

University Foundation Study

Problem-Solving

Course Book

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Skills Map

Unit 1

What is problem-solving?

Look at different types of problems and discover why problem-solving skills are essential to your studies.

Unit 2

Problem-solving strategies

Learn how to evaluate different problems and select appropriate strategies for dealing with them.

Unit 3

The problem-solving process

Develop a better awareness of problem-solving procedures and techniques.

Unit 4

Elaborating the problem

Learn how to break down a problem into steps and gather information to help you solve it.

Unit 5

Finding the best solution

Improve your ability to objectively evaluate a solution.

Unit 6

Creative thinking

Understand how to support and justify reasons for analysing alternatives and choosing options.

Destination: Problem-Solving

What is problem-solving?

At the end of this unit you will:

- become more aware of different types of problems and forms of problem-solving.

Life is full of problems. As we grow up, we quickly learn how to deal with many of them. Studying at college or university has its own set of problems, so this is a good time to sharpen our skills in problem-solving.

We all possess the ability to solve problems. The purpose of this course is to improve that ability. It is always useful to first identify what you already know, through discussion. The following three tasks will help you.

Task 1 Types of problems

Problem-solving involves being clear and precise in our thought processes. It is therefore useful to identify those problems that are relevant. Follow these three steps to help you clarify your thoughts.

1.1 Think about the different types of situations where you face(d) problems in the past, present or future, for example, at home, school or college, in the workplace, etc.

1.2 Work in groups and share the different kinds of situations you have come up with, for example:

At school I found it difficult to revise.

When travelling I lose things.

1.3 In your groups, divide these problems into the three categories below.

Problems that affected you more in the past	Problems that affect you now	Problems that are likely to become bigger in the future



Task 2 Thinking about problem-solving

A good understanding of problem-solving will help you at college or university. The next two tasks will help you think more clearly about the areas where it can help you.

2.1 Discuss the following five questions with another student. Make notes and be prepared to talk about them with the rest of the class.



a) What is the first thing you do when you try to solve a problem?

b) What other stages are involved in solving a problem?

c) What sort of skills do you need to solve problems?

d) Who can help you with problem-solving?

e) Why is it useful to study problem-solving at university or college?

Note that you will discover the answers to these questions as you work through this module.

2.2 Problem-solving is an essential element of many types of study assignments across all disciplines in higher education. With another student, think of study activities that might pose problems. Add them to the first column of the table below.

Activity	Possible problem	Possible solution
1. Writing essays		
2. Doing research		
3. Giving presentations		
4.		
5.		

2.3 Now discuss problems you might encounter with these activities, for example, lack of time. Add them to column 2 of the table.

2.4 What solutions to these problems can you think of? For example, better time management using a schedule or planner. Make a note of your ideas in the third column of the table.

Task 3 Forms of problem-solving

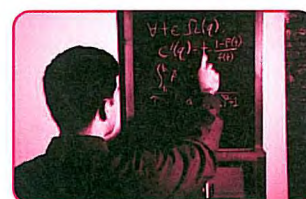
There are a number of different forms of problem-solving. To help us think clearly, we need to identify how they are different. Some problems involve finding a correct solution, others involve considering several possible answers, with some more useful than others.

3.1 Discuss the following three problems in groups and the different thinking processes required for each one.

Problem A – What is $2+2$?

Problem B – Discuss the rise and fall of the Labour Party.

Problem C – How can we reduce pollution?



3.2 Share your opinions about the differences between the different types of problems with the rest of the class. As part of the discussion, identify which of the three types of problems you can expect on your course.

3.3 By doing the following task, identify how your practical skills in problem-solving are progressing. Work in groups to find possible solutions to the following problems that you might face while studying in a foreign country.

- a) You can't find the books on your book list in the library.
- b) The lecturer speaks too quickly.
- c) You want to go out with your friends but you don't have enough money.
- d) You have bought a TV and now have to buy a TV licence, but you don't know how to do this.
- e) You failed your last essay.
- f) It's too hot in your room.
- g) The nearest supermarket is 5km from your house and you don't have a car.
- h) You are homesick.
- i) You want to change courses.
- j) Your visa is about to expire.

3.4 Do the other groups have the same solutions?

Reflect

Think about how you normally approach problems. Do you tend to run away from them or try to face them and look for solutions?

Try to remember a time when you solved a difficult problem and how you felt about it. Then think of a time when you tried to hide from a problem, what the consequences were and how you felt about that. Then think of how you would deal with such a situation in the future.

Student notes for Unit 1

2 Problem-solving strategies

At the end of this unit you will:

- be more aware of how to evaluate different problems;
- be more able to select appropriate strategies for dealing with them.

Task 1 Expectations in higher education

- 1.1 Problem-solving in higher education requires particular skills and strategies. When you have completed the gapped text with words from the box, you will have a better idea of what is expected of you.

Problem-solving in higher education settings refers to a student's ① _____ to identify the main ② _____ of a given problem and to develop appropriate ③ _____ for solving it. You will be expected to ④ _____ a problem, identify strategic options for its ⑤ _____, and evaluate the ⑥ _____ of different strategies. This means thinking ⑦ _____ to produce solutions: considering other viewpoints, looking for evidence and using experience when evaluating alternatives.

critically analyse resolution features strategies ability success

- 1.2 Use the context of the text in 1.1 to work out a definition of the words *critically*, *analyse* and *strategy*. Discuss them with your partner.

Task 2 Problems and solutions

- 2.1 For every problem, there may or may not be a solution. Discuss the following problems with another student and see how many solutions you can find.

Example: Traffic congestion

- i) Increase road tax
- ii) Encourage people to car-share
- iii) Improve public transport

- a) Global warming
- b) Inflation
- c) Overcrowding in cities
- d) HIV/AIDS



Discussion

Think of a problem your country is facing at the moment. Can you think of any solutions to this problem? Discuss with another student and see if you can offer them advice on their problem.

Rank the following tasks from 1 to 8 (1 = most problematic, 8 = least problematic) with another student. You may disagree!

- a) remembering a chemical formula
- b) controlling inflation
- c) noisy neighbours
- d) writing an essay
- e) proving a theorem in geometry
- f) finding the best route from your house to the British Museum in London
- g) finding your keys
- h) data analysis



What strategies would you need to solve the above problems?

Think of a problem you or your partner have had recently and write down five strategies to solve it. You have 15 minutes.

Strategies:

Living in a foreign country often means that people face cultural problems. Discuss with another student what you would do if you were faced with the following situations.

- a) Men and women are not allowed to socialise together.
- b) The country you are living in does not celebrate your religious holidays.
- c) You have to carry identification with you at all times.
- d) You must wear the national dress.
- e) The food is very different and you don't like it. It is difficult to find food that you do like.
- f) The eating times are completely different to what you are used to.
- g) Entertainment is different to what you are used to.
- h) People queue!

Discuss your answers with the class. Are the solutions different?

Unit 3 The problem-solving process

At the end of this unit you will:

- be more familiar with language used to describe problems and their solutions;
- have a better awareness of problem-solving procedures and techniques.

When writing in an academic context, it is important to describe the processes involved. This means using specific language associated with the topic. An awareness of problem-solving procedures will also help you structure your essays.

Task 1 The language used in problem-solving

- 1.1 What verbs are usually associated with problem-solving tasks? Hint: Many of them have been used in earlier units. Spend three minutes with another student thinking of as many as possible.



- 1.2 Using the verbs you have just discussed, fill in the gaps in the following text. There may be more than one answer for some gaps, so check with another student.

When you are faced with a problem it is good to ① _____ ideas in small groups. Together, you can ② _____ the problem, and ③ _____ and ④ _____ possible solutions before ⑤ _____ the best one. You may need to ⑥ _____ up the alternatives and see which is the best option.

Task 2 Steps to solving a problem

- 2.1 When you are faced with a problem, what is the first thing you do? Put the following steps into a logical problem-solving sequence with another student.

- _____ Develop alternatives for each major solution. Take the time to think of different options available to you.
- _____ Choose the best solution for the problem.
- _____ Weigh up alternatives: evaluate each option carefully. Consider the advantages and the disadvantages.
- _____ Define the problem clearly. What exactly do you need to do? State your goal. Use practical verbs such as *find out about* ...
- _____ Find major solutions: brainstorm as many possible solutions as you can for solving the problem.

Task 3 A logical approach to problem-solving

The following pattern of organisation is commonly used in writing when analysing problems:

Situation → Problem → Solution → Evaluation

- A situation is given.
- The problem of the situation is identified.
- A solution to the problem is presented.
- An evaluation of the solution is given.

The following text discusses the problem of rising sea levels. It follows a logical sequence like the one mentioned above. It illustrates how this pattern of organisation is commonly used in writing.

3.1 Read the text and identify and underline the parts of the text that:

- describe the situation;
- identify the problem;
- suggest a solution or solutions;
- evaluate the solution(s).

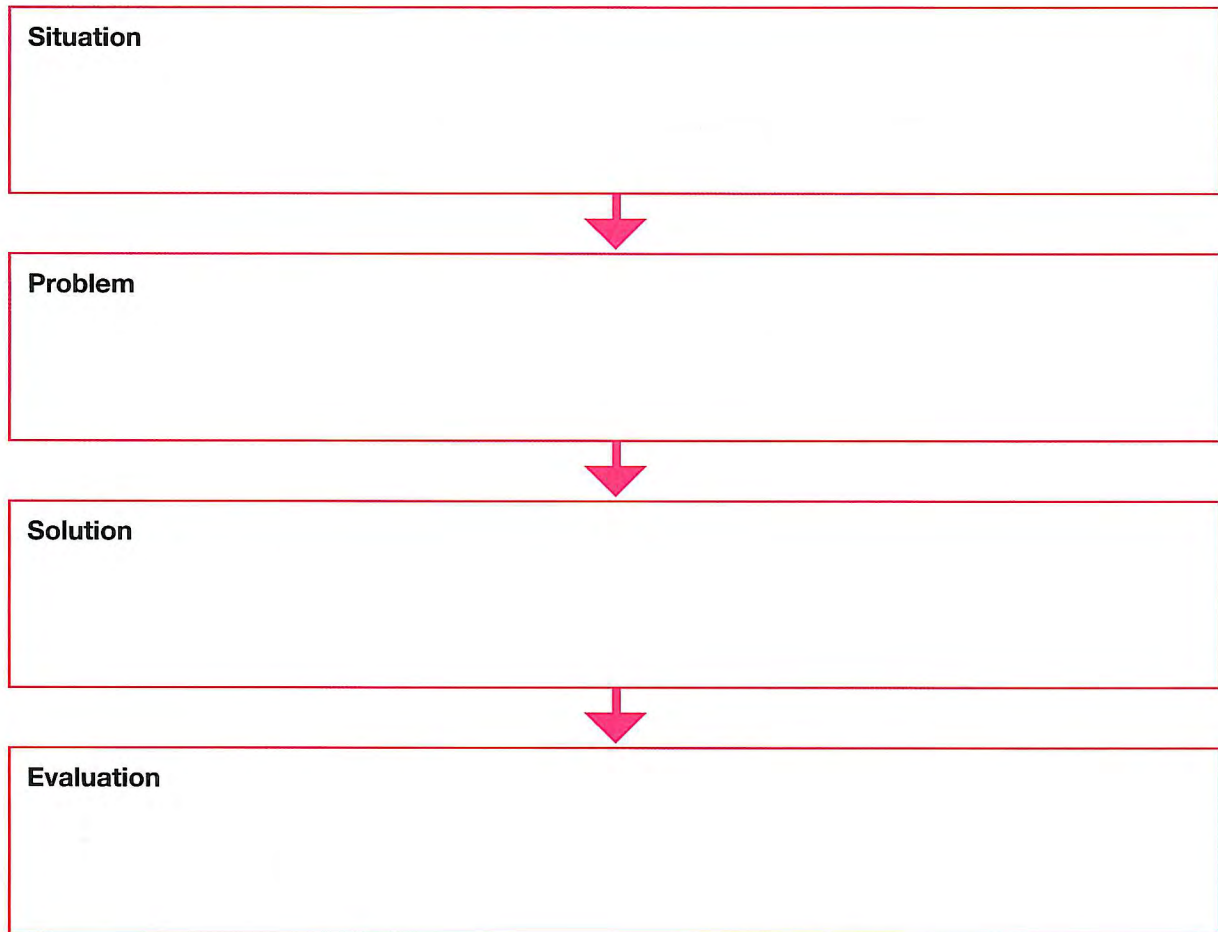
Recent evidence confirms that global warming is melting the ice in Antarctica faster than had been previously thought. Scientists say the rise in sea levels around the world caused by the melting may have been underestimated. It is thought that over 13,000 square kilometres of sea ice in the Antarctic Peninsula have been lost over the last 50 years. This poses a major problem because its effects will be felt across the globe.

A rise in sea levels increases the level of wave attack and tides, causing changes in the stability of shorelines as well as flooding of lowlands. In many places, a 50-centimetre rise would see entire beaches being washed away by erosion, together with a significant chunk of the coastline. Many island nations will have their supplies of drinking water reduced because seawater will invade their freshwater aquifers. While some islands have sizeable populations, they are insignificant compared with the tens of millions of people living in the low-level coastal areas of Southern Asia. These include the coastlines of Pakistan, India, Sri Lanka, Bangladesh and Burma.

Since more than 75 percent of the human population live within 60 kilometres of a coast, finding a solution is imperative. While implementation of flood prevention measures on a local level is helpful in the short term, there is no physical capacity that humans have to protect against long-term sea level rise. The key to coping with the rise in sea levels is education about the effects and accurate assessments of hazards for given points in time. In this way, humans can act decisively and appropriately to minimise loss of life and economic and ecological impacts. Education is the only long-term, far-reaching solution to sea level rise.

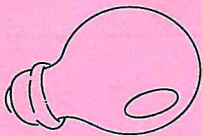


3.2 Now complete the flow chart below with notes based on the text.



The same steps can be applied to problems that affect you at college or university.

3.3 The model in the table below looks at and evaluates major solutions and alternatives for the problem of how to improve student attendance at university lectures. Look at it and decide whether you agree with the ideas. Can you add any more solutions?

STAGE 1 State problem in general terms	STAGE 2 Find major solutions	STAGE 3 Develop alternatives	STAGES 4 & 5 Evaluate options and choose the best one
			
How to improve student attendance at university lectures	Solution 1 Change teaching methodology	- use interactive whiteboards - be more student-centred - incorporate group activities	- will only work if training is available for teachers and there are sufficient resources to buy equipment
	Solution 2 Introduce attendance policy	- check up on persistent absentees - send students with more than 10% absences to the Faculty Dean - expel students with more than 20% absences	- students need to have warning - system needs to be monitored and tracked - could encourage up to 20% absence
	Solution 3 Introduce attendance incentives	- give attendance prize at the end of each term - add information about attendance to a termly report on progress	- could be expensive to provide prizes - prizes may not motivate all students
	Solution 4		

3.4 With your partner, make notes on the grid below about another problem. When you have finished, be prepared to share your ideas with the rest of the group. Try to be inventive and creative!

STAGE 1 State problem in general terms 	STAGE 2 Find major solutions 	STAGE 3 Develop alternatives 	STAGES 4 & 5 Evaluate options and choose the best one 
How to improve my grades	Solution 1		
	Solution 2		
	Solution 3		
	Solution 4		

Reflect

Student notes for Unit 3

Unit 4 Elaborating the problem

In this unit you will:

- look at some case studies and apply the points discussed in previous units to them;
- gather information to find solutions to problems in an academic situation.

When you attempt to solve problems, it is not a good idea to act too quickly, without undertaking the initial reflection and preparation. Research shows that people who invest time at the beginning working out exactly what a problem involves have a better chance of success. It is worth spending time reflecting on:

- the kind of problem it is;
- how it is like other problems you have encountered;
- different ways of approaching the task.

It can be useful to apply your own experience to other situations. Pooling experiences and ideas in a group is even more beneficial. In this unit you will use examples from your own experience to help you think of solutions to more general problems.

Task 1 Identifying problems

- 1.1 In Unit 2, we looked briefly at the cultural problems students face when they arrive in a foreign country. They may also encounter problems associated with the language, food, weather, etc. In groups, make a list of all the problems you have encountered when first arriving in a new country, for example, finding somewhere to live.
- 1.2 What did you do to alleviate these problems? Are they the same problems that other groups had? Do you have any good advice for fellow students?

Task 2 Defining the task

- 2.1 You are going to read a short case study about a young female student who has just started her degree in the UK. Read the information below and fill in the grid with a partner. Use your own experiences of being a student in a foreign country to help you.



Mini case-study 1

Petra has recently arrived in the UK to begin her degree studies at a large university. She is feeling homesick and misses her friends and family back home. She thought her English language skills were good, but when she attended her first Economics lecture today, she did not understand it very well because the lecturer spoke too fast for her to follow. What advice would you give to Petra?

What are the problems?	
Write the problems as questions, e.g.: How/What can I ...? + add a verb such as improve, alleviate, increase, reduce, etc. + in order to/so that I (to state your goal).	
Think of some solutions.	

Task 3 Gathering information

In exactly two weeks' time, you must submit a 3,000-word assignment and give a 12-minute presentation on a different subject at a seminar on the same day. You have done some background reading for the essay and taken notes, but you have not written an essay plan yet, and you have not thought about the presentation at all. Today your parents phone you to tell you that they will be making a surprise visit to see you in the UK in ten days' time. How will you manage to complete your assignments in time to enjoy their visit?



- 3.1** Fill in the grid as in Task 2. Work in small groups to brainstorm ideas and generate as many solutions as possible.

What are the problems?	
Write the problems as questions, e.g.: How/What can I ...? + add a verb such as improve, alleviate, increase, reduce, etc. + in order to/so that I (to state your goal).	
Think of some solutions.	

3.2 You have ten minutes with another student to 'create' another problem like the two you have just worked on. Use your imagination!

Try to think of at least three points to put in each box. When you have finished, compare your ideas with another group. If your answers are different, explain your reasoning behind them.

What are the problems?	
Write the problems as questions, e.g.: How/What can I ...? + add a verb such as improve, alleviate, increase, reduce, etc. + in order to/so that I (to state your goal).	
Think of some solutions.	

Unit 5 Finding the best solution

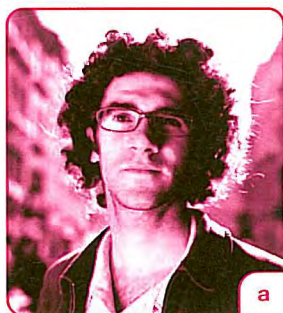
At the end of this unit you will:

- be more able to objectively evaluate a solution;
- be more familiar with different problem evaluation techniques.

When working towards a solution, you have to be careful not to choose your favourite one, as this may be seen as too subjective. Instead, you should take a step back, remain focused and try to be objective, i.e., choose a solution which is best for everyone.

Task 1 Deciding how to react

- 1.1 When you are faced with a problem, what is your first reaction? Imagine you have two weeks to hand in a 5,000-word essay (in English). In groups, discuss which of these reactions is similar to yours.



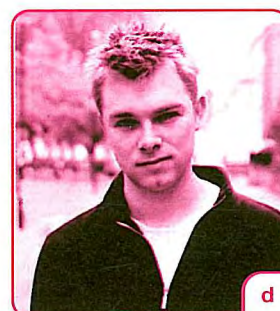
“ I tend to panic and
my mind goes blank. ”



“ I find someone to
talk to about it. ”



“ I find somewhere
quiet to consider
my options. ”



“ I think of a quick
solution and take
immediate action. ”

- 1.2 Below is a possible check list for how to tackle the situation. Decide which of the words in the box below should go into the gaps. There is only one possibility for each solution. Work on your own and then check your answers with a partner.

conclusions expertise problems ideas objective
implemented drawbacks matrix range

- a) Consider a ① _____ of options.
- b) Discuss your ② _____ with others. Find out how others have approached similar ③ _____.
- c) Do some research. Look for hidden advantages and ④ _____ in each option. What has been tried and didn't work before?
- d) Make sure each solution is feasible in the circumstances. Can the solution be ⑤ _____?
- e) Check your ⑥ _____. Is your existing knowledge sufficient, or should you consult with experts?
- f) One way of ensuring that your final assessment is based on ⑦ _____ criteria is by drawing up a grid or a ⑧ _____.
- g) This will ensure that you do not jump to ⑨ _____ too hastily.

Task 2 Paired comparison analysis

This is a technique which helps you compare each option against all others and is a good way of weighing up the relative effectiveness of different courses of action. Read the example problem below and work out which option was selected.

A student is looking at ways in which she can improve her grades. She lists the options below:

- Study an extra two hours every day.
- Go to the library after each lecture to revise.
- Form a study group.
- Join a study skills class.

She draws up a table which shows these options as both row and column headings. (Shaded cells indicate comparison of an option with itself, and are therefore not used.)

	1 Extra 2-hrs study	2 Go to library	3 Form a study group	4 Join a study skills class
1 Extra 2-hrs study		2	1	4
2 Go to library			2	4
3 Form a study group				4
4 Study skills class				

- a) She begins by comparing the advantages and disadvantages of options 1 and 2. Which of these two options is better?
- b) After consideration, she writes the better option in the appropriate cell, and then does the same with options 1 and 3.
- c) She continues until she has filled up all six empty boxes with her best options. The option that has been chosen most often is the best solution to her problem.

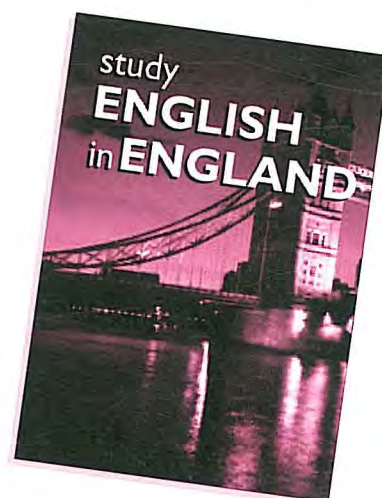
Which option did she choose?

Task 3 Subjective versus objective evaluation

3.1 Read the following two texts and decide which text is objective and which one is subjective.

Text A: I think studying in England is the best option for all students. First of all, they speak the best form of English. The universities provide the best tuition and the degrees are recognised internationally. While you may find the cost of living high and the food different, don't let that put you off your educational experience. I wouldn't choose any other option.

Text B: It is important to consider the options available when deciding where to study. If you choose to go abroad, various factors need to be taken into consideration. Tuition fees and the cost of living may be a deciding factor. Be realistic about how far away from your friends and family you will be. Also, think about the type of degree you will be studying for. Will it be recognised in the country you eventually decide to work in?



3.2 Discuss the following questions with another student.

- a) What differences do you notice about the styles of the two texts and the information in them?
- b) Which one appears to be more academic? Why?

Task 4 Writing a report

Problems and their solutions often need to be discussed and summarised in written form, often in a formal report. Writing a description of the problem-solving process can also help you assimilate your ideas. In this unit you are going to complete a report in tabular form.

4.1 In this module you have looked at the problem of improving your grades. Write a 250-word report for your tutor outlining how you are going to solve the problem. Use the headings on the next page to structure your report.

Begin your report.	E.g., make notes on points you want to cover in the report. Think of how to order these points logically. Start a new paragraph with each new point.
Define the problem.	
The parameters of the problem, e.g., the time available, resources used, expertise, limitations.	
The different solutions that you considered, with their advantages and disadvantages.	
How you arrived at the decision you made.	
Your method for applying the solution, and what you did.	
The results.	
An evaluation of the outcome.	

their outcomes.

Which of the steps,

Was your evaluation subjective or objective?

6 Creative thinking

At the end of this unit you will:

- be able to support and justify reasons for analysing alternatives and choosing options.

Task 1 Discussing solutions to problems

- 1.1 Below are some expressions which are useful when discussing alternative solutions. Match the sentences and then check your answers with another student.



1. I'd rather look at alternatives	a) alternatives before we decide.
2. I think we need to try this	b) my opinion is number 2.
3. The best option in	c) realistic considering the situation.
4. I don't think we should choose that one	d) solution, we should try to evaluate which one is best.
5. Let's look at all the possible	e) before I make up my mind.
6. If there is more than one	f) option because it has had good results in the past.
7. That alternative is very	g) we'll have to vote on it.
8. If we can't decide	h) if there are better alternatives.

Task 2 Putting techniques into practice

You are now ready to put all the ideas and techniques you have studied into practice. You are going to work in two groups. You will spend some time discussing and solving a problem with your group, while the other group observe you doing this. You will then swap roles and observe the other group solving a different problem.

This task will give you the opportunity to use as many techniques and suggestions from previous units as you can while solving the problem. You will also have the opportunity to observe the techniques and procedures that the other group use and reflect on how effectively they are used.

- 2.1 In each team, choose a 'secretary' who will fill in the grid. The two problems are on the following page. To be effective, you will need to practise some or all of the problem-solving skills which we have identified in earlier units.

2.2 Follow the procedure below.

- 1 Read the two problems in the boxes and decide which group is going to tackle each problem and who will go first.
- 2 The group who are discussing their problem should complete Table A during or after the discussion.
- 3 The group who are observing the discussion should complete Table B.
- 4 After the discussion, the observers should give feedback on how well they think the other group managed the problem-solving task.
- 5 The groups should now swap roles and repeat the procedure (completing the other tables).

2.3 Read the problems and make sure you are clear about what you have to discuss. Decide which problem your group is going to discuss.

Problem 1

Imagine you are John Smith. The city where you live is holding local elections to elect a new MP. As a group, look at the manifesto for each of the three candidates below and decide which person you will vote for. Before you make your decision, study John Smith's profile.

John Smith

Age: 38
Marital status: Married (Sarah).
Children & dependents: 2 daughters, 11 and 15. John's elderly mother also lives with the family.
Job: Social worker
Other activities: Chairman of the neighbourhood watch committee.
Volunteer work for a drugs awareness group.
Spouse's job: Unemployed (awaiting results of a sex discrimination tribunal).
Likes: Going to the pub with friends, European travel.
Dislikes: Travelling to work on local buses which are always late.
Is worried about: Lack of local government spending on education.
His mother, who is waiting for a hip operation.



Janet Jones

Improve education
Better welfare and benefits
Equal rights for women, especially in the workplace
Pro-Europe and the euro
24-hour licensing for pubs



Arthur Price

Decrease taxation
Decrease crime
Improve benefits for the elderly
Anti-Europe
Improve transport



James Ellis

Decrease unemployment
Fight racism
Anti-drugs campaign
Increase spending on the NHS
Slight increase in taxation

Problem 2

You are a member of the Research and Development Board for a pharmaceuticals business. The pharmaceuticals company is investigating the viability of three new drugs.

Drug 1: has been demonstrated to aid rapid weight loss.

Drug 2: is reported to delay the ageing process in adults over the age of 40 by up to 20%.

Drug 3: claims to offer an effective and nonaddictive alternative to market-leading anti-depressants without any side effects.

Problem: The company is only able to invest in the development of one of the products mentioned above. Suggest and evaluate possible solutions to the following.

- a) Which of the three drugs should be selected for development? Provide reasons to support your decision.
- b) Which brand name should be selected for the drug?
- c) Which special features should be highlighted for the purposes of marketing?

2.4 Use the following table to structure your discussions. Make notes while or after you discuss the problem.

Table 1

Problem	Solution	Alternatives	Final option
1	1		
	2		
	3		
2	1		
	2		
	3		

2.5 While or after you observe and judge the other group's problem-solving skills, complete the table below.

Table 2

Which problem-solving skills did the team practise?	
Which different stages of problem-solving did you observe?	
How many different alternatives were considered?	
Can the solution(s) be supported or justified?	
Is the majority of the group satisfied with the solution?	

Reflect

You have now finished the module on problem-solving. Think about the different ways you have tackled problems and the techniques you have used. How do you feel these techniques helped you do the final task?

In what way has your approach to problem-solving changed as a result of this module?
Decide which strategies you will use to help you with your future studies.

Student notes for Unit 6

Module 5

Web work

Website 1

Different approaches to problem-solving

http://www.soton.ac.uk/~pw/teach/cheminfo/ss_exam1.html

Review

A useful Web-stop for chemistry students faced with chemistry problems – from the University of Southampton.

Task

Identify the similarities and differences between this scientific approach to problem-solving and the approach outlined in this module.

Website 2

Problem-solving strategies

<http://www.une.edu.au/psychology/staff/academicstaff/malouffproblemsolving.php>

Review

University of New England: 50 problem-solving strategies are listed and outlined in this site.

Task

You are already aware that there is more than one way to approach a problem. Read through some of the strategies to see if any are particularly useful for your study area.

Extension activities

Activity 1

You have been asked to complete the following assignment:

Prepare a presentation outlining British attitudes to foreign language learning.

- 1 The problem: How can I investigate British people's attitudes to foreign language learning?
- 2 Find major solutions.
- 3 Develop alternatives.
- 4 Evaluate options.
- 5 Choose the best one.

Activity 2

Read the text about the Isle of Lingua and then consider the problems underneath.

The Isle of Lingua is a remote tropical island and has a population of 100,000. 15% of the population are native speakers of English. However, the remaining 85% speak Linguish, the local language. For a number of years, the economy of the Isle of Lingua has been in decline and unemployment is now a major problem.

The culture of the island has a long history, and the location of the region makes it an area of outstanding natural beauty. To boost the island's economy, the government has suggested the implementation of a policy which would make English the official language of the island. The Linguish people have been called to vote for or against the policy in a referendum.

Imagine you are the Linguan Minister for Tourism. You are broadly in favour of introducing English as a lingua franca because this would promote tourism. However, you are also very concerned about local employment and the potential loss of the Linguan cultural identity.

Should the Isle of Lingua adopt English as its official language?

- Consider alternative solutions.
- Evaluate and choose the best solution.

Glossary

Alleviate (v) To improve a situation and/or make it feel better, although not necessarily find a solution to the underlying problem(s).

Alternative (n) (adj) 1 (n) One of two or more possibilities that can be chosen to solve a problem or reach a decision. 2 (adj) Describing a choice between two *alternatives*.

Analyse (v) To break an issue down into parts in order to study, identify and discuss their meaning and/or relevance.

Approach (n) A way of doing things based on a clear set of ideas or beliefs.

Assignment (n) A piece of work, generally written, that is set as part of an academic course and is normally completed out of class and submitted by a set date to be assessed.

Assimilate (v) To fully process and understand an idea or concept.

Brainstorm (v) The act of bringing ideas together by writing down all the thoughts and ideas you have about a topic without stopping to monitor, edit or organise them. Brainstorming is a creative process that can be done alone or in a group.

Case study (n) Example case or situation that can be studied and discussed in order to develop skills or illustrate a scenario.

Collaboration (n) Working together with another person (or other people) on a piece of work or an *assignment*.

Critical thinking (n) The academic skill of being able to look at ideas and problems in a considered, critical way in order to *evaluate* them. It also involves the ability to see links between concepts and develop one's own ideas.

Drawback (n) A negative point or disadvantage that hinders or discourages someone from doing

something or prevents them from reaching a solution.

Elaborate (v) To go into more detail when explaining something, or look at an issue or problem in more depth.

Evaluate (v) To assess information in terms of quality, relevance, objectivity and accuracy.

Evidence (n) Information and data that establish whether something is true or not.

Expertise (n) Skill or knowledge in a particular subject area.

Flow chart (n) A diagram that shows a process. Steps or ideas are shown in a structured way (for example, from left to right) and linked by arrows.

Grade (n) (v) 1 (n) A mark for an essay, an exam or for overall performance on a course. Grades often correspond to a number, letter or word, such as 70%; 'A', 'C+' or 'F'; or *Pass/Fail*. 2 (v) To assess an essay, exam or overall performance and assign a *grade*.

Implement (v) To put an idea or plan into action.

Incentive (n) A prize or goal that gives people encouragement to meet a deadline or do something well.

Initial reflection (n) Time taken to think carefully about a task or problem before tackling it.

Jump to conclusions (v) Decide on a solution quickly without knowing or listening to all of the information and *options*.

Justify (v) Put forward a case for or against a knowledge claim or idea.

Methodology (n) Set of methods and *techniques* based on a clear *approach* or set of beliefs.

Objective (adj) (n) 1 (adj) Not influenced by personal feelings or emotions. 2 (n) The aim, or what you want to achieve from an activity.

Option (n) One possible choice that may be selected when making a decision.

Outcome (n) A final decision and result.

Paired comparison analysis (n) A *technique* where pairs of *options* are compared in turn in order to rank them and then choose the best option.

Parameter (n) Something that defines the scale of a task or project and sets limits such as time, cost and/or number of people available to work on it.

Policy (n) A formalised agreement on which *procedures* and/or *methodology* to adopt and follow.

Presentation (n) A short lecture, talk or demonstration given in front of an audience. The speaker prepares his or her presentation in advance and will often use visual aids or *realia* to illustrate it.

Procedure (n) Set of steps that are followed in order to complete a task.

Resolution (n) The successful *outcome* of a *strategy* used to solve a problem.

Seminar (n) A small group discussion led by a tutor, lecturer or guest speaker. Students are expected to take an active part in the seminar.

Strategy (n) A plan of action that you follow when you want to achieve a particular goal. For example, it is possible to have a clear strategy for passing an exam.

Subjective (adj) Describes an idea or opinion that is based on someone's personal opinion rather than on observable phenomena.

Technique (n) A method or way of doing something that involves skill and/or efficiency. For example, it is possible to learn useful techniques for answering exam questions.

Time management (n) The ability to organise your time so that you use it more effectively and efficiently.

Weigh up (v) Consider and compare the advantages and disadvantages of different *options* or possible solutions to problems.

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