasks

The first problem that you will have to tackle in this section is selecting a problem that you will have to work on for the purposes of the assessment.

That's right – you will have to set a problem for yourself.

The process will be much more valuable to you if you work on a problem that is related to your area of study. For example, if you are studying Business Administration the problem that you select might be:

- To produce a PowerPoint presentation

or

- To organise a work placement

If you are studying Travel and Tourism, an appropriate problem might be:

- To plan a holiday for the cheapest possible price for a group of ten young people who want to visit EuroDisney, Paris.

or

- To plan an itinerary for an American couple who are visiting Scotland for two weeks and want to visit all the important historic sites.

You may choose to work on your own or with others in a group. If you decide to work in a group you will still have to present all your own work for each of the assessment tasks.

Use your imagination and the advice of your tutor. You may also want to use a technique described on the following pages. It is called 'brainstorming'.

Analysing a task

BRAINSTORMING

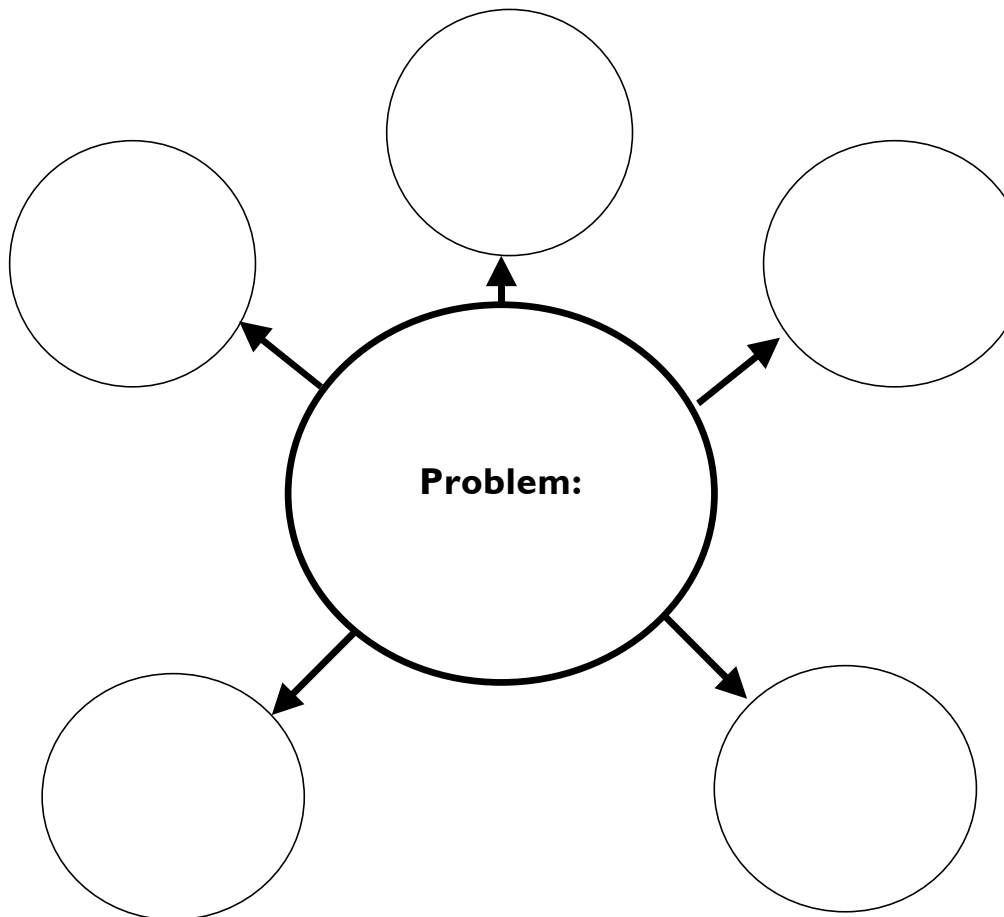
Brainstorming is the rapid pooling of all and any ideas that you or a group of people can come up with *before* any discussion or judgement takes place. Every idea is recorded no matter what the group members' opinion of it.

How to brainstorm

1. Keep a relaxed atmosphere.
2. Get the right size of team. The technique works best with groups of 5 to 7 people.
3. Choose a leader. The leader checks that everyone understands what is going on and why.
4. Define the problem clearly.
5. Generate as many ideas as possible.
6. Do not allow any evaluation or discussion.
7. Give everyone an equal opportunity to contribute.
8. Write down every idea – clearly and where everyone can see them. Use a flipchart or large sheet of paper.
9. When all the ideas are listed, review them for clarification, making sure everyone understands each one. At this point you can remove duplications and ideas that the group feels are not appropriate.
10. Allow time for ideas to incubate or develop. Brainstorm in sessions with perhaps a few days in between. This gives time for the team to let the ideas turn over in their minds, which often results in new ideas at a later session.

T₃

Now you can start to break down your problem into factors or bite-sized pieces. Try to identify at least three of these factors.



T₄

Explain how the factors you have identified relate to the problem. Remember you need to do this for at least three factors.

(For example, when designing a PowerPoint presentation on local tourist attractions, research would be an important factor. It would be important because the group would have to find out the details of what the local tourist attractions were before presenting that information on PowerPoint.)

1. _____

2. _____

3. _____

4. _____

5. _____

How will you evaluate your solution?

The problem that you are trying to solve is likely to be too complex to set only one objective. Just as in the section on the mini project you need to make a list of **musts** and **wants**. **Musts** are the basic requirements without which the solution would be unacceptable. **Wants** are those qualities that are desirable in any solution.

Remember the example?

Margaret and Eleanor are looking for a bigger flat nearer to where they both work. Their musts and wants are as follows:

Musts	Wants
Within five miles of work	Older property with some character
Two bedrooms	Carpets included
Less than £60,000	Good decor
Good standard of fixtures and fittings	

T₆

Look again at your own problem as you have defined it.

What are the Must and Wants for the solution that you are looking for?

Musts

Wants



Now you must check with your tutor to make sure that this problem gives sufficient scope to cover all aspects of the section. This will usually be done in a personal or group meeting with your tutor.

