

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ОДЕСЬКИЙ ДЕРЖАВНИЙ ЕКОЛОГІЧНИЙ УНІВЕРСИТЕТ**

**МЕТОДИЧНІ ВКАЗІВКИ  
для СРС та навчальний матеріал  
з англійської мови для студентів IV курсу  
денної форми навчання**

**Спеціальність: «Екологія»**

**Одеса - 2019**

Методичні вказівки для СРС та навчальний матеріал з англійської мови для студентів IV курсу денної форми навчання.  
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## ПЕРЕДМОВА

Методичні вказівки для СРС та навчальний матеріал з англійської мови призначені для студентів IV курсу денної форми навчання зі спеціальностей «Екологія».

Мета запропонованих методичних вказівок — розвинути навички читання, аналізу, перекладу текстів, а також їх переказу на матеріалі наукової літератури за фахом.

Методичні вказівки складаються з 4 уроків, в яких подано відповідний граматичний матеріал за програмою, а також тексти, які відібрані з оригінальної науково-популярної та наукової літератури.

Тексти А та В призначені для аудиторній роботі студентів: для читання, усного перекладу, аналізу елементів тексту, анутовання та переказу; тексти С тематично пов'язані з текстами А та В, призначені для СРС та тематично-письмового перекладу з подальшою перевіркою на занятті, уточненням значень окремих лексичних одиниць та переказу.

Лексичні вправи призначені для вивчення та закріплення лексичного матеріалу кожного уроку та охоплюють лексику основних текстів. Вони можуть бути використані також для контролю (самоконтролю) засвоєння лексичного матеріалу уроку. Під час виконання лексичних вправ рекомендується не тільки підбирати українські або англійські еквіваленти наведених слів та словосполучень, але й знаходити у тексті або складати самостійні речення з зазначеними словами, звертаючи увагу на багатозначність слів.

Граматичні вправи спрямовані на аналіз найскладніших граматичних явищ англійської мови, розвиток навичок орієнтування у граматичній структурі англійського речення, що сприяє вірній інтерпретації текстів, усної мови та матеріалів наукової літератури.

*Після вивчення даного курсу студенти повинні знати і вміти:*

- читати та перекладати науково-технічну англійську літературу за фахом для отримання необхідної інформації;
- розуміти зміст прочитаного та лексико-граматичний матеріал, наданий у методичних вказівках;
- розуміти і володіти відповідними граматичними конструкціями та матеріалом;
- брати участь в усному спілкуванні англійською мовою в обсязі матеріалу, передбаченого програмою.

## LESSON I

### TEXT A Environmental Science Careers

Careers in Environmental Science are so varied it is difficult to consider them as one category. You could end up working from home most of the time or traveling around the world on an annual basis. You could be doing desk work, field work, or some combination thereof. Your focus could be mathematical, physical, or written. Of course the majority careers in Environmental Science are some blend in-between.

Those engaged in Environmental Policy, Planning, and Management usually work for a local government and are likely to be engaged in a lot of research intensive work. Environmental Lawyers may be able to get out of the office to the courtroom, or, again, have intensive desk jobs.

Wildlife Managers, Zoologists, and Horticulturists are often thought to have positions which keep them working in a mix of indoors and out, but generally in one location. Oceanographers and Meteorologists could spend their entire careers in the safety of a laboratory working upper level computer models, or much of their time at sea, studying the weather. Microbiologists, Soil and Plant Scientists, and Ecologists could work in remediation efforts, for sanitation companies, in manufacturing, at a university, for many private companies, law firms, not-for-profit groups, or government agencies such as the Environmental Protection Agency, the National Park Service, or the State Geological Survey.

Knowing what is available to you professionally is half the battle when choosing a career. Finding something you enjoy doing within the broad scope of Environmental Science shouldn't be terribly difficult when there are so many options. Environmental Consultants may have the best of many worlds, setting their own schedules, seeking clients that need their particular form of expertise, and setting their own blend of ideal field work and intellectual work schedule. Find what you enjoy doing, and it shouldn't be “work”, but a career.

Environmental scientists are problem solvers. They research environmental and health problems to determine their causes and come up with solutions. They investigate issues like mysterious deformations in frogs, unexplained cancer occurrences in a neighborhood, or disease in the former asbestos mining towns.

Environmental scientists conduct research to identify the causes of these types of problems, and how to minimize or eliminate them. They also conduct theoretical research that increases our understanding of how the natural world works. They use what they learn to make recommendations and develop strategies for managing environmental problems.

Environmental science is a holistic and multidisciplinary field that integrates the biological, physical, and earth sciences. Its goal is to understand how earth works and how it supports life. It also aims to identify, control, and prevent disruption to its systems and species caused by human activity.

Environmental scientists use their knowledge of earth's systems to protect the environment and human health. They do this by cleaning up contaminated areas, making policy recommendations, or working with industry to reduce pollution and waste. They may also investigate the source of an environmental or health problem, and devise strategies to combat it.

## TEXT B What Does an Environmental Scientist Do?

Environmental scientists conduct research to identify, control, or eliminate sources of pollutants or hazards affecting the environment or public health. Their research generally involves determining data collection methods; collecting and analyzing air, water, and soil samples; analyzing environmental data gathered by others; and analyzing for correlations to human activity. They also need to prepare reports and presentations that explain their findings.

Environmental scientists also develop plans to prevent, control, or fix environmental problems like air pollution. They may also advise government officials that make policy, and businesses that need to follow regulations or improve their practices. Some conduct environmental inspections of businesses. Many assess the potential effects of development projects to prevent creating new problems.

Some environmental scientists and specialists focus on environmental issues, while others focus on issues relating to human health. Either way, they work on critical issues, solving some of the most important problems of our day.

## Where Does an Environmental Scientist Work?

Most environmental scientists work for state, or local governments, where they conduct research, advise on policy, and verify that businesses are following regulations.

Environmental scientists work in offices and laboratories. While some may gather data and monitor conditions in the field, this is more likely to be done by technicians. Those who do work in the field may find it demanding, and work in all kinds of weather. Travel to client sites or conferences may be required. Most environmental scientists work full time. They may work long or irregular hours in the field.

Environmental scientists work in applied fields and interdisciplinary settings analyzing the effects that humans have on our environment and the plants and animals that populate it. From agriculture to healthcare to industry, environmental

scientists teach, research, and work in business to help humans understand our work. While tasks do vary significantly from job to job, the scope of an environmental scientist job is listed below:

Develop research methods and systems that are best fit for the chemicals and environment that are being researched

Use observations, samples, and specimens to collect data

Review current scientific literature on an ongoing basis to stay abreast of developments in the field

Record and store observations, samples and specimens in the lab and in fieldwork

Develop systems to better analyze data

Present research findings to internal and external stakeholders through a variety of media channels

Communicate with senior scientists and administrators through formal and informal reports

### TEXT C How Do I Get an Environmental Science Degree?

Environmental scientists often begin their careers as environmental technicians or research assistants. These professionals can work their way up to supervisory positions over time. Eventually, they may be promoted to program management or research positions. Other environmental scientists and specialists leave the private sector to teach or conduct research as faculty members in academia. Graduate study is often required for advancement, as well as academic positions.

Most entry-level jobs require a bachelor's degree in environmental science or related field such as microbiology, chemistry, physics, geosciences, or engineering. Students enrolled in environmental science programs study the sciences broadly, taking courses in biology, chemistry, geology, and physics. They may take more specialized courses in hydrology and waste management as well. Social sciences courses in environmental policy, geography, and public administration are also beneficial for learning about the political and human aspects of the field. Hands-on experience or coursework in computer modeling, data analysis, and geographic information systems is highly desirable.

Master's degrees may sometimes be required for advancement. Environmental scientists aspiring to academic careers will need a doctoral degrees. Those pursuing advanced degrees may do well to major in a specific natural science such as

chemistry, biology, physics, or geology, rather than a broader environmental science degree.

What do environmental science degrees cover?

Very much an ‘interdisciplinary’ subject, environmental science degrees challenge students to combine skills and knowledge from a variety of different fields. This could mean exploring aspects of biology, chemistry, physics, geography, Earth and marine sciences, and also social sciences. The idea is to combine multiple perspectives and data sources, to build up a fuller understanding of natural and human environments.

Fieldwork is an important part of most environmental science degrees, which often include trips to a variety of different countries and world regions, giving those who study environmental science the opportunity to experience different habitats, climates, land formations and societies. You can also expect to spend a fair amount of time in the lab, learning how to carry out different types of tests and analysis. In addition, students often undertake voluntary work in an environment-related role, which provides valuable experience to prepare them for future environmental science careers.

Entry requirements for environmental science degrees

As is true of all subjects, entry requirements will vary between different institutions. However, those applying for an undergraduate (bachelor’s) degree in environmental science can expect to be asked for a diploma of secondary education, including good grades in at least one of the following related subjects: biology, chemistry, economics, geography, geology, mathematics or physics. At master’s level, you’ll need to have completed a relevant bachelor’s degree, either in environmental sciences or in one of the subjects mentioned above. Some universities may require applicants to attend a face-to-face interview, and/or to sit an entrance exam, often depending on national norms

. Course structure and assessment methods

Environmental science degrees usually last for three or four years at bachelor’s level and one or two years for a master’s qualification. The initial stage of your studies will include compulsory core modules, which aim to give you a general understanding of environmental science and introduce you to some of the main principles. The following stages will typically allow students to choose options from a selection of possible course modules, allowing for growing specialization in one or more environmental science topics. Towards the end of your program, you are likely to have the opportunity to carry out your own research on a topic of your choice. Assessment methods include essays, written discussions, exams, problem sheets, laboratory reports, field exercises, field notebooks and seminar presentations.

Exercise 1. Answer the following questions:

1. Are careers in environmental science varied?
2. What kinds of researches do environmental scientists conduct?
3. Is environmental science a holistic and multidisciplinary field?
4. What aims do environmental scientists focus on?
5. What do environmental science degrees cover?
6. How many years do environmental science degrees last at bachelor's level and for a master's qualification?

2. Exercise 2. Translate the following word combinations:

A desk work, a field work, to be engaged in, not-for-profit groups, half the battle, policy recommendations, government officials, a bachelor' degree, a master' degree, a doctoral degree.

# Compound nouns and noun phrases

Reminder → H4– H12

A

In a compound consisting of **noun + noun**, often the second noun gives the general class of things to which the compound belongs and the first noun indicates the type within this class. The first noun usually has a singular form:

- an address book** (= a book for addresses; *not* an addresses book)

However, there are a number of exceptions. These include –

☆ when the first noun only has a plural form:

- a savings account**    **a customs officer**    **a clothes shop** (compare **a shoe shop**)  
**the arms trade** (arms = weapons)    **a glasses case** (glasses = spectacles. Compare 'a glass case' = a case made of glass)    **an arts festival** (arts = music, drama, film, dance, painting, etc. Compare 'an art festival'; art = painting, drawing and sculpture)

☆ when we refer to an institution (an industry, department, etc.), such as

- the building materials industry**    **the publications department**  
which deals with more than one kind of item or activity (different types of building material, different forms of publication).

Note that to make a compound noun plural we usually make the second noun plural:

- coal mine(s)**    **office-worker(s)**    **tea leaf / leaves**

B

Sometimes a **noun + noun** is not appropriate and instead we use **noun + -'s + noun** (possessive form) or **noun + preposition + noun**. In general, we prefer **noun + -'s + noun** –

☆ when the first noun is the user (a person or animal) of the item in the second noun:

- a baby's bedroom**    **a lion's den**    **a women's clinic**    **a girls' school**    **birds' nests**

☆ when the item in the second noun is produced by the thing (often an animal) in the first:

- goat's cheese**    **duck's eggs**    **cow's milk** (but note **lamb chops** and **chicken drumsticks**)

☆ when we talk about parts of people or animals; but we usually use **noun + noun** to talk about parts of things. Compare:

- a woman's face**    **a boy's arm**    *but*    **a pen top**    **a computer keyboard**

We prefer **noun + preposition + noun** –

☆ when we talk about some kind of container together with its contents. Compare:

- a cup of tea** (= a cup with tea in it)    *and*    **a tea cup** (= a cup for drinking tea from)

☆ when the combination of nouns does not refer to a well-known class of items. Compare:

- income tax** (a recognised class of tax)    *and*    **a tax on children's clothes** (*rather than* 'a children's clothes tax')

C

Some compound nouns are made up of verbs and prepositions or adverbs, and may be related to a two- or three-word verb (see [Unit 94](#)). Compare:

- Mansen **broke out** of the prison by dressing as a woman. (= escaped) *and*
- There was a major **break-out** from the prison last night. (= prisoners escaped)

Countable compound nouns like this have a plural form ending in **-s**:

- read-out(s)**    **push-up(s)**    **intake(s)**    **outcome(s)**

However, there are exceptions. For example:

- looker(s)-on** (*or* **onlooker[s]**)    **runner(s)-up**    **passer(s)-by**    **hanger(s)-on**

D

We can form other kinds of hyphenated phrases that are placed before nouns to say more precisely what the noun refers to:

- a **state-of-the-art** (= very modern) tablet PC    **up-to-date** information

1 If necessary, correct the italicised words. **A & B**

- 1 Ali worked for a long time in (a) *the parks department*, but a few years ago he retrained, and now he's (b) *a computers programmer*. Of course, what he really wants to be is (c) *a films star!*
- 2 I was waiting at (a) *the bus stop* this morning when a cyclist on her way to the (b) *girl school* up the road got knocked off her bike. Someone got out of a car without looking and (c) *the car's door* hit her. She was very lucky not to be badly hurt, although she did have (d) *a head cut*.
- 3 I shouldn't be long at (a) *the corner shop*. I've just got three things on my (b) *shopping list* – (c) *a milk bottle*, (d) *a biscuit packet*, and (e) *some toothpaste*. I'll also look for (f) *some goat's cheese*, but I don't think they'll have any.
- 4 The tracks on his latest CD range from (a) *love songs* to (b) *pollution songs*.
- 5 Marta hated going into her grandfather's old (a) *tools shed*. It was full of (b) *spider webs*.
- 6 When Jake was cleaning his (a) *armschair*, he found a lot of things that had slipped down the back. There was an old (b) *pen top*, a piece from (c) *the 500-pieces jigsaw puzzle* that his daughter had been doing, and his (d) *glass case with his sunglasses inside*.

2 Underline the two-word verbs in sentences 1–4, then complete sentences 5–8 with the corresponding compound nouns. **C**

- 1 Nathan tried to cover up the fact that he had gambled and lost most of his money.
- 2 It is reported that cholera has broken out in the refugee camp.
- 3 I'm flying to Sydney, but I'm stopping over in Singapore for a few days on the way.
- 4 On the first Friday of each month, a few of us get together and go ten-pin bowling.
- 5 The minister was taken ill in Iceland during a short ..... on his way back to Canada.
- 6 We didn't have a big party for Jo's 50th birthday, just a family .....
- 7 Allegations of a ..... of a major leak of radioactive waste from the nuclear power plant have been strongly denied by the Energy Ministry.
- 8 Only two years ago there was a serious ..... of malaria in the town.

3 Match the halves of these phrases, then use them to complete the sentences below. The meaning of the correct phrase is given in brackets. **D**

~~day-to-~~    ~~down-to-~~    larger-than-    man / woman-in-the-  
 once-in-a-    step-by-    middle-of-the-    round-the

clock    ~~day~~    earth    life    lifetime    road    step    street

- 1 Although the Managing Director of Transcom was involved in major decisions, she left the day-to-day running of the company to her staff. (*routine*)
- 2 The party will never regain power unless it can persuade ..... voters that it has rid itself of corruption. (*not politically extreme*)
- 3 Since the attempt to assassinate him last year, the Defence Minister has been given ..... protection by the police. (*all day and all night*)
- 4 The bookcase came with simple, ..... instructions on how to assemble it. (*progressing from one stage to the next*)
- 5 When the comet passes close to Earth next week, scientists will have a ..... opportunity to study its effects on our atmosphere. (*very rare*)
- 6 Eleni has a refreshing, ..... approach to management. She's much less concerned with theory than with getting things done in the most efficient way possible. (*practical*)
- 7 The ..... isn't interested in the finer points of the government's tax policy. They just want to know if they are going to take home more or less pay. (*ordinary person*)
- 8 Her father was a ..... character who was well known throughout the village for his eccentric way of dressing and outspoken views. (*more exaggerated than usual*)

# Adjectives and adverbs

A

Some adverbs of manner (saying how something is done) are formed from an **adjective + -ly**: **sudden** → **suddenly**, **happy** → **happily**, etc. When an adjective already ends in **-ly** (e.g. **cowardly**, **elderly**, **friendly**, **kindly**, **lively**, **lonely**, **lovely**) we don't add **-ly** to it to make an adverb. Instead we can use a prepositional phrase with **fashion**, **manner**, or **way**:

Reminder → L5-L6

- He smiled at me in a **friendly way**.
- She waved her hands around in a **lively fashion**.

Most participle adjectives ending in **-ed** (see **Unit 69**) don't have an adverb form and so we use a prepositional phrase instead:

- They rose to greet me in a **subdued manner**. (*not ... subduedly.*)

or we use a preposition and a related noun if there is one:

- She looked at me **in amazement**. (*not ... amazedly.*)

However, some do have an adverb form with **-ly**. Compare:

- The storm was **unexpected**. *and*
- The weather turned **unexpectedly** stormy.

*Also: agitatedly, allegedly, deservedly, determinedly, disappointedly, excitedly, hurriedly, pointedly, repeatedly, reportedly, reputedly, supposedly, worriedly*

B

Some adverbs have two forms, one ending in **-ly** and the other not. We can sometimes use either form without changing the meaning, although the form ending in **-ly** is grammatically correct and more formal:

- She ran **quick** / **quickly** towards the door.

and must be used if the adverb comes immediately before the verb:

- She **quickly** ran towards the door. (*not She quick ran ...*)

*Also: cheap(ly), clean(ly), clear(ly), fine(ly), loud(ly), thin(ly), slow(ly)*

C

Some adverbs have different meanings with and without **-ly**. Compare:

- She gave her time **free**. (= for no money) *and* She gave her time **freely**. (= willingly)
- I arrived **late** for the concert. (= not on time) *and* I haven't seen Amy **lately**. (= recently)

Compare also:

<input type="checkbox"/> He wandered <b>deep</b> into the forest and got lost. (= a long way)	<input type="checkbox"/> He felt <b>deeply</b> hurt by her criticisms. (= very)
<input type="checkbox"/> You don't have to change trains. You can go <b>direct</b> . (= without stopping)	<input type="checkbox"/> They loved each other <b>deeply</b> . (= very much)
<input type="checkbox"/> It sounded awful – one of the choir members was singing <b>flat</b> .	<input type="checkbox"/> I'll be with you <b>directly</b> . (= very soon)
<input type="checkbox"/> He kicked the ball <b>high</b> over the goal.	<input type="checkbox"/> He saw Hassan <b>directly</b> ahead. (= straight)
<input type="checkbox"/> 'Is Emil here yet?' 'He's <b>just</b> arrived.'	<input type="checkbox"/> This time I <b>flatly</b> refused to lend him any money. (= definitely; completely)
<input type="checkbox"/> She looks <b>just</b> like her mother.	<input type="checkbox"/> Everyone thinks <b>highly</b> of her teaching. (= they think her teaching is very good)
<input type="checkbox"/> Which of these cheeses do you like <b>most</b> ?	<input type="checkbox"/> You can be <b>justly</b> proud of your musical achievements. (= rightly; justifiably)
<input type="checkbox"/> They cut <b>short</b> their holiday when Lina fell ill. (= went home early)	<input type="checkbox"/> Her novels are now <b>mostly</b> out of print. (= most of them)
<input type="checkbox"/> The door was <b>wide</b> open so I just went straight in. (= completely)	<input type="checkbox"/> We <b>mostly</b> go on holiday to France. (= usually)
	<input type="checkbox"/> The speaker will be arriving <b>shortly</b> (= soon). Please take your seats.
	<input type="checkbox"/> You won't have any problems getting the book. It's <b>widely</b> available. (= in many places)

1 Rewrite the italicised words using a **-ly** form of the participles in the box. If a **-ly** form isn't possible, use a prepositional phrase or a preposition + related noun. **A**

agitated    anticipated    despaired    determined    disappointed  
organised    relaxed    repeated    reputed    satisfied

- 1 I warned him *again and again* of the dangers on the mountain, but he insisted on going on.
- 2 The class was out of control and he put his head in his hands *feeling that he could do nothing*.
- 3 As his mother took the roast chicken out of the oven, Rod licked his lips *because he was looking forward to eating it*.
- 4 It is *said to be*, *although no one knows for certain*, the smallest post office in the country.
- 5 'Still no news from Paul,' she said *in a sad way*.
- 6 He ran the company *in a calm way* and rarely let anything annoy him.
- 7 She shook her head *as if she had made a firm decision*.
- 8 When he had finished the painting, he looked at it *in a way that showed he was happy*.
- 9 Vicky runs the office *carefully and tidily*, so I don't think we should change things now.
- 10 Sofia paced about *in an anxious way* as she waited to go into the interview.

2 Complete the sentences with suitable pairs of adverbs from C. Use the form with **-ly** in one sentence and the form without **-ly** in the other. **C**

- 1 a What she hated ..... was having to get up at 5:30 every morning.  
b We don't go out much in the evening. We ..... watch television.
- 2 a The firm paid compensation, but stopped ..... of admitting they were to blame.  
b The book is due to be published .....
- 3 a I'm not in my office at the moment, but if you leave your name and number I'll get back to you ..... [Message on a telephone answering machine]  
b I used to have to change in Amsterdam to get to Moscow, but now I can fly .....
- 4 a I got very little sleep on the flight, but I felt ..... awake when I arrived in Tokyo.  
b French is ..... spoken in North Africa.
- 5 a She is one of the most ..... regarded researchers in the university.  
b We could just see the plane flying ..... overhead.

3 Correct any mistakes in these sentences. If there are no mistakes, write ✓. **A-C**

- 1 The rise in car crime in the area is deeply worrying.



- 2 She waved friendly to me.
- 3 Cut the onions up finely and fry them with garlic.
- 4 I asked the boys to move their bicycles off the football pitch but they flat refused.
- 5 I couldn't understand what he was saying. He didn't speak very clearly.
- 6 He was accused of behaving cowardly in the battle.
- 7 Pierre Eveno manufactured the glass for which the town became just renowned.
- 8 I called Elena and she slow turned to face me.
- 9 Spread some butter on the bread as thin as possible.
- 10 The prime minister was loud applauded by her audience.

# Adjectives and adverbs: comparative and superlative forms

## A Comparatives: -er vs more / less ... than

Reminder → L7-L8

We usually add **-er** to one-syllable adjectives and adverbs to make their comparative form. However, we use **more + adjective** –

- ☆ with one-syllable past participle adjectives (see Unit 69) such as **bored, creased, pleased, worn**:
  - After I'd ironed my shirt it looked **more creased** than before. (*not ... creaseder ...*)
- ☆ with **fun, real, right** and **wrong**:
  - I expected the film to be rather dull, but I couldn't have been **more wrong**. (*not ... wronger.*)
- ☆ when we are comparing two qualities:
  - 'Wasn't he brave to swim across?' 'I think he was **more mad** than **brave**.'
  - Although the paint was called 'Sky Blue', I thought it was **more green** than **blue**.  
We can also use '... he wasn't **so much brave as mad**' and '... it was **blue rather than green**'.

We can sometimes use **more** as an alternative to the **-er** form to emphasise the comparison:

- You might think it's dark here but it's **more dark** in the cellar. (*or ... darker ...*)

Also: **clear, cold, deep, fair, rough, soft, true.**

## B Some adjectives with two syllables are most commonly used with **more / less**, particularly:

- participle adjectives** (e.g. **worried, boring**)
- adjectives ending in -ful and -less** (e.g. **careful, careless**)
- afraid, alert, alike, alone, ashamed, aware**
- some other adjectives, including **active, cautious, certain, complex, direct, eager, exact, formal, frequent, modern, special, recent**

Most two-syllable adjectives ending **-y, -ow, -er** and **-ure** can take either an **-er** or the **more + adjective** form, although the **-er** form is more frequently used.

Some adjectives (e.g. **complete, equal, favourite, ideal, perfect, unique**) have a comparative or superlative meaning so are not often used with **-er / more / less** or **-est / most / least**. However, we can use comparative or superlative forms for special emphasis:

- The weather today was good, but **less perfect** than yesterday.

## C Superlatives

We usually use **the**, a possessive form (with **'s**), or a possessive pronoun before a superlative adjective or adverb. In informal contexts we sometimes leave out **the** before an **-est** or **most + adjective** superlative after a linking verb, particularly at the end of a sentence:

- 'Why did you go by bus?' 'It was **(the) cheapest**.'
- Which was **(the) most expensive**?

However, we can't leave out **the** when we go on to say what group of things is being compared:

- 'Why did you buy these oranges?' 'They were **the cheapest ones I could find**.' (*not They were cheapest ones ...*)

When **most + adjective / adverb** is used without **the**, **most** means something like 'very':

- I checked the form **most carefully** (= very carefully) but didn't notice the mistake.

## D After a superlative we use **of + a plural noun phrase** to name the objects being compared:

- Adam's **the oldest of my three brothers**.

Note that we can put the **of-phrase** at the beginning to emphasise it:

- Of my three brothers**, Adam's **the oldest**.

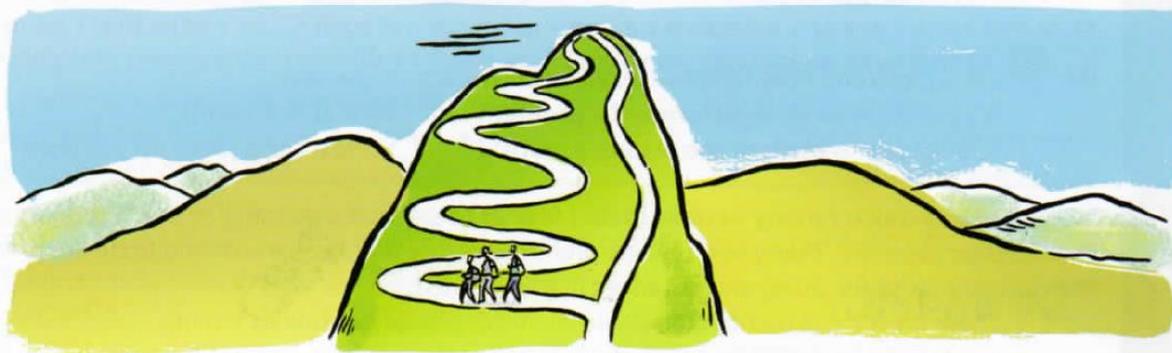
When we give the location or context within which the comparison is made we usually use **in + a singular noun phrase**:

- It was **the tallest tree in the forest**. (*not ... the tallest tree of the forest.*)

1 Complete the sentences with a comparative adjective from the box, using an **-er** or **more + adjective** form. Use both if possible. **A**

deep hard long naughty pretty scared strong true

- 1 It was almost as if the wolf was ..... of us than we were of it.
- 2 The river was ..... than I expected so I decided to turn back.
- 3 I think I'd describe her as ..... than beautiful.
- 4 I bought this tennis racket because it's .....
- 5 Sam isn't a bad boy really. He's ..... than dishonest.
- 6 The exam was ..... than I thought it would be.
- 7 We need to take responsibility for elderly neighbours, and in a cold winter like this it is ..... than ever.
- 8 We took the ..... path up the hill as the other one was very steep.



2 If necessary, correct or improve the comparative adjectives. **B**

- 1 I may not be much of a cook, but Nina is even ~~uselesser~~ in the kitchen than I am.  
more useless
- 2 When I took the washing out of the machine it looked *dirtier* than when it went in.
- 3 A: The painting is from the 17th century.  
B: Really? It looks *recenter* than that.
- 4 The film starts slowly, but gets *excitinger* after the first half hour.
- 5 Louis is already rich, but his aim in life seems to be to become even *more wealthy*.
- 6 All of us are unique, but some of us are *more unique* than others.
- 7 Most research in this area uses simple interviews, but we used a *complexer* methodology.
- 8 I didn't do well at school, and my fellow students all seemed *cleverer* than me.
- 9 For an extra \$500 you could buy a much *powerfuler* motorbike.
- 10 Curiously, many people say they feel mentally *alerter* if they eat very little for a day.

3 Put brackets around **the** if it can be omitted in these sentences. **C**

- 1 It was the sweetest orange I'd eaten for ages.
- 2 Anna, Beth and Clara were all excellent musicians, but Clara was the most creative.
- 3 He's the fastest runner in his class.
- 4 We get lots of birds in our garden, but blackbirds are the most common.
- 5 A: Shall we go by train, bus or car?  
B: Well, going by bus is actually the easiest.

4 Complete the sentences with **in** or **of**. **D**

- 1 The building is said to be the highest ..... Europe.
- 2 The Democrats are the smallest ..... the four main political parties.
- 3 Parmesan is perhaps the most famous ..... all Italian cheeses.
- 4 For many people, it is the most important day ..... the whole year.
- 5 She's without doubt the best swimmer ..... my school.

## Comparative phrases and clauses

A

We use **as + adjective / adverb + as** to say that something or someone is like something or someone else, or that one situation is like another:

- Was the film **as funny as** his last one?       I came round **as quickly as** I could.

Negative forms of sentences like this can use either **not as** or **not so**. In formal speech and writing it is more common to use **less + adjective + than**:

- The gap between the sides is **not as / so wide as** it was. (*or ... is less wide than* it was.)

B

If we put a singular countable noun between an adjective and the second **as**, we use **a / an** in front of the noun:

- Despite his disability, he tried to lead **as normal a life as** possible. (*not ... as normal life as ...*)

The negative form of sentences like this can use either **not as** or sometimes **not such**:

- It's **not as quiet a place** (*or ... not such a quiet place ...*) **as** it used to be.

Note that we use **not as + adjective + a / an + noun** but **not such a / an + adjective + noun**.

We can use **so, too** and **how** followed by an adjective in a similar way:

- It's not quite **so straightforward a problem as** it might at first seem.  
 'Conspiracy' is perhaps **too strong a word**.       **How big a piece** do you want?

C

We also use **as much / many as** or **as little / few as** to say that a quantity or amount is larger or smaller than expected. **Many** and **few** are preferred before numbers; **much** and **little** are preferred with amounts (e.g. \$5, 20%) and distances (e.g. 3 metres):

- There are a small number of people involved, possibly **as few as** twenty.  
 Prices have increased by **as much as** 300%.

D

We can use **not + adjective / adverb + enough + to-infinitive** to mean that there isn't as much as is necessary to do something:

- I'm not **tall enough to reach**.       He didn't speak **loudly enough to be heard**.

We can use **sufficiently** before adjectives to express a similar meaning to **enough**. **Sufficiently** is often preferred in more formal contexts:

- She didn't play **sufficiently well to qualify**. (*or ... well enough to qualify*.)

E

We can use **too + adjective / adverb + to-infinitive** to mean 'more than necessary, possible, etc.' to do something:

- They arrived **too late to get** seats.       It moved **too fast to see** it clearly.  
 The suitcase was **too small (for him) to get** all his clothes in.

In rather formal English we can use **too + adjective + a / an + noun**:

- I hope you haven't had **too tiring a day**. (*not ... a too tiring day*.)

(In a less formal style we might say 'I hope your day hasn't been too tiring'.)

F

We can use **so + adjective / adverb + that-clause** to say that something existed or happened to such a degree that a specified result occurred (see also **Unit 81**):

- It's **so simple that** even I can do it.       He came in **so quietly that** I didn't hear him.

Less often we use **so + adjective / adverb + as + to-infinitive** with a similar meaning. Compare:

- The difference was **so small that** it wasn't worth arguing about. *and*  
 The difference was **so small as to not be** worth arguing about. (= Because the difference was so small, it wasn't worth arguing about)

We can use **go so / as far as + to-infinitive** to talk about actions that are surprising or extreme:

- One furious woman **went so / as far as to throw** tomatoes at the minister.

1 Complete these sentences with **as ... as** or **not as / such ... as** (or both if possible). Use the words in brackets and add any other necessary words. **B**

- 1 It's *not such a polluted city now as / not as polluted a city now as* it was ten years ago. (*not / polluted / city now*)
- 2 The Downtown Hotel is ..... Strand Hotel. (*not / pleasant / place to stay*)
- 3 The President's address to the nation is ..... he is ever likely to make in his career. (*important / speech*)
- 4 It was ..... I first thought. (*not / big / problem*)
- 5 Theresa's dog is ..... I've ever seen. (*ferocious / animal*)
- 6 She's ..... she claims to be. (*not / fluent / Greek speaker*)

2 Complete these sentences with **as much as**, **as many as**, **as little as**, or **as few as**. **C**

- 1 When it was really hot I was having ..... four showers a day.
- 2 The elephant population may soon fall to ..... 1,000 from 5,000 ten years ago.
- 3 At the end of the 200-metre race there was ..... 50 metres between the first and second runners.
- 4 ..... 5,000 people phoned in to complain about last night's TV programme.
- 5 Lit continuously, the life of a light bulb varies from ..... two weeks to three months.
- 6 Some days there were ..... three or four students at his lectures.
- 7 We don't use much electricity. Sometimes our bill is ..... £40 a month.
- 8 The country spends ..... 25% of its income on defence.

3 Join the sentences using **so + adjective + as + to-infinitive**. **F**

- |   |  |
|---|--|
| 1 The noise from the factory was loud.          | a It was nearly illegible.             |
| 2 Her handwriting was untidy.                   | b It was insignificant.                |
| 3 The bookcase was heavy.                       | c It was unplayable.                   |
| 4 The CD was badly scratched.                   | d <del>It prevented me sleeping.</del> |
| 5 The plot of the novel was complicated.        | e It was almost impossible to move it. |
| 6 The difference between the results was small. | f It was completely incomprehensible.  |
- 1 + d *The noise from the factory was so loud as to prevent me sleeping.*

4 Correct any mistakes in the italicised parts of this interview with a football manager. **A-F**

INTERVIEWER: (1) *How serious injury* is it? Is it (2) *so serious as* has been claimed in the newspapers? Some people are saying Franz Kahn will never play international football again.

MANAGER: Well, it's certainly (3) *enough bad to* keep him out of football for at least six months. He's obviously (4) *not so fit as* he used to be and even he would admit that he's (5) *not such good player as* he was in his twenties. But I wouldn't (6) *go so far to say* that he'll never play for the national team again. I know him (7) *sufficiently well enough* to say that he will consider his future carefully before making any major decisions.

INTERVIEWER: Well, we all wish him (8) *as speedy recovery as possible* ...



## LESSON II

### TEXT A What is environmental management

#### A diverse set of activities

Environmental management is not easy to define. As Barrow (2005) has acknowledged, it can refer to a goal or vision, to attempts to steer a process, to the application of a set of tools, to a philosophical exercise seeking to establish new perspectives towards the environment and human societies, and to much more besides. Environmental managers are a diverse group of people including academics, policy-makers, non-governmental organisation (NGO) workers, company employees, civil servants and a wide range of individuals or groups who make decisions about the use of natural resources (such as fishers, farmers and pastoralists). Indeed, environmental management involves all people to some extent because all human activities ultimately have some sort of environmental impact. However, some individuals are more directly involved with resource use, and some special interest groups are particularly concerned with resource exploitation and with issues related to pollution. Environmental management therefore involves many stakeholders and requires a multidisciplinary perspective. It involves many spatial scales, ranging from the local to the global. It also involves many, diverse goals, including the desires to control the direction and pace of development, to optimise resource use, to minimise environmental degradation and to avoid environmental disaster. Environmental management may be practised by individuals and groups holding conflicting - and even directly opposing - views, as may be the case when environmental managers employed by large multinational corporations come into conflict with environmental managers representing voluntary organisations.

#### A focus on decision-making

In general, however, environmental management is concerned with the understanding of the structure and function of the earth system, as well as of the ways in which humans relate to their environment. Environmental management is therefore concerned with the description and monitoring of environmental changes, with predicting future changes and with attempts to maximise human benefit and to minimise environmental degradation due to human activities. Yet, characteristically, environmental management is about decision-making - and it is especially concerned with the process of decision-making in relation to the use of natural resources, the pollution of habitats and the modification of ecosystems. Fundamentally, then, environmental management is a political activity because those decisions - about resources, pollution and ecosystems - are never neutral or objective; on the contrary, they are value laden and they reflect the exercise of power by particular groups over

others. Moreover, in general, it is naïve to conceive of environmental management as being about simply 'the management of the environment' in the sense of humans manipulating and controlling the components and processes of the earth system. Of course, humans do exert such influences on the earth system; but it is a fallacy to think that humans 'manage', for instance, populations of humpback whales. Instead, it is more accurate to suggest that humans may be able to make some progress towards managing human impacts on humpback whales. Ultimately, then, environmental management is more concerned with the management of human activities and their impacts than with the management of the natural environment .

### Influencing the course of development

Nevertheless, some types of activity are common to environmental managers. Environmental managers attempt deliberately to steer the process of development in order to take advantage of opportunities; they attempt to ensure that critical environmental limits are not exceeded; they work to reduce and mitigate environmental issues; and they are concerned with increasing the adaptability and resilience of human societies in the face of environmental change, variability, unpredictability and hazards. From this point of view, environmental management may be defined as the system that anticipates and avoids, or solves, environmental and resource conservation issues. From another point of view, environmental management may be defined as a process concerned with human-environment interactions which seeks to identify:

what are environmentally desirable outcomes

what are the physical, economic, social, cultural, political and technological constraints to achieving those outcomes

what are the most feasible options for achieving those outcomes

Indeed, in many parts of the world (and arguably worldwide), environmental management is intimately linked with pressing issues of justice and even of survival. A further definition might suggest that environmental management is concerned with meeting and improving provision for human needs and demands on a sustainable basis with minimal damage to natural habitats and ecosystems. Thus the concept of environmental management is closely related to another important (and problematic) concept: that of sustainable development.

TEXT B

Socioecological Systems

SESs' Management

Environmental management is another field of research and practice integral to any discourse on knowledge and social learning for environmental policy and decision

making. A simple definition of environmental management states that it consists of “actual decisions and action concerning policy and practice regarding how resources and the environment are appraised protected, allocated, developed, used, rehabilitated, remediated, and restored.” Much of current environmental management focuses on the integration of social and ecological systems, as our understanding of environmental issues has evolved. In this context, environmental decision making has to address both the complexity of ecological systems and the complexity of interdependent human organizational and institutional systems. Several scholars have set a profound and necessary precedent with their work, explicitly integrating the study of natural resources with human organizations and institutions to focus research and intervention on integrated SESs. In recent decades, efforts to address some of the paradoxes in resource and environmental management have required an evolution in thinking about environmental science and decision making. The result has been a shift from reductionism, command and control science and management, to a more integrated, adaptive, systems-based approach. Integral to this more systemic approach to environmental decision making has been the incorporation of an emerging body of theory often referred to as complex systems theory.

Complex systems theory has offered a more sophisticated understanding of the structure and dynamics of both social and ecological systems than the relevant ‘traditional’ scientific disciplines. Even this integrated, systemic view of SESs does not explicitly acknowledge the complexity of the process of social learning for decision making within SESs. The integration of planning and governance theory with complex and critical systems thinking, as well as with social learning, points to new opportunities in the study of environmental decision making.

Attempts to extend insights from the field of social learning to the practice and study of resource and environmental management have also contributed to the discourse on social learning for environmental planning and decision making; for example, how public participation in environmental assessment processes provides opportunities for social learning.

Works in the field of environmental management have highlighted the importance of integrating social and ecological systems, highlighting the importance of social learning for the purposes of environmental decision making.

Governance is another main field of practice in which the linkage among knowledge, learning, and intervention in the context of environmental decision making is prevalent. Governance focuses directly on the political side of the decision making. There are several definitions of governance; however, all of these speak to a conception of political economy, and more generally decision making and knowledge for intervention, that is more broad-based, flexible, and evolving than traditional models of public decision making through government intervention. Complex systems

approaches could provide, and are already providing, governance stakeholders with philosophical and methodological underpinnings and practical heuristics to look critically at the interface of learning and intervention. The governance literature highlights the importance of politics and pluralism in decision making.

#### TEXT C International framework for Environmental Solutions

Environmental management is still a young profession. Its first challenge, during the middle part of the 20th century, was to deal with impacts that were obvious to the eye and serious enough to demand urgent action. The immediate focus was on what we now call point-source pollution, often originating from heavy industry. But it was also necessary to deal with problems such as the destructive London smog, the release of untreated sewage into inland waterways, and the uncontrolled dumping of chemical wastes.

Successes in dealing with these problems were undeniable. However, more dilute or dispersed waste streams came into sharper focus once the major point sources were under control, and there was a gradual realization that polluters also included average citizens driving their cars or farmers spraying their fields. There was a realization that many of the early, and costly, “solutions” simply moved pollutants from one environmental compartment to another, and the work had to begin all over again. In fact, economic concerns quickly came to the fore. Cost-effectiveness fell rapidly when it came to addressing the more dilute or dispersed streams. Where the polluter could not pay but had political muscle, exemptions to environmental regulations were often made and pollution continued unabated.

Conventional waste treatment solutions soon hit the steep part of the curve of diminishing returns and the search began for more sophisticated approaches based on other concepts, and also involving other actors. There was more emphasis on changing polluting practices, on partnerships and on incentive-based approaches to supplement the existing arsenal of point-source regulations and standards.

The scope of the problems was also found to be broader than had been expected. Pollution does not respect frontiers, and emissions released in one country often impact its neighbors or, in some cases, the entire planet. Transboundary problems such as long-range air pollution and the still-current practice of exporting wastes to other countries began to feature in our daily news.

Additional control programs were proposed, rooted in a more life-cycle view of materials and products and in a consensus that it is more efficient to tackle the driving forces of a problem than to deal with the final impacts. There was more talk about “preventive” or “upstream” action, where the key actors are often mainstream

business or development professionals but may also be ordinary citizens in the form of consumers. Given that many of the driving forces have their origins in globalized trade and consumption patterns, trade measures became a more visible part of environmental policy.

As the costs of environmental programs increased it became necessary to reconsider the objectives. Is zero pollution a realistic goal? We had long been accustomed to avoid this question, sheltering behind the convenient standards promulgated by government authorities. These, however, deal principally with the environmental quality endpoints and so gave little guidance when work started on the upstream driving forces. Additional management criteria, objectives and goals were needed to guide the future programs under construction. Cost-benefit calculations became an integral part of environmental policy.

The environmental professional thus became increasingly confronted by competing or even conflicting environmental objectives, made even more complicated by the multifunctional character of the ultimate goal, sustainable development. Here, global guidance was sadly lacking; our objectives have evolved faster than the development of new methodologies and policies. Even nearly 15 years after the Earth Summit in Rio de Janeiro there are still few guidelines on how to reconcile environmental quality with economic performance and social welfare. The internationally agreed on Millennium Development Goals, the multiple objectives of the World Summit on Sustainable Development (WSSD) in Johannesburg 2002, and even the comprehensive Agenda 21 all suggest useful goals. But they deal with lists of single issues and give no hint of how these can be integrated during the implementation process. We found ourselves, quite suddenly, with a host of goals and a full toolbox, but with no guidance manual to tell us how to put them all together in a coherent manner.

Innovative solution frameworks tried to fill the void. Holistic models based on life-cycle material-flow concepts seemed to offer the necessary framework within which individual solutions could be applied. Rather than focus on problems per se, the new approaches would deal with the driving forces. Instead of dealing with waste disposal issues, there would be an attempt to optimize global resource flows in line with the capacity of the planet's ability to provide. There was much excitement at the prospect of these holistic approaches finally providing the global solution called for by the doomsday reports.

The search for more effective approaches did not necessarily obviate the need for simple emission standards and prescriptive regulations. Their relatively limited field of application was counterbalanced by their relative simplicity of operation. They have also remained in service for other reasons. The new alternative approaches were not well understood by established experts and environmental officials, many of

whom lacked experience and contacts in the mainstream sectors where the new instruments are applied. The fact that traditional solutions are strongly technology-based while the newer approaches look for organizational and management solutions is also an important factor.

At this stage in the new century the environmental professional is indeed still only “half-way to the future” (Tellus Institute 2002), selecting from a host of methodologies and tools, placing them in one or other of a variety of competing holistic frameworks, and often proceeding with inadequate data. Solutions must solve today's problems at the local level but must also make sense in a larger international framework that considers future generations and global issues as well.

Exercise 1. Answer the following questions:

1. What is environmental management?
2. Does it involve many diverse goals?
3. Does environmental management require the integration of social and ecological systems?
4. Is environmental management an old profession?
5. Is the pollution a transboundary problem?
6. Is zero pollution a realistic goal?

Exercise 2. Translate the following word combinations:

a transboundary problem, zero pollution, decision making, a set of tools, due to, to be concerned with, from this point of view, sustainable development, undeniable success, prescriptive regulations.

## Talking about exceptions

A

We use **except (for)** to introduce the only thing(s) or person / people that a statement does not include:

- The price of the holiday includes all meals **except (for)** lunch.
- Everyone seemed to have been invited **except (for)** Mrs Woodford and me.
- I had no money to give him **except (for)** the few coins in my pocket.

We use **except**, not **except for**, with **to-infinitives**, and **that-clauses**:

- I rarely need to go into the city centre **except to do** some shopping.
- They look just like the real thing, **except that** they're made of plastic.

We usually use **except** before **prepositions**, **bare infinitives**, and **that-clauses** including those where the word *that* is left out (see Unit 53). However, informally **except for** is sometimes also used, although this is grammatically incorrect:

- There is likely to be rain everywhere today **except in** Wales.
- There is nothing more the doctor can do **except keep** an eye on him.
- They look just like the real thing, **except (that)** they're made of plastic.

We can use **except for**, but not **except**, with the meaning 'but for' (see C below).

B

We use **except (for)** to mean that something is not included in a particular statement, but we use **besides** to mean 'as well as' or 'in addition to'. Compare:

- I don't enjoy watching any sports **except (for)** cricket. (= I enjoy only cricket) *and*
- Besides** cricket, I enjoy watching football and basketball. (= I enjoy three sports)
- I haven't read anything by her, **except (for)** one of her short stories. *and*
- Besides** her novels and poems, she published a number of short stories.

**Apart from** can be used with the same meanings as both **except (for)** and **besides**:

- I don't enjoy watching any sports **apart from** cricket. (= except for)
- Apart from** cricket, I enjoy watching football and basketball. (= besides; as well as)

C

We can use **but** with a similar meaning to **except (for)**, particularly after negative words such as **no**, **nobody**, and **nothing**:

- After the operation he could see *nothing but / except (for) / apart from* vague shadows.
- There was *no way out but / except / apart from* upwards, towards the light.

**But for** has a different meaning from **except for**. We use it to say what would or might have happened if the thing introduced by **but for** had not happened:

- The country would now be self-sufficient in food **but for** the drought last year. (= if there hadn't been the drought ...)
- But for** the leg injury he suffered last year, he would probably have been picked for the national team by now. (= if he hadn't injured his leg ...)

However, some people use **except for** in the same way as **but for**, particularly in informal spoken English:

- I'd have got there on time **except for** the taxi being late. (*or ... but for* the taxi being late.)
- Except for** the problems with my computer, I would have got the book finished weeks ago. (*or But for* the problems with my computer ...)

Note that we can use **excepted**, **apart** or **aside** after mentioning a person or thing to say that they are not included in the statement we make:

- It has been, 1984 **excepted / apart / aside**, the hottest July for the last 100 years.

1 Complete the sentences with **except** or **except for**. Indicate where both are possible. **A & C**

- 1 He was dressed very smartly ..... that his shoes were dirty.
- 2 I liked everything in the meal ..... the cabbage.
- 3 I had nothing to do ..... sit by the pool and relax.
- 4 We would have gone walking last week ..... the terrible weather.
- 5 She had no choice ..... to wait for the next train.
- 6 There are very few wolves left in the country ..... in the northern forests.
- 7 All the puddings on the menu cost €6 ..... the ice cream, which was €4.
- 8 I'm in the office all the time ..... at lunchtimes.
- 9 She might have won the race ..... hitting the last fence.
- 10 The plant is found on every continent ..... Africa.
- 11 He gave no excuse for turning up late ..... that he was tired.
- 12 I drove all the way without stopping ..... to buy petrol.

2 If necessary, correct these sentences with **besides** or **except (for)**. If the sentence is already correct, write ✓. **B**

- 1 She had never been out of the country besides a week in Ireland as a child.
- 2 Besides being small, Denmark is very flat, with villages linked by country roads.
- 3 The new road will increase traffic in the area except for damaging an area of woodland.
- 4 Except for his novels, Campbell wrote a number of biographies.
- 5 There was nothing in the fridge besides a rather mouldy piece of cheese.
- 6 He was unhurt in the crash except for a bruise on his forehead.



3 Match pairs of sentences and rewrite them as single sentences beginning **But for the ...** **C**

- |  |  |
|--|--|
| 1 Katerina gave me excellent directions.   | a If it hadn't, the building would have been completed by now.         |
| 2 The bad weather caused interruptions.    | b Without this, human rights would not have improved in the country.   |
| 3 The charity supplied food and medicines. | c Otherwise, many more people would have died in the famine.           |
| 4 The trees provided shelter.              | d If it hadn't, I would not have been able to set up my business.      |
| 5 The EU threatened sanctions.             | e <del>Without these, I would have got totally lost.</del>             |
| 6 The bank gave me a loan.                 | f Otherwise, the wind would have caused even more damage to the house. |

1 + e *But for the excellent directions Katerina gave me, I would have got totally lost.*

.....

.....

.....

.....

## Prepositions after verbs

A

Some verbs are frequently followed by particular prepositions:

	<i>about</i>	<i>for</i>	<i>of</i>	<i>on</i>	<i>with</i>
<i>agree</i>	✓			✓	✓
<i>argue</i>	✓	✓			✓
<i>ask</i>	✓	✓	✓		
<i>care</i>	✓	✓			
<i>know</i>	✓		✓		
<i>learn</i>	✓		✓		
<i>talk</i>	✓		✓	✓	✓

B

*about* usually means 'concerning a particular thing':

- They began to **learn about** nutrition when they were at primary school.

We use **care about** to talk about something we are (not) concerned about:

- He doesn't seem to **care about** the effect a poor diet has on him.

*for* is used with **ask** to talk about what people want:

- He finished the drink quickly and **asked for** another.

with **argue** when we talk about giving reasons why something is true or right:

- Many people **are arguing for** a big tax cut.

and with **care** to talk about doing the necessary things for someone or something in order to keep them in good health or condition:

- Jo **cared for** her disabled mother until her death last year. (or Jo **took care of** ...)

or to mean 'like', particularly in negative sentences, and to mean 'want' in offers. Both of these uses of **care for** are rather formal:

- I don't **care for** the theatre much.
- Would you **care for** a cup of coffee?

*of* is used with **talk**, **know**, and **learn** to talk about discussing, having or getting information:

- Mira went recently to Laos and can **talk of** nothing else. (or *less formally* ... **talk about** ...)
- The whole country **knew of** Churchill's love of cigars. (or *less formally* ... **knew about** ...)
- I have just **learnt of** the death of Dr Ramirez. (or *less formally* ... **learnt about** ...)

We use **ask of** when we make or talk about requests:

- I have a favour to **ask of** you and your sister.

*on* is used with **talk** and **agree** to mean 'concerned with a particular topic':

- I was asked to **talk on** my research. (or ... to **talk about** ...)
- We **agreed on** a time to meet. (usually there has been previous discussion or disagreement.)

Note that we use **agree to** to say that someone allows something to happen:

- Once the government **agreed to** the scheme it went ahead without delay.

*with* is used with **argue** and **talk** when we go on to mention the person involved:

- I used to **argue / talk with** Pedro for hours.

We use **agree with** to say that two people have the same opinion:

- Adam thinks we should accept the offer, and I **agree with** him.

and to say that we approve of a particular idea or action:

- I **agree with** letting children choose the clothes they wear. (or I **agree about / on** ...)

or to say that two descriptions are the same:

- Stefan's story **agreed with** that of his son.

**2.1** Cross out any incorrect prepositions. **A**

- 1 I only advertised the car for sale on Wednesday, but by the end of the week ten people had phoned to ask *of / for / about* it.
- 2 We can learn a great deal *after / about / for* the oceans by studying even a small piece of coral.
- 3 I didn't agree *about / for / with* a word of what she said.
- 4 Professor Owen is giving a talk *of / with / on* the Romans in Lecture Hall 1.
- 5 I had to care *for / after / about* my elderly parents when they both became ill.
- 6 For many years we have been arguing *for / on / with* changes in the way the college is managed.
- 7 She didn't know *of / about / on* her stepbrother's existence until her mother died.

**2.2** Complete the sentences using the correct or most appropriate preposition from section A. Sometimes two answers are possible. **A & B**

- 1 On the website they ask ..... your email address.
- 2 I first learnt ..... his decision to resign on the radio last night.
- 3 We're going to talk ..... the council about planting some new trees in the park.
- 4 I don't care ..... pop music at all. I much prefer classical music.
- 5 The teacher says we've got to do the test, so there's no point in arguing ..... it.
- 6 Scientists do not agree ..... the origin of the universe.
- 7 If you know ..... any reasons why you should not be given medical insurance, you must declare them here.
- 8 a: Josh can be really stupid sometimes.  
b: You shouldn't talk ..... your brother like that.
- 9 She's always arguing ..... her parents about what to watch on television.
- 10 I know it's a lot to ask ..... you, but would you look after the children while I'm in Japan on business?
- 11 The course was brilliant. We learnt ..... using the Internet in teaching writing.
- 12 a: Dan said he'll try to fix my car.  
b: What does he know ..... cars?
- 13 I don't think the government cares enough ..... nursery education to fund it properly.
- 14 After days of discussion, the committee agreed ..... the amount of money to donate.

**3** These pairs of sentences include more verbs that are commonly followed by the prepositions in A. Can you explain the difference in meaning? Use a dictionary if necessary.

- 1 a The police *acted on* the information very quickly.  
b I couldn't be at the meeting, so my solicitor *acted for* me.
- 2 a I've been *thinking a lot about* your idea, and I've decided I'd like to support you.  
b What do you *think of* the colour in the bedroom?
- 3 a Doctors have *called on* the Health Minister to resign.  
b Campaigners have *called for* a referendum on the issue.
- 4 a They say he *worked for* the CIA in the 1980s.  
b She *works with* computers.
- 5 a We're *counting on* Julia to supply the food for the party.  
b Playing exciting basketball *counts for* little if the team isn't winning.

## Prepositions after nouns

**A** Many nouns are followed by the same prepositions as their related adjective or verb. Compare:

- Are you **satisfied** *with* the way that the business is being run? *and*
- The shareholders have expressed **satisfaction** *with* the way the business is being run.

A few nouns are followed by different prepositions. Compare:

- They became **fond** *of* each other at school. *and*
- Their **fondness** *for* each other grew and many years later they married.

*Also: proud of / pride in, ashamed of / shame about / at*

Some nouns take a preposition where their related verb does not. Compare:

- I **respect** Louis enormously. *and*
- I have enormous **respect for** Louis.

*Also: admiration for, ban on, discussion about / on, improvement in, influence on, interview with, lack of, respect for*

Note that many other nouns are commonly followed by *of* phrases which indicate possession, a property, or classify the noun by describing what it relates to. Compare:

- He **described** the conductor as moving his arms like a windmill. *and*
- His **description of** the conductor was very funny.

**B** Some nouns can be followed by **of + -ing** but not usually **to-infinitive**:

- He's got into the **habit of biting** his nails when he's nervous.

*Also: cost, effect, fear, likelihood, possibility, probability, problem, prospect, risk, sign*

Some nouns can be followed by a **to-infinitive** but not usually **of + -ing**:

- His unhappy childhood explains his **reluctance to talk** about his parents.

*Also: ability, attempt, concern, decision, desire, determination, failure, inability, permission, proposal, reason, refusal, (un)willingness*

Note that many of these nouns can also be used with other prepositions **+ -ing** (e.g. **attempt at -ing, reason for -ing**, etc.).

**C** Some nouns can sometimes be followed either by **of + -ing** or a **to-infinitive** with a similar meaning, usually after **the**:

- Do staff have *the* **opportunity of taking** unpaid leave? (*or ... the opportunity to take ...*)
- The* **aim of providing** clean drinking water has been achieved. (*or The aim to provide ...*)

*Also: ambition, idea, option, plan.*

However, some nouns, such as **chance, sense** and **way**, have more than one meaning and are followed either by **of + -ing** or a **to-infinitive** depending on which meaning is used. Compare:

- What's the **chance of getting** five heads when you toss a coin five times? (= likelihood; *not ... chance to get ...*) *and*
- Will you get the **chance to visit** Miki in Japan? (= opportunity; *not ... of visiting ...*)
- He didn't have the **sense to move** away from the puddle of water as the bus went past. (= good judgement; *not ... sense of moving ...*) *and*
- Everyone was very friendly and she had a **sense of belonging** within a few days of moving to her new school. (= feeling; *not ... sense to belong ...*)
- I've got a new **way to cook** rice. (= method; *or ... way of cooking ...*) *and*
- She has a really funny **way of speaking**. (= manner; *not ... way to speak*)

Note also that **of + -ing** usually follows **no / every / the sole / the slightest / (not) any / with the + intention**, but that we can use either **of + -ing** or a **to-infinitive** in most other cases. Compare:

- I have **no intention of lending** Dan any more money. (*not ... no intention to lend ...*) *and*
- He announced his **intention to stand** in the election. (*or ... intention of standing ...*)

1 Rewrite the italicised words with a similar meaning using a noun related to the underlined verb. Add an appropriate preposition after the noun. **A**

- 1 I *greatly admire* people who work full time and also study for a university degree.  
*have great admiration for*
- 2 Yasemin is still in hospital but over the last couple of days *her condition has improved*.
- 3 Rashid is very *proud of* his cooking, and is always eager to talk about his recipes.
- 4 The website *advises on* how to lose weight.
- 5 I hate it when people are *cruel to* animals, and would support a ban on hunting.
- 6 We *discussed* the relative merits of CDs and records *for a long time*.
- 7 I had to *be vaccinated against* typhoid before entering the country.
- 8 Benny Carter *significantly influenced* the development of British jazz.
- 9 The city *lacks affordable housing* and many people are homeless.
- 10 There is widespread support for *fireworks to be banned*.

2 Complete the sentences with a noun from (i) and either of + -ing or the to-infinitive form of a verb from (ii). **B**

(i)

ability      cost      decision  
failure      ~~fear~~      possibility  
reason      risk      sign  
unwillingness

(ii)

acknowledge      allow      buy  
~~fly~~      get      protect  
remember      stop      transmit  
worry

- 1 My mother recently overcame her *fear of flying* and had a holiday in South Africa.
- 2 The snow has been falling now for two days and shows no .....
- 3 The government has defended its ..... coal mining in the national park.
- 4 Your blood pressure is a little high, but there is no ..... about it.
- 5 She was kept in isolation to reduce the ..... the virus to other people in the hospital.
- 6 The exercise tests children's ..... a random sequence of numbers.
- 7 The government has been criticised for its ..... the region from flooding.
- 8 The ..... a new car in Europe is expected to fall in the next year.
- 9 I knew that there was little ..... the job with so many applicants.
- 10 It's hard to work with Nik because of his ..... that he ever makes mistakes.

3 Complete the sentences with an appropriate verb using either of + -ing or a to-infinitive. Give both forms if both are possible. **C**

- 1 Although Mia said she would think about it, she never had the slightest intention *of accepting* my suggestion.
- 2 It's going to be cloudy tonight so there is only a fifty-fifty chance ..... the eclipse of the moon.
- 3 It's pouring with rain. I hope David had the sense ..... an umbrella with him.
- 4 The head of the company repeated his intention ..... on his 65th birthday.
- 5 When the History Department closed she was given the option ..... another job.
- 6 Katrin had a very unusual way ....., keeping her feet firmly on the floor and waving her arms around her head.

## Two- and three-word verbs: word order

**A** The meaning of some verbs commonly used with a particular *preposition* or *adverb* (or *particle*) is often different from the meaning of their separate parts. We can call these *two-word verbs*:

- I'll quickly **go over** the main points of the report again. (= summarise)
- She had to **let her dress out** because she'd put on weight. (= make it larger)

Other *three-word verbs* are commonly used with an *adverb* + *preposition*.

- Do you think he's really likely to **go through with** his threat? (= do it)
- The team has failed to **live up to** earlier expectations. (= achieve what was expected)

These two- and three-word verbs are sometimes also called *phrasal verbs*.

**B** Many two-word verbs are usually *intransitive*:

- He **grew up** on a farm.
- When she **came to** she found herself in hospital.

**Also: crop up, fall through, get up, move off, shop around, splash out**

However, some two-word verbs can be used transitively or intransitively with the same meaning:

- I'll **call back** later.
- I'll **call you back** when I get home.

**Also: answer back, clear away, cover up, help out, take over, tidy up, wash up**

and other two-word verbs can be used transitively or intransitively with a different meaning:

- The engine **cut out** and the car came to a stop.
- I **cut the picture out** and kept it.

**Also: break in, hold out, look out, look up, pick up, split up, turn in, wind up**

**C** With many *transitive* two-word verbs, the object can come before or after the adverb:

- I want to **try out the local food**. or
- I want to **try the local food out**.

**Also: bring about, clean up, count out, drink up, gather up, get down, leave out, make up, mess up, shoot down, sort out, throw away, use up**

However, if the object is a pronoun it must come between the verb and the adverb:

- I won't be able to go to the party. You'll have to **count me out**. (*not ... count out me.*)

and we prefer to put the object after the adverb when the object is long. Compare:

- She had to **clean the kitchen up**. (*or ... clean up the kitchen.*) and
- She had to **clean up the mess in the kitchen**. (*rather than ... clean the mess in the kitchen up.*)

**D** With some transitive two-word verbs, the object comes between the verb and the adverb:

- I just couldn't **tell the twins apart**. (*not ... tell apart the twins*)

**Also: catch out, hear out, order about, pull to, push to, shut up (= to silence), stand up**

**E** With some transitive two-word verbs, the object follows the preposition:

- She **takes after her mother**.
- I **flicked through a magazine** while I was waiting.

**Also: account for, act on, approve of, call on, check into, look after, provide for, result from, run into, take against**

**F** With most three-word verbs, the object goes after the preposition:

- He really **looks up to his older brother**.

However, a few three-word verbs usually have the object immediately after the verb. A second noun or noun phrase goes after the preposition:

- She tried to **talk me out of the plan**.

**Also: come in for, come up against, cut back on, look down on, put up with**

**Also: do out of, help on with, let in on, put down as, put up to, take up on**

**1** If possible or necessary, add an appropriate noun or pronoun in the space. **B**

- 1 The same problem kept cropping ..... up, even though I thought I'd fixed it.
- 2 I'm not sure how you spell it. I'll look ..... up in the dictionary.
- 3 I'm busy at the moment, but I can help ..... out this evening.
- 4 If you tidy ..... up, I'll do the cleaning.
- 5 The deal fell ..... through because we couldn't agree a price.

**2** Show where the word or phrase in brackets should go in each sentence with a  $\checkmark$ . If it is possible to put it in more than one place, mark these two possibilities. **C**

- 1 The house is untidy, but I haven't got time to sort  $\checkmark$  out now. (*it*)
- 2 We've introduced a training scheme to bring about. (*some improvement*)
- 3 The strike by airline pilots messed up. (*the holiday I'd spent months planning*)
- 4 I decided to try out for a couple of months. (*the diet*)
- 5 I used up to buy the car. (*all my savings*)
- 6 A: I must get my shoes repaired again.  
B: But they're so old – why don't you just throw away? (*them*)

**3** Complete each sentence using a two-word verb from (i) and a noun phrase from (ii). If two word orders are possible, give both. **C & D**

(i)

get down    leave out    make up  
~~push to~~    hear out    shut up

(ii)

the general ideas    me    my mind  
her name    the thing    ~~the window~~

- 1 It's freezing in here. Can you push the window to?
- 2 When she filled the form in she ....., so they sent it back to her.
- 3 The alarm started when I opened the car door, and now I can't .....
- 4 There were so many desserts on the menu, I couldn't .....
- 5 I ....., but the lecturer spoke so quickly I couldn't follow the details.
- 6 I know you suspect me of cheating, but you've got to give me a chance to explain myself. At least ..... before making up your mind.

**4** If necessary, correct the word order or give a more likely word order in these sentences. If they are already correct, write  $\checkmark$ . **D, E & F**

- 1 He was always ordering about everyone, getting them to do his work for him.
- 2 It is assumed that parents will provide their children for until they are 18.
- 3 She wouldn't let in me on the secret, however hard I tried to persuade her.
- 4 The snow was so heavy that the police called motorists on to avoid unnecessary journeys.
- 5 I checked into the hotel at about four.
- 6 I took up Emre on his offer and stayed in his flat while I was in Ankara.
- 7 The government has come in for a lot of criticism over its decision to increase spending on defence.
- 8 My parents didn't approve of our engagement.
- 9 I had always looked Mr Gao up to, so I was shocked to discover what he had done.

## LESSON III

Text A Sustaining life on earth system through clean air, pure water, and fertile soil

Sustaining life on earth is one of the biggest problems we are facing right now that is linked to three sustainability pillars: environment, social, economic. Living in harmony with nature requires an understanding of the concept of a sustainable community and accessibility to clean air, pure water, and fertile soil. Despite our technological and scientific advances, we are dependent on this life support system. Clean air refers to the degree to which air is clean enough for living organisms to remain healthy. Good water quality describes the conditions of water including biological, chemical, and physical characteristics that are suitable for use for a particular purpose. Another important element of environment is soil fertility that refers to the ability of a soil to sustain plant growth and provide shelter to organisms. Changes to these environmental elements will disturb the balance of our ecosystem. Polluted air, contaminated water supply, and infertile soil pose serious risks to humans and the environment, and as a result of these changes, we are now facing big challenges in achieving the Millennium Development Goals (MDGs). Proactive strategies to prevent and mitigate these problems from getting more severe are required in order to adapt on how to manage and sustain human life on earth. Issues of global warming, water availability, and soil degradation are not only visible in rural areas but also include urban areas as well that affected anthropogenic activities. To overcome this issue, proper and holistic management of the ecosystem needs to be embraced.

The aim of this special issue is to provide and share new scientific insights on impacts of climate change, water pollution, and soil degradation on resources and ecosystem. This Special Issue aims to foster applied research on diverse topics associated with adaptation and mitigation toward clean air, pure water, and fertile soil. Furthermore, it is aimed at providing and recommending relevant policy-making decisions and seeking knowledge for addressing environmental destruction issues toward sustaining life on earth system. Climate resilience and adaptation strategies, improvement of existing water management practices, and sustainable land transformation could help improve our environment for present and future use. These efforts can directly furnish to develop or slow down the impacts of environmental degradation and human health damage. Adaptation strategies and measures can be classified into:

1. Planning and applying new investments such as reservoirs, irrigation systems, capacity expansions, levees, water supply, wastewater treatments, and ecosystem restoration.
2. Monitoring and regulation practices of existing systems to accommodate new conditions (ecology, pollution control, climate change, population growth).

3. Maintaining existing systems such as dams, barrages, irrigation systems, canals, pumps, rivers, and wetlands.
4. Making modifications to water users (rainwater harvesting, water conservation, pricing, regulation, legislation, basin planning, funding for ecosystem services, stakeholder participation, consumer education, and awareness).
5. Introducing new green technologies such as desalination, biotechnology, drip irrigation, wastewater reuse, recycling, and solar panels. In this context, the objective of this Special Issue is to publish high-quality manuscripts that highlight and focus on practical and theoretical understanding on sustainable practices for clean air, pure water, and fertile soil.

## Text B Studying Environmental Science: What is it like and where can it take you?

Environmental science is an interdisciplinary subject, so it will involve studying elements of biology, chemistry, physics, geography and social sciences; this can be a challenge as each of these fields requires different skills and knowledge. However, by combining an understanding of all of these areas, students are better able to study the environment from an integrated perspective.

Fieldwork is a key part of studying environmental science. How far you travel for fieldwork is related to your areas of interest – it could involve travelling to different countries to experience a range of habitats and climates or it could be focussing on a particular ecosystem and involve a significant amount of work in a single location.

Laboratory work is also a core element of studying environmental science – as part of the degree, you will learn how to test analyse different samples and interpret the results.

It is also common to do work placements or voluntary work as part of the degree; the environmental sector is extremely competitive, and work experience develops valuable skills which are invaluable when job hunting.

What do you study in environmental science?

As mentioned above, environmental science is interdisciplinary, so topics will draw on different fields to develop understanding.

Core elements of most courses include atmospheric sciences, ecology, environmental chemistry and geosciences.

Atmospheric sciences involves studying the atmosphere, typically covering the chemistry and physics of the atmosphere, and the impact changes can have on ecosystems all over the world. You may also study meteorology.

Ecology focuses on how organisms interact with the environment and each other. This can connect to social sciences as well as biology. Environmental chemistry centres around the impact humans have on the environment and how contamination happens, what its effects are and how it can be prevented.

Geoscience is a very broad field, but focuses on the earth's natural processes; in environmental science, this will involve learning more about the earth to ensure you have a good scientific basis for understanding environmental changes.

Environmental science is a degree with excellent career prospects, as well as opportunities for further study – around a fifth of students go on to postgraduate study or research. This may also be necessary if you wish to pursue a career in law or graduate education.

Working as an environmental scientist or in a career directly related to the field may require further study, as their person specifications often require a high degree of specialisation. More information about top careers in environmental science can be found [here](#).

However, due to the interdisciplinary nature of the degree, and the range of transferable skills you develop, there is a wide range of career opportunities outside the environmental science field. Common routes for environmental science graduates include resource management, environmental advocacy, teaching and planning and development. These careers allow you to utilize the skills you have developed, but definitely allow you to engage with immediate real-world problems, rather than researching in a laboratory

Jobs in the environmental sector are typically very competitive and can require specialised study and significant work experience. However, the sector is growing rapidly, and there are a number of careers, such as environmental engineer or scientist where demand is extremely high. Moreover, as the impact of environmental issues such as plastic waste are studied further, the demand for graduates who are able to support sustainability targets is likely to increase.

Moreover, many countries are likely to need to undergo major infrastructure upgrades in the next decade, and environmental considerations will be a major concern.

New graduates are likely to have good career opportunities but will likely join companies in more junior roles in order to be trained up, as many careers have very specific knowledge and skill requirements. This means that starting salaries may be relatively low, but there will be good opportunities to progress and earn more in the future. One of the things people are often keen to know is whether they ‘need’ a degree in environmental science to start a career in the environmental sector. This may be because they already have a degree or because they’ve started a degree in another subject but have developed an interest in environmental science.

Firstly, it is important to note that many careers in the sector require further study, so it may be possible to pursue a postgraduate qualification in environmental science without an undergraduate degree in the subject. So if your degree isn’t in environmental science but you want to work in the field, there are still options available.

Secondly, an environmental science degree is only advantageous if you want to work in a scientific role. There are many jobs in the green sector which do not require a science background and are accessible to any graduate, with the right volunteer work and enthusiasm.

So if you are in the process of selecting a degree, are keen to study a scientific subject and committed to working in the green sector then an environmental science degree might be the best choice for you. However, it is not the only route into the field: so if you are passionate about the environment and happy to do volunteer work and potentially further study, then you may not need an environmental science degree.

## Text C Environmental Management Systems

What is an EMS?

An Environmental Management System (EMS) is a framework that helps an organization achieve its environmental goals through consistent review, evaluation, and improvement of its environmental performance. The assumption is that this consistent review and evaluation will identify opportunities for improving and implementing the environmental performance of the organization. The EMS itself does not dictate a level of environmental performance that must be achieved; each organization's EMS is tailored to the its own individual objectives and targets.

Basic EMS

An EMS helps an organization address its regulatory demands in a systematic and cost-effective manner. This proactive approach can help reduce the risk of non-compliance and improve health and safety practices for employees and the public. An EMS can also help address non-regulated issues, such as energy conservation, and

can promote stronger operational control and employee stewardship. Basic Elements of an EMS include the following:

- Reviewing the organization's environmental goals;
- Analyzing its environmental impacts and legal requirements;
- Setting environmental objectives and targets to reduce environmental impacts and comply with legal requirements;
- Establishing programs to meet these objectives and targets;
- Monitoring and measuring progress in achieving the objectives;
- Ensuring employees' environmental awareness and competence; and,
- Reviewing progress of the EMS and making improvements.

An EMS encourages an organization to continuously improve its environmental performance. The system follows a repeating cycle (see figure 1). The organization first commits to an environmental policy, then uses its policy as a basis for establishing a plan, which sets objectives and targets for improving environmental performance. The next step is implementation. After that, the organization evaluates its environmental performance to see whether the objectives and targets are being met. If targets are not being met, corrective action is taken. The results of this evaluation are then reviewed by top management to see if the EMS is working. Management revisits the environmental policy and sets new targets in a revised plan. The company then implements the revised plan. The cycle repeats, and continuous improvement occurs.

The most commonly used framework for an EMS is the one developed by the International Organization for Standardization (ISO) for the ISO 14001 standard. Established in 1996, this framework is the official international standard for an EMS which is based on the Plan-Do-Check-Act methodology. The five main stages of an EMS, as defined by the ISO 14001 standard, are described below:

1. Commitment and Policy - Top management commits to environmental improvement and establishes the organization's environmental policy. The policy is the foundation of the EMS.
2. Planning - An organization first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste, that can have negative impacts on people and/or the environment. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. For example, an organization may choose worker

health and safety, environmental compliance, and cost as its criteria. Once significant environmental aspects are determined, an organization sets objectives and targets. An objective is an overall environmental goal (e.g., minimize use of chemical X). A target is a detailed, quantified requirement that arises from the objectives (e.g., reduce use of chemical X by 25% by September 1998). The final part of the planning stage is devising an action plan for meeting the targets. This includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the targets.

3. Implementation - An organization follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.

4. Evaluation - A company monitors its operations to evaluate whether targets are being met. If not, the company takes corrective action.

5. Review - Top management reviews the results of the evaluation to see if the EMS is working. Management determines whether the original environmental policy is consistent with the organization's values. The plan is then revised to optimize the effectiveness of the EMS. The review stage creates a loop of continuous improvement for a company

Exercise 1. Answer the following questions:

1. What does the term “sustaining life” mean?
2. Can you classify adaptation strategies and measures?
3. Why do we need to study the environment from an integrated perspective?
4. What is an EMS?
5. How can it help an organization?
6. What are basic elements of an EMS?

Exercise 2. Translate the following word combinations:

To be linked to, to be dependent on, to sustain plant growth, water availability, to overcome the issue, wastewater reuse areas of interest, a single location, a core element, environmental performance, in a cost-effective manner.

# Forming passive sentences 1

Reminder → Section D & Appendix 2

**A** Verbs such as **give** take both a direct object (DO) and an indirect object (IO) in two patterns: **V + IO + DO** or **V + DO + preposition + IO**. These verbs have two corresponding passives:

active	passive
<b>V + IO + DO</b> <b>V + DO + prep + IO</b>	
Alice gave us that vase. ✓	We were given that vase (by Alice). ✓
Alice gave that vase to us. ✓	That vase was given (to) us (by Alice). ✓

Also: **award, hand, lend, offer, send, throw** (= 'giving' verbs); **ask, read, teach** (= 'telling' verbs)

The passive form you choose depends on which is more appropriate in a particular context. If we specify an agent (see Appendix 2), this follows **by** at the end of the clause. Note that in informal contexts 'to' can be left out in the second passive pattern.

Verbs that can't be followed by **IO + DO** in the active have only one of these passive forms:

active	passive
<b>V + DO + prep + IO</b>	
<del>He explained me the problem.</del> X He explained the problem to me. ✓	<del>He was explained the problem.</del> X The problem was explained to me. ✓

Also: **announce, demonstrate, describe, introduce, mention, propose, report, suggest** (= 'reporting' verbs)

**B** Verbs followed by **object + complement** in the active have one passive form:

active	passive
<b>V + object + complement</b>	
They elected her president.	She was elected president.

Also: **appoint, declare, make, nominate, vote** (to do with giving a particular position); **call, name, title** (= 'naming' verbs)

**C** Some verbs that are followed by **object + bare infinitive** (= an infinitive without 'to') in the active are followed by a **to-infinitive** in the passive:

active	passive
<b>V + object + bare infinitive</b>	
They have made him return the money.	He has been made to return the money.

Also: **feel, hear, help** (also + object + **to-infinitive**), **observe, see** (see also Unit 23A)

**D** **Transitive two- and three-word verbs** (see also Unit 94)

Some have passive forms:

active	passive
Ella <b>looked after</b> him.	He was looked after (by Ella).

Also: **carry out** (= put into practice), **disapprove of, hold over** (= delay), **talk down to** (= patronise)

Some are not used in the passive:

active	no passive
We <b>came up against</b> a problem.	<del>A problem was come up against.</del> X

Also: **brush up on** (= revise), **cast (your mind) back** (= try to remember), **get (something) down** (= write), **take after** (= resemble)

Some can be only used in the passive with certain senses:

active	passive
They <b>put out</b> the fire. I <b>put out</b> a hand to steady myself.	The fire was put out. <del>A hand was put out to steady myself.</del> X

Also: (passive possible meaning / no passive meaning): **call (someone) up** (order to join the army / telephone); **call (someone) back** (ask to return / telephone); **let in** (allow into a place / allow rain, etc. in); **let out** (allow to leave / let out a sound)

2.1 Rewrite the sentences using one or, if possible, two passive forms. Look carefully at the tense. **A**

- 1 Someone handed me a note. *I was handed a note. / A note was handed to me.*
- 2 Someone offered her a second-hand bicycle.
- 3 Someone has proposed improvements to the developers.
- 4 Someone suggested some interesting changes to me.
- 5 Someone awarded him a prize.
- 6 Someone will announce the President's arrival to the waiting journalists.
- 7 Someone had mentioned the password to the thieves.
- 8 Someone has lent me some skis.
- 9 Someone is sending me a lot of spam emails.
- 10 Someone is going to explain the changes to the students.

2 Complete each first sentence with a suitable form of a verb from the box. Then complete the second sentence using the same verb and the passive. **A, B & C**

appoint   declare   demonstrate   ~~help~~   introduce   see

- 1 People *helped* Rob to his feet after the accident.  
*Rob was helped to his feet after the accident.*
- 2 Tony ..... me to Mrs Rossi at his birthday party. I .....
- 3 Has anyone ..... Chris this morning? *Has Chris* .....
- 4 They ..... Sven Larsen Regional Sales Director for Scandinavia.  
*Sven Larsen* .....
- 5 I am certain that Sarah ..... her suitability as company director to those who still have any doubt. *I am certain that Sarah's suitability as company director* .....
- 6 They ..... Alan Watson winner of the election after a recount.  
*Alan Watson* .....

3 If possible, rewrite each sentence using a passive form of the italicised two- or three-word verb. If not, write 'No passive'. **D**

- 1 Children often *look up to* strict teachers.  
*Strict teachers are often looked up to by children.*
- 2 The company *phased out* the product over a period of three years.  
.....
- 3 The students *got* the information *down* as fast as they could.  
.....
- 4 The decision has *deprived* many people *of* the right to vote.  
.....
- 5 People often *brush up on* a foreign language just before a holiday.  
.....
- 6 Ben *called* Mrs Patel *back* as soon as he got home.  
.....
- 7 The chairperson *held over* the last two items until the next committee meeting.  
.....
- 8 The farmer *prevented* walkers *from* crossing the field after he *fenced* it *off*.  
.....

## Forming passive sentences 2: verb + -ing or to-infinitive

### A Active patterns with verb + -ing

Verbs followed by **object + -ing** in the active are made passive with 'be' + **past participle + -ing**:

- They **saw the monkey climbing** over the fence. (= active)
- The monkey **was seen climbing** over the fence. (= passive)

Also: bring, catch, hear, find, keep, notice, observe, send, show

### B Some verbs that can be followed by an -ing form can be used with a passive form being + past participle:

- I really **love being given** presents.
- The children **enjoyed being taken** to the zoo.

Also: avoid, deny, describe, dislike, face, hate, (not) imagine, like, remember, report, resent

### C Verbs which in the active are followed by an object consisting of a noun phrase and -ing clause usually have no passive:

- I dread **him (or his) finding out**.  
(but not He is dreaded finding out)

Also: anticipate, appreciate, dislike, forget, hate, imagine, like, (not) mind, recall, remember

### D Active patterns with verb + to-infinitive

The active pattern **verb + object + to-infinitive** is made passive with 'be' + **past participle + to-infinitive**. Compare:

- Mr Wang **has taught Peter to sing** for years. and
- Peter **has been taught to sing** (by Mr Wang) for years.

Also: advise, allow, ask, believe, consider, expect, feel, instruct, mean, order, require, tell, understand

Note that in some contexts it is possible to make both verbs passive:

- Changes to the taxation system **are expected to be proposed**. (compare the active We **expect** the government **to propose** changes to the taxation system.)

Some verbs followed by an **object + to-infinitive** in the active have no passive:

- Susan **liked Karl to be** there. (but not Karl was liked to be there.)

Also: (can't) bear, hate, love, need, prefer, want, wish (= 'liking' and 'wanting' verbs)

### E The active pattern verb + to-infinitive + object is made passive with verb + to be + past participle. Compare:

- Supermarkets **started to sell fresh pasta** only in the 1990s. and
- Fresh pasta **started to be sold** by supermarkets only in the 1990s.

Also: (i) appear, begin, come, continue, seem, tend;  
(ii) agree, aim, arrange, attempt, hope, refuse, want

The verbs in group (i) (and **start**) have corresponding meanings in active and passive sentences, but the verbs in group (ii) do not. Compare:

- People have come to see organic food as something only the wealthy eat. (active) *corresponds to*
- Organic food has come to be seen as something only the wealthy eat. (passive)
- Petra wanted to help me. (active) *does not correspond to*
- I wanted to be helped by Petra. (passive)

1 Complete each sentence using one pair of verbs from the box. Use either **was / were + past participle + -ing** or **past simple + being + past participle**. **A & B**

avoid – take    deny – involve    face – expel    find – wander    keep – wait  
leave – hold    observe – hide    remember – bite    resent – give    send – tumble

- Inger was kept waiting for over three hours when she went for her dental appointment.
- When the police first questioned him, Wayne ..... in the robbery.
- I ..... the baby while Karen went to answer the door.
- When I woke up in hospital, I ..... by the snake but nothing after that.
- They ..... prisoner by pretending to be dead.
- The man ..... a suspicious package under a seat in the train.
- When the bike hit her, Ana ..... to the ground.
- Two teenagers yesterday ..... from school after they were found with over a hundred stolen mobile phones.
- The man was taken to hospital when he ..... lost and alone in the forest.
- Tarik had worked in the company for 30 years and he rather ..... orders by people who had been there only weeks.

2 Rewrite the sentences using one pair of words from the box. Use passive forms with **past participle + -ing**, **past participle + to-infinitive**, or **past simple + being + past participle**. **A–D**

~~ask – show~~    catch – shoplift    expect – attract    hear – argue  
~~hate – tease~~    mind – criticise    observe – enter    require – complete

- They wanted us to show our passports at the border.  
We were asked to show our passports at the border.
- They could hear Emil and Laura shouting at each other next door.  
*Emil and Laura* .....
- The other children made Ollie unhappy when they teased him.  
*Ollie* .....
- They saw the burglar getting into the museum through a window.  
*The burglar* .....
- They think that over 20,000 people will go to the pop concert.  
*The pop concert* .....
- They criticised her but she wasn't unhappy about it.  
*She* .....
- They said I had to fill in two copies of the customs declaration.  
*I* .....
- They caught Mrs Dee taking things from the shop.  
*Mrs Dee* .....

3 Make passive sentences beginning with the italicised word(s). **E**

- Kay's questions began to irritate *Marco*.  
Marco began to be irritated by Kay's questions. (corresponding meaning)
- The team captain hopes to select *Omar*.
- Alastair arranged to take *Kathy* to the station.
- Critics have come to recognise *Galdos* as one of Spain's greatest novelists.
- The south coast continues to attract *holidaymakers*.
- Harris has agreed to interview *the Finance Minister*.

Do the sentences you have written have a corresponding meaning to the original, or a different meaning? Look carefully at the tense in the sentences given.

## Using passives

**A** We typically use a passive rather than an active in the following situations.

Reminder → Section D & Appendix 2

- ☆ Using a passive allows us to omit the agent (= the subject of the corresponding active sentence) by leaving out the prepositional phrase with **by**. We prefer passives when the agent:
  - is not known:  My office **was broken into** when I was on holiday.
  - is 'people in general':  An order form **can be found** on page 2.
  - is unimportant:  He **is thought** to be somewhere in Russia.
  - is obvious:  She **is being treated** in hospital. (the agent is clearly 'medical staff')
- ☆ In factual writing (e.g. describing procedures or processes) we often omit the agent, and use passives:
  - Nuclear waste will still be radioactive even after 20,000 years, so it **must be disposed of** very carefully. It **can be stored** as a liquid in stainless-steel containers which **are encased** in concrete. The most dangerous nuclear waste **can be turned** into glass which **will be stored** in deep underground mines.
- ☆ In informal contexts, particularly in conversation, we often use active sentences with a subject such as **people, somebody / someone, something, they, we, or you** even when we do not know who the agent is. In more formal contexts, we often prefer to use a passive so that we can avoid any mention of an agent. Compare:
  - They're installing** the new computer system next month. *and*
  - The new computer system **is being installed** next month. (*more formal*)

**B** Note also that some verbs have related nouns which express the same meaning. These nouns can be used as the subject of passive sentences, with a new passive verb introduced. Compare the example above and:

- The **installation** of the new computer system **will be completed** by next month.

**C** In English we usually prefer to put the topic (what is already being talked about) at the beginning of a sentence (or clause) and a comment on that topic at the end. Choosing the passive often allows us to do this. Compare these two texts and note where the topic (in *italics*) is placed in the second sentence of each. The second text uses a passive where the emphasis is on the (safety) valves:

- The three machines tested for the report contained different types of safety valve. The Boron Group in Germany manufactured *all the valves*.
- The three machines tested for the report contained different types of safety valve. *All the valves* were manufactured by the Boron Group in Germany.

Using the passive allows us to put long subjects at the end of a sentence. So, for example:

- I was surprised** by Dev's decision to give up his job and move to Sydney.

is more natural than 'Dev's decision to give up his job and move to Sydney surprised me', although the choice can depend on considerations of style and context.

**D** Instead of making a **that-clause** the subject of a passive sentence, it is normal to use an **it-clause** (see also Unit 25):

- Everybody **believed** (that) the plan would fail. (*active*)
- It was believed** that the plan would fail. (*passive*) *is more natural than*
- That the plan would fail* **was believed** by everybody.

**24.1** Write passive sentences about the development of an Olympic Games site starting with the italicised words. **A & Appendix 2**

1 They built *the main stadium* in under three years.  
*The main stadium was built in under three years.*

2 They have designed *the main stadium* to accommodate many different sports.

3 They will take down *the temporary stands* after the Games.

4 They will have completed *the basketball arena* by the end of May.

5 They are holding *the rowing competition* on the River Nene.

6 They had completed *the athletics track* only a year after the city got the Olympics.

7 They were using *the handball venue* as a warehouse until a year ago.

8 They should have finished *the badminton arena* by now.

**24.2** Rewrite these sentences beginning with a noun formed from the italicised verb (with the if necessary). Use a passive form of the verb in brackets, and make any other necessary changes. **B**

- 1 They will *consider* the issue at next week's meeting. (*give*)  
*Consideration will be given to the issue at next week's meeting.*
- 2 They will *appoint* a new managing director next week. (*make*)
- 3 People have *accused* the local council of corruption. (*make*)
- 4 They *demolished* the building in only two days. (*complete*)
- 5 They will *present* the trophy after the speeches. (*make*)
- 6 Local residents will certainly *resist* the proposed new industrial area. (*expect*)

**24.3** Complete the text with appropriate forms (active or passive) of the verbs in brackets. **A–D**

Slowly but surely the coastline of Britain (1) *is being worn away* (*wear away*) by an advancing sea. The country which once 'ruled the waves' now (2) ..... (*rule*) by them, with huge forces threatening to destroy vast areas of human and wildlife habitat. Already some of Britain's last wild, natural areas (3) ..... (*disappear*), and experts (4) ..... (*fear*) that this is just the beginning. It (5) ..... (*estimate*) that there will be a 38–55 cm rise in average sea levels by the year 2100. According to the Department of the Environment, during the next 50 years at least 10,000 hectares of farmland (6) ..... (*turn into*) mud flats and salt marshes by the increases in sea levels. Rather than trying to prevent the erosion, the present government (7) ..... (*use*) a method of 'managed retreat' by creating new defences further inland and allowing low-lying coastal farmland (8) ..... (*abandon*) to the sea. However, many of the country's major cities could also (9) ..... (*affect*). London, Bristol and Cardiff all (10) ..... (*expect*) severe flooding as our sea defences (11) ..... (*destroy*) by the rising tides.

## Reporting with passives; It is said that ...

A

We often use a passive to report what people say, think, etc., particularly if it is not important to mention who is being reported:

- People in the area **have been told** that they should stay indoors.
- Everyone **was asked** to bring some food to the party.

B

Another common way of reporting what is said by an unspecified group of people is to use **it + passive verb + that-clause** (see Unit 33 for more on **that-clauses**). Using this pattern allows us to put important information at the end of the sentence (see Unit 24C):

- It is reported** that the damage is extensive. (*compare* The damage is extensive, according to government sources.)
- It was decided** that the meeting should be cancelled. (*or* It was decided to cancel the meeting.)

*Also:* **allege, announce, assume, believe, calculate, claim, consider, demonstrate, discover, establish, estimate, expect, feel, find, know, mention, recommend, reveal, say, show, suggest, suppose, think, understand; agree, decide, hope, intend, plan, propose** (can also be followed by a **to-infinitive clause**)

Note that many other verbs connected with reporting are *not* used with **it + passive verb + that-clause**, but can be used as in A:

- We **have been informed** that we have to leave. (*but not* It has informed us ...)

*Also:* **encourage, persuade, reassure, remind, tell, warn**

These verbs need a personal object before the **that-clause** in an active form (e.g. They have informed us that ...)

C

An alternative to **it + passive verb + that-clause** is to use **subject + passive verb + to-infinitive** if we want the subject to be the topic of the sentence (see Unit 24C). Compare:

- It is reported** that the damage is extensive. *and*
- The damage is reported** to be extensive.

Most of the verbs listed in the first white box in B can also be used in this pattern except for **announce, decide, mention, propose, recommend, suggest**.

We can only use **tell** in this pattern when it means 'order'. So we can say:

- I was told** (= ordered) **to go** with them to the railway station.

but not 'The accident was told (= said) to have happened just after midnight'.

D

With some verbs we can also use **it + passive verb + wh-clause** to report information given or found out:

- It has now been revealed** who was responsible for the accident.
- The decision to build the bridge was taken before **it was established** whether it was actually needed.

*Also:* **discover, explain, find, know, reveal, show, understand**

E

When a **that-clause** begins **that + there ...**, we can make a corresponding passive form **there + passive verb + to be / to have been**. Compare:

- It is thought** (that) **there are** too many obstacles to peace. *and*
- There are thought to be** too many obstacles to peace.

We can use the same verbs in this pattern as with **subject + passive verb + to-infinitive** (see C).

5.1 Which of the verbs in brackets can complete the sentence? Underline one or both. **B & D**

- 1 It was ..... to hold new negotiations next month. (*agreed / announced*)
- 2 It has been ..... that the crash was the result of pilot error. (*proposed / shown*)
- 3 It was ..... that Mrs Ho would chair the meeting. (*hoped / explained*)
- 4 It has been ..... to appoint Dr Ahmadi as head teacher. (*decided / suggested*)
- 5 It has not yet been ..... who was responsible for the error. (*claimed / explained*)
- 6 It has now been ..... that half of cancer cases are lifestyle-related.  
(*established / revealed*)
- 7 It is ..... to employ 500 people in the factory. (*expected / intended*)
- 8 It is ..... to close the library permanently from next April. (*planned / recommended*)
- 9 It is ..... that another moon landing will take place next year. (*assumed / thought*)
- 10 It has been ..... how spiders are able to travel across the sea. (*discovered / said*)

5.2 If possible, rewrite these newspaper headlines as passive sentences with **it**. If not, write **X**.

**A & B**

- 1 **AGREEMENT THAT UN WILL SEND IN TROOPS**  
*It has been agreed that the UN will send in troops.*
- 2 **PATIENTS REASSURED ABOUT HOSPITAL SAFETY**
- 3 **WATER DISCOVERED ON MARS**
- 4 **TERRORISTS BELIEVED TO BE OPERATING IN BERLIN**
- 5 **MOON ASTRONAUTS EXPECTED TO RETURN TODAY**
- 6 **EX-PRESIDENT JULIUS REVEALED AS SPY**
- 7 **WARNING GIVEN ABOUT COMPUTER VIRUS**
- 8 **KING SAID TO BE MAKING GOOD RECOVERY**
- 9 **RESTAURANT ESTABLISHED AS SOURCE OF FOOD POISONING OUTBREAK**
- 10 **POLICE TOLD TO WORK LONGER HOURS**

3 Write two new sentences for each numbered sentence below, using **it + passive verb + that-clause** in one sentence and **subject + passive verb + to-infinitive** in the other. (The second pattern may not always be possible.) **C**



(1) We have discovered that a mechanical fault caused the problem. (2) We don't think that the fault is serious. (3) We expect that it will take several weeks to correct the fault. (4) We have decided to postpone the next rocket launch, and (5) we suggest that the next launch should take place in May.

- 1 *It has been discovered that a mechanical fault caused the problem. / A mechanical fault was discovered to have caused the problem.*

## LESSON IV

### Text A Environmental Pollution

Environmental pollution is one of the most serious problems facing humanity and other life forms on our planet today. Environmental pollution is defined as “the contamination of the physical and biological components of the earth/atmosphere system to such an extent that normal environmental processes are adversely affected.” Pollutants can be naturally occurring substances or energies, but they are considered contaminants when in excess of natural levels. Any use of natural resources at a rate higher than nature’s capacity to restore itself can result in pollution of air, water, and land.

### Pollution Science

Environmental pollution is the unfavorable alteration of our surroundings, wholly or largely as a byproduct of man’s actions, through direct or indirect effects of the changes in the energy pattern, radiation levels, and chemical and physical constitution and abundance of organisms. Environmental pollution is a global problem and is common to both developed as well as developing countries, which attracts the attention of human beings for its severe long-term consequences. The decline in environmental quality as a consequence of pollution is evidenced by loss of vegetation, biological diversity, excessive amounts of harmful chemicals in the ambient atmosphere and in food grains, and growing risks of environmental accidents and threats to life support systems. Pollution is viewed from different angles by different people but is commonly agreed to be the outcome of urban-industrial and technological revolution and rapacious and speedy exploitation of natural resources, increased rate of exchange of matter and energy, and ever-increasing industrial wastes, urban effluents, and consumer goods. Holdgate defined environmental pollution as the introduction by man, into the environment, of substances or energy liable to cause interference with legitimate uses of environment. Singh (1991) has defined pollution in a very simple manner, i.e., “Disequilibrium condition from equilibrium condition in any system.” This definition may be applied to all types of pollution ranging from physical to economic, political, social, and religious. Over the past couple of decades, various sources of pollution were identified that altered the composition of water, air, and soil of the environment. The substances that cause pollution are known as pollutants. A pollutant can be any chemical (toxic metal, radionuclides, organophosphorus compounds, gases) or geochemical substance (dust, sediment), biological organism or product, or physical substance (heat, radiation, sound wave) that is released intentionally or inadvertently by man into the environment with actual or potential adverse, harmful, unpleasant, or inconvenient effects. Such undesirable effects may be direct (affecting man) or indirect, being mediated via resource organisms or climate change. Depending on the nature of

pollutants and also subsequent pollution of environmental components, the pollution may be categorized as follows:

1. Air Pollution
2. Water Pollution
3. Soil/Land Pollution
4. Noise Pollution
5. Radioactive Pollution
6. Thermal Pollution

Among these types of pollution, air pollution is the main type threatening the environment, humans, plants, animals, and all living organisms.

#### Text B Microbial Bioremediation

Environmental pollution is the buildup and accumulation of toxic heavy metals in the air, water, and land that reduce the ability of the contaminated sites to support life. The rise in human population density and anthropogenic activity has led to degradation of the Earth's surface through misuse of environmental resources and improper disposal of wastes. In addition, the advancements in science and technology as well as the increase in industry have led to an increase in the dumping of wastes, ranging from raw sewage to nuclear waste, into the environment, which poses a serious problem for the survival of humanity. The conventional methods of waste disposables such as digging hole and dumping wastes, heat incineration, and chemical decomposition of contaminants were found to be more complex, uneconomical, and also lack public acceptance. Microbial bioremediation is an alternative, cost-effective and eco-friendly technology that provides sustainable ways to clean up contaminated environments. Recently, wide variety of organisms such as bacteria, fungi, algae, and plants with efficient bioremediating properties were successfully employed for efficient removal of toxicants from the polluted environments.

The microbial bioremediation process mainly depends on the biodegradation of pollutants by the enzymatic activity of microbial enzymes, which leads to the bioconversion of toxic pollutants to nontoxic or less toxic substances. The use of indigenous microbes for bioremediation is highly advantageous, because their growth is highly influenced by pH, temperature, oxygen, soil structure, moisture, and appropriate level of nutrients, poor bioavailability of contaminants and presence of other toxic compounds, which limit the use of other exogenous organisms for the treatment of polluted sites. Traditional culture-based approaches have resulted in identification, biochemical and genetic characterization of superior metal-resistant

and/or -accumulating or -transforming microorganisms. Molecular approaches have also provided insight into the microbial interaction with toxic heavy metals, which revealed that interaction of microbes with toxic metals is preferential for potential treatment of polluted sites. The molecular approaches involving 16S rRNA gene-based identification of microbes and analysis of genes involved in bioremediation provide in-depth knowledge of microbes involved in bioremediation as well as their functional capabilities in remediating the polluted environment. The culture-based techniques have provided only limited information about the indigenous microbial diversity in contaminated sites. The detection and enumeration of microbial diversity by using conventional 16S rDNA gene cloning and sequencing represent only the predominant bacteria phyla prevailing in the contaminated sites. The success of bioremediation failed for reasons such as lack of information on the bacterial species prevailing in the contaminated sites; lack of understanding of the metabolic capabilities, especially the factors controlling the growth and activity of microorganisms in the contaminated environment; and lack of understanding of how indigenous microbial communities respond to changes in environmental conditions.

Microorganisms exist on every part of our planet and contribute to its geochemistry, the cycling of elements, and the breakdown of wastes. This ability of microorganisms relies on their huge genetic and metabolic diversity, which affords great potential for their application toward biotechnological purposes. Due to limitations associated with existing culturable techniques, a new approach known as “metagenomics” has emerged to explore the genetic resource of both culturable and unculturable microorganisms from any environment. A metagenome represents a mixture of microbial genomes extracted directly from an environmental sample. The metagenomic approach circumvents the isolation and cultivation of individual microorganisms, and the metagenomic DNA extracted directly from the environment is used to identify the genes involved in bioremediation. Prior to screening desired gene of interest, the environmental sample is subjected to enrichment procedure in order to increase the abundance ratio of microbes with desired function. The enriched culture is then used for further metagenome screening procedure to identify genes based on their function. With the recent development of efficient cloning vectors such as bacterial artificial chromosomes (BACs) and cosmids, together with improved DNA isolation techniques and robust high-throughput screening methodologies, it is now possible to identify and express large fragments of DNA and subsequently screen large clone libraries using a functional-based approach. The present chapter reviews the metagenomic-based strategies for bioremediation of contaminated sites that will provide new perspectives on environmental pollution.

Text C Genetic Strategies for Advancing Phytoremediation Potential in Plants

Environmental pollution is one of the major problems that affects biodiversity, ecosystems, and human health worldwide by contaminating soil and water. This issue cannot be resolved through conventional tools and traditional strategies. The in-depth understanding of biotechnological interventions with the prospect to upgrade the phytoremediation potential needs to be elucidated. Plants deploy multiple physiological, biochemical, and molecular mechanisms to counter the deleterious effects of environmental pollutants. Phytoremediation, the use of plants for environmental restoration, exploits naturally occurring uptake capabilities of plant root systems, together with the translocation, bioaccumulation, or detoxifying abilities to clean up the surrounding environments. Phytoremediation is a cost-effective, environmentally friendly, noninvasive, and affordable technological solution used to extract or remove inactive metals and metal pollutants from contaminated soil and water. Recent technological development of molecular genetics and transgenic approaches has significantly increased the understanding of mechanisms of phytoremediation and recent results including the overexpression of genes engaged with metal uptake, transport, and sequestration of enzymes engaged with degradation of hazardous organic compounds have opened up new possibilities of phytoremediation. This chapter provides a critical review of the recent progress made toward the development of transgenic plants with improved phytoremediation capabilities and their potential use in environmental cleanup.

#### Text D Marine waters

Environmental pollution of marine ecosystems affects growth and productivity in all prokaryotic and eukaryotic organisms. Phytoplankton is the major producer in the oceans and its productivity rivals that of all terrestrial ecosystems taken together. Pollution is more severe in coastal ecosystems than in the open oceans, but the latter are also stricken by the accumulation of plastic material which has been calculated to amount to 250,000 t distributed over the oceans. Coastal ecosystems are affected by terrestrial run-off which includes municipal and industrial effluents, and fertilizers and pesticides from agriculture. The weed killer atrazine inhibits the photosynthetic electron transport chain and has been found to impair productivity in phytoplankton. This effect can be quantified monitoring chlorophyll a fluorescence e.g., by pulse amplitude modulated fluorescence). However, natural phytoplankton populations have been shown to develop an induced community tolerance to atrazine. The molecular mechanism of this resistance based on a genetic adaptation of the phytoplankton organisms has been clarified by Chamovitz et al. with the herbicide norflurazon. Natural phytoplankton communities are affected by accidental crude oil spills especially in shallow waters such as the Arctic Ocean. A water-soluble fraction of crude oil is formed by pyrenes which accumulate in the sediments. They are very toxic to phytoplankton which can be shown using a microwell bioassay. Since oil production will increase especially in coastal ecosystems, more pollution and damage

to phytoplankton is expected. This effect is augmented by increasing solar UV radiation and climate change induced higher temperatures .

Polychlorinated biphenyls (PCB) are major pollutants in marine ecosystems. These lipophilic chemicals can easily cross cell membranes of phytoplankton and therefore accumulate in the cells, as demonstrated in four species from the Baltic Sea . PCBs are also found in remote marine ecosystems where they are introduced into the water by air-water exchange . POPs were detected during a cruise in the Greenland Current and Arctic Ocean to accumulate in phytoplankton . Depending on the temperature, cell size, and hydrophobicity, POPs may enter cells, but are broken down by bacteria and phytoplankton. Other toxic substances found in marine waters are polycyclic aromatic hydrocarbons (PAHs), polychlorinated dioxins, furans (PCDD/Fs), and polybrominated diphenyl ethers (PBDEs), where they impair phytoplankton. Results from the Mediterranean Sea, the Atlantic, Arctic, and Southern Ocean indicate that solar UV increases the toxicity of PAHs from combustion engines and other pollutants . Antifouling paints on ship hulls such as tributyltin are further toxic agents for phytoplankton communities. As a consequence, recently new chemicals such as 4,5-dichloro-2-n-octyl-isothiazoline-3-one (DCOI) have been developed which rapidly degrade when released from ship hulls .

Exercise1. Answer the following questions:

- 1.How can you define environmental pollution?
- 2.Does it have severe long-term consequences?
- 3.What is an pollutant?
- 4.What does the microbial bioremediation process depend on?
- 5.Is phytoremediation an environmentally friendly solution?
- 6.What are coastal ecosystems affected by?

Exercise 2. Translate the following word combinations:

To be defined as, at a rate higher than, unfavorable alteration, life support systems, to be viewed from different angles, human population density, the biodegradation of pollutants, to contribute to, a deleterious effect, environmentally friendly, prokaryotic and eukaryotic organisms.

# Verb + -ing forms and infinitives 1

Reminder → F4– F13

A

Some verbs can be followed either by an **object + -ing** or a **possessive + -ing** with a similar meaning, although the **possessive + -ing** form is usually considered to be rather formal:

- I resented **Tom** winning the prize.  
(*more formally* I resented **Tom's** winning the prize.)
- Mia recalled **him** buying the book.  
(*more formally* Mia recalled **his** buying the book.)

Also: **detest, (dis)approve of, (dis)like, hate, love, object to** (= '(dis)liking' verbs); **forget, imagine, remember, think of** (= 'thinking' verbs)

Note that we only use a possessive form (Tom's, his) here to talk about a person or group of people:

- I remember **the horse** winning the race. (*but not* ... the horse's winning ...)

B

Some verbs can be followed by **to + -ing** where **to** is a preposition:

- She **confessed to** *stealing* the money.
- You **don't object to** *working* late tonight, do you?

Also: **adapt, adjust, admit, look forward, own up, resort**

Note that these verbs can also be followed by **to + noun phrase**:

- She **confessed to** *the crime*.
- You **don't object to** *the work*, do you?

C

Other verbs can be followed by different prepositions + **-ing**. For example:

- ☆ **by + -ing** (**begin, close, end, finish (off / up), open, start (off / out)**)
  - Can you **begin by** *cleaning* the floors, and then do the windows?
- ☆ **on + -ing** or **on + object + -ing** (**concentrate, count, depend, focus, insist, rely**)
  - Clare **insisted on** (*Jack*) *wearing* a suit to the party.
- ☆ **of + -ing** or **of + object + -ing** (**approve, hear, know, speak, talk, tell**)
  - Have you ever **heard of** (*anyone*) *getting* arrested for gossiping before?
- ☆ **object + from + -ing** (**deter, discourage, keep, prevent, prohibit, stop**)
  - The noise from next door **prevented me from** *sleeping*.

D

Some verbs (**feel, hear, notice, observe, overhear, see, watch**) can be followed by an object and then either by an **-ing** form or **bare infinitive**, but the meanings may be slightly different. Compare:

- I **saw** *them playing* football from my window. (**-ing** indicates an action in progress) *and*
- I **saw** *him smash* the bottle. (**bare infinitive** indicates a completed action)
- I was able to **watch** *them building* the new car park from my office window. (**-ing** suggests that I watched, but not from start to finish) *and*
- I **watched** *him climb* through the window, and then I called the police. (**bare infinitive** suggests I watched the whole action from start to finish)

E

After the verbs **dare** and **help** we can use either a **bare infinitive** or **to-infinitive**:

- I was angry with him, but I **didn't dare** (*to*) *say* anything.
- We hope the Twitter campaign will **help** (*to*) *raise* awareness of the problem.

When **dare** has an object, we can only use a **to-infinitive**. Compare:

- I **dared** *him to cross* the river. (*not* I dared him cross ...) *and*
- I **helped** *them* (*to*) *pack*.

After **have, let** and **make** we can use an **object + bare infinitive** but not **to-infinitive**:

- His exam results might **make** *him work* harder. (*not* ... might make him to work ...)
- I **had** *Irena clean* up her bedroom before I **let** *her go* out to play.

0.1 If possible, rewrite these sentences using the possessive form of the object. If not, write X. **A**

- 1 I really hate you having to be away from home so much.  
*I really hate your having to be away from home so much.*
- 2 We don't approve of the developer locating the factory so close to houses.
- 3 I have always detested the dog jumping up at me when I visit them.
- 4 No one heard the man shouting for help.
- 5 It is difficult to imagine him accepting the decision without any objection.
- 6 No one in the crowd that day will forget Ashe fighting so hard to win the match.
- 7 I remember them arguing a great deal when they were children.
- 8 The police investigated him stealing cars from the city centre.

0.2 Rewrite the italicised part of each sentence so that it has a similar meaning. Use one of the verbs from the box and an -ing form. **B & C**

adapt    approve    discourage    end    ~~own-up~~    rely

- 1 In a survey, 65% of dentists *said that they had made* mistakes in treating patients.  
*owned up to making*
- 2 I don't *think children should wear* jewellery in school. ....
- 3 I would like to *finish with a summary of* the main points of my talk. ....
- 4 My parents *said they thought I shouldn't go* to university. ....
- 5 You can't *trust Sophie to turn up* on time. ....
- 6 I grew up in the countryside, and I found it difficult to *get used to life* in a big city.  
.....

0.3 Underline the most likely verb form. Consider why it is the most likely. **A**

- 1 I heard the tyre *burst / bursting* and then the lorry skidded across the road.
- 2 Carl noticed someone *watch / watching* him from an upstairs window.
- 3 She felt the wasp *sting / stinging* her just before she brushed it off her arm.
- 4 With a good telescope you can see the eagles *feed / feeding* their chicks in the nest.

0.4 Match the sentence beginnings and endings, adding an appropriate object where necessary and write (to) where this might be included. **E**

- |  |                                 |
|--|---------------------------------|
| 1 When Lana thought of going on the roller-coaster it made ... | a prevent hay fever.            |
| 2 The new course is intended to help ...                       | b <del>feel quite ill.</del>    |
| 3 Scientists hope the new drug will help ...                   | c control the speed of the fan. |
| 4 We didn't agree with the decision, but we didn't dare ...    | d wait outside my office.       |
| 5 When Ethan arrives, have ...                                 | e understand modern art.        |
| 6 The dial on the left lets ...                                | f protest against it.           |

1 + b *When Lana thought of going on the roller-coaster it made her feel quite ill.*



## Verb + -ing forms and infinitives 2

A

After some verbs we need to include an object before a **to-infinitive** in active sentences:

Reminder → F4–F13

- The police **warned** *everyone* **to stay** inside with their windows closed. (*not* The police warned to stay ...)

Also: **advise, allow, believe, cause, command, enable, encourage, entitle, force, invite, order, persuade, remind, show, teach, tell**

After other verbs, however, we can't include an object before a **to-infinitive**:

- We've **decided to leave** early. (*not* We've decided us to leave early.)

Also: **agree, consent, fail, hope, manage, offer, pretend, refuse, start, threaten, volunteer**

B

After some verbs we have to put a preposition, usually **for**, immediately after the verb before an **object + to-infinitive** (see also Unit 29):

- They **arranged for** *Rania* **to stay** in London. (*not* They arranged *Rania* to stay ...)
- They **applied for** *the court appearance* **to be postponed**.

Also: **advertise, campaign, long, plan, wait** (After **apply** and **campaign**, the **to-infinitive** is usually passive.)

Other verbs can be followed by different prepositions + **object + to-infinitive**. For example:

- ☆ **at + object + to-infinitive** (**go on** [= to criticise continually], **keep on** [= to talk about something many times], **scream, shout, yell**)
  - I **shouted at** *the man* **to open** the door.
- ☆ **on + object + to-infinitive** (**call** [= to officially ask someone to do something], **count, depend, prevail, rely**)
  - We're **depending on** *you* **to find** a solution soon.
- ☆ **to + object + to-infinitive** (**appeal, gesture, motion, signal**)
  - He closed the door and **signalled to** *the pilot* **to take off**.

C

A number of other **to-infinitive** and **-ing** forms can also follow verbs –

- ☆ **verb + negative to-infinitive** and negative **-ing** forms
  - We **decided not to go** to Paris after all. (*compare* The people **didn't decide to go** to war, it was their political leaders.)
  - Some of my friends **have considered not going** to college because of the cost. (*compare* I **haven't considered going** to college – I don't want to go on studying after school.)
- ☆ **verb + to have + past participle**
  - The accident **seems to have happened** at around 1 pm yesterday.
  - Simmons **is alleged to have assaulted** a police officer.

This form is often used to give an opinion (after verbs like **seem** and **appear**) about a past event, or to report what is or was said (after passive verbs like **is / was alleged, believed, said, thought**) about past events.

- ☆ **verb + having + past participle**

The **verb + -ing** and **verb + having + past participle** forms have a similar meaning with these verbs:

- I now **regret buying** the car. *and*  I now **regret having bought** the car.

This form is most often used with **admit, deny, forget, recall, regret** and **remember**.

**1 Complete each sentence with one of the verbs in brackets. A**

- 1 a My mother ..... me to throw away my old toys. (threatened / told)  
 b My mother ..... to throw away my old toys.  
 2 a They ..... to visit Riko in hospital. (allowed / offered)  
 b They ..... us to visit Riko in hospital.  
 3 a I ..... to carry the heavy boxes up the stairs. (managed / persuaded)  
 b I ..... Hamza to carry the heavy boxes up the stairs.  
 4 a She ..... Lars to help in the garden. (agreed / encouraged)  
 b She ..... to help in the garden.  
 5 a I ..... her to tidy up the house. (pretended / reminded)  
 b I ..... to tidy up the house.  
 6 a Jonas ..... to study economics at university. (advised / hoped)  
 b Jonas ..... me to study economics at university.

**2 Write one word that is missing from each line in these texts. Put a  $\lambda$  where the word should be. B**

a	<p>1 When I advertised <math>\lambda</math> a website designer for the business, Greta got</p> <p>2 the job. But I've now learnt that you can't rely Greta to do anything.</p> <p>3 I waited ages her to come up with some initial ideas for the site, and</p> <p>4 then I had to keep on her to do any more work on it. Finally, she said she couldn't do it after all.</p>	<p>for</p> <p>.....</p> <p>.....</p> <p>.....</p>
b	<p>1 Managers of the National Electricity Company have appealed workers</p> <p>2 to end their strike, and have called the government to intervene in the</p> <p>3 dispute. The Energy Minister said that he has arranged employers and</p> <p>4 employees to meet next week, and he prevailed strikers to return to work in the meantime.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

**3 Complete the sentences with the verbs in brackets using one of the patterns in section C opposite. Give alternatives where possible. C**

- 1 I ..... anyone Marta's new address. (agree – not tell)  
 2 The prisoners ..... through a broken window last night. (think – escape)  
 3 I ..... him at the conference. (not recall – see)  
 4 He ..... any stolen property. (deny – receive)  
 5 He ..... as the person who donated the money. (ask – not name)  
 6 She ..... all the way back home. (not feel like – walk)  
 7 I am sure my purse was on the table a few minutes ago, but now it ..... (seem – disappear)  
 8 The Etruscans ..... in Italy in the 8th or 9th century BC. (believe – arrive)



## Participle clauses with adverbial meaning 1

A

We can use **present participle (-ing)** and **past participle (-ed)** clauses with an adverbial meaning. (See also Unit 59.) They often give information about the timing, causes, and results of the events described:

Reminder → J6-J10

- Opening her eyes*, the baby began to cry. (= When she opened her eyes ...)
- Faced with a bill for £10,000*, Ivan has taken an extra job. (= Because he is faced ...)
- Looked after carefully*, the plant can live through the winter. (= If it is looked after ...)
- Having finished the book*, I had a holiday. (perfect; = When / Because I had finished ...)
- The fruit was expensive, *being imported*. (simple passive; = ... because it was imported)
- Having been hunted close to extinction*, the rhino is once again common in this area. (perfect passive; = Although it had been hunted close to extinction ...)

B

The implied subject of a participle clause (that is, a subject known but not directly mentioned) is usually the same as the subject of the main clause:

- Arriving at the party*, we saw Ruth standing alone. (= When **we** arrived ... **we** saw ...)

However, sometimes the implied subject is not referred to in the main clause:

- Having wanted to drive a train all his life*, this was an opportunity not to be missed.

In careful speech and writing we avoid different subjects for the participle and main clause:

- Turning round quickly*, the door hit me in the face. (first implied subject = 'I'; second subject = 'the door')

would be better as:

- When I turned round quickly, the door hit me in the face.

C

In formal English, the participle clause sometimes has its own subject, which is often a pronoun or includes one:

- The collection of vases is priceless, **some** *being over 2000 years old*.
- Her voice** *breaking with emotion*, Vasiliki spoke about her father's illness.

We use the present participle (-ing) clause to talk about something happening at the same time as an event in the main clause, or to give information about the facts given in the main clause.

D

When we use **not** in a participle clause it usually comes before the participle. However, it can follow the participle, depending on meaning:

- Not understanding** the rules, I found the cricket match boring. (= because I didn't understand the rules)
- Hoping* **not** to be recognised, I chose a seat in a dark corner. (= I hoped that I wouldn't be recognised)

E

We use a clause beginning with **having + past participle** rather than a present participle if the action in the main clause is the consequence of the event in the participle clause:

- Having broken** her leg the last time she went, Giorgia decided not to go on the school skiing trip this year. (or **After breaking** her leg ...; *not* *Breaking* her leg ...)

We can use either a **present participle (-ing)** clause or a **having + past participle** clause with a similar meaning when the action in the participle clause is complete before the action in the main clause begins. Compare:

- Taking off** his shoes, Ram walked into the house. (*Having taken off* ... has a similar meaning) *and*
- Running** across the field, I fell and hurt my ankle. (= While I was running ...; 'Having run ...' would suggest that I fell *after* I had run across the field)

**1 Rewrite the sentences beginning with one of the clause forms from sections A and D opposite.**

**A & D**

- 1 When she saw the dog coming towards her, she quickly crossed the road. *Seeing the dog coming towards her, she quickly crossed the road.*
- 2 As she was dressed all in black, she was almost invisible in the starless night.
- 3 As I don't have a credit card, I found it difficult to book an airline ticket online.
- 4 Antonio spent a lot of time filling in job application forms because he was unemployed.
- 5 Because I was walking quickly, I soon caught up with her.
- 6 The house was built of wood, so it was clearly a fire risk.
- 7 I was eager to catch the bus in good time because I had been told off the day before for arriving late.
- 8 She didn't know where the theatre was, so she asked for directions at the hotel reception.
- 9 As she was a nurse, she knew what to do after the accident.
- 10 He had spent his childhood in Oslo, so he knew the city well.

**2 If the implied subject of the two clauses is the same write S and if it is different write D. Rewrite the D sentences to make them more acceptable. B**

- 1 Waiting for the bus, a car went through a puddle and splashed water all over me.
- 2 Known mainly as a writer of novels, Rashid has now written a successful biography.
- 3 Keeping a careful eye on the spider, Suzanne hurried out of the bathroom.
- 4 Looking down from the hill, the town spread out before us towards the coast.
- 5 Feeling rather sick, the boat ploughed through the huge waves.
- 6 Found only in the Andes, the plant is used by local people to treat skin diseases.

**3 Write not in the more appropriate place in each sentence. D**

- 1 ..... wishing ..... to boast, she said nothing about her success.
- 2 ..... pretending ..... to notice that people were staring at me, I carried on looking on the floor for my lost contact lens.
- 3 ..... determined ..... to be beaten, she put all her energy into the serve.
- 4 ..... feeling ..... well, she went home early.
- 5 ..... bothering ..... to put on his coat, he left the house.
- 6 ..... trying ..... to cry, she waved to Harun as the train pulled out.

**4 Join these sentences using having + past participle or the -ing form of the first verb. Which sentences can have either form? E**

- |   |   |
|---|---|
| 1 I moved house recently.                                     | a I decided to cancel the order.                  |
| 2 I looked over my shoulder.                                  | b I felt I needed to change my life.              |
| 3 I walked through the tunnel.                                | c I could see Ida running after me.               |
| 4 I waited six weeks for the washing machine to be delivered. | d <del>I don't yet have internet access.</del>    |
| 5 I suffered from depression myself as a teenager.            | e I was able to understand most of what she said. |
| 6 I parked the car about a kilometre from the stadium.        | f I banged my head on the low roof.               |
| 7 I reached my mid-thirties.                                  | g I could understand how Nathan was feeling.      |
| 8 I learned some Swahili as a child.                          | h I walked the rest of the way.                   |

1 + d *Having moved house recently, I don't yet have internet access.*

## Participle clauses with adverbial meaning 2

**A** We can use prepositions such as **after**, **before**, **besides**, **by**, **in**, **on**, **since**, **through**, **while**, **with**, and **without** in a present participle (-ing) clause with an adverbial meaning (see also Unit 58):

Reminder → J6–J10

- While understanding** her problem, I don't know how I can help. (= Although I understand ...)
- After spending** so much money on the car, I can't afford a holiday.
- Before being changed** last year, the speed limit was 70 kph. (passive form)

An alternative is a clause with a verb that can change according to tense and subject. Compare:

- Since moving** to London, we haven't had time to go to the theatre. *and*
- Since we moved** to London, we haven't had time to go to the theatre. (less formal)

### **B** **by**, **in**, **on** + -ing

<input type="checkbox"/> <b>By working</b> hard, she passed her maths exam.	= the <b>-ing clause</b> indicates 'the method or means used'
<input type="checkbox"/> They only survived <b>by eating</b> roots and berries in the forest.	
<input type="checkbox"/> <b>On returning</b> from Beijing, he wrote to the Chinese embassy.	= the <b>-ing clause</b> indicates 'when'
<input type="checkbox"/> Josh was the first person I saw <b>on leaving</b> hospital.	
<input type="checkbox"/> <b>In criticising</b> the painting, I knew I would offend her.	= the <b>-ing clause</b> indicates 'cause'
<input type="checkbox"/> <b>In choosing</b> Marco, the People's Party has moved to the left.	

We can often use **by** + -ing or **in** + -ing with a similar meaning, although **by** + -ing is preferred in informal contexts:

- In / By writing** about Spanish culture, I came to understand the country better. ('In writing ...' = the consequence of writing was to understand ...; 'By writing ...' = the method I used to understand the country better was to write...)

But compare:

- By telephoning** every hour, she managed to speak to the doctor. (*not* In telephoning ...; the method is the focus here, not the consequence)

### **C** **with** -ing; **without** -ing

**With** + -ing often introduces a reason for something in the main clause. This use is fairly informal.

Note that a subject has to come between **with** and -ing:

- With Louise living** in Spain, we don't see her often. (= Because Louise lives in Spain ...)

**With** and **what with** can also be used with a noun phrase to introduce a reason:

- With my bad back** I won't be able to lift a heavy suitcase.
- What with the traffic and the heavy rain**, it's no wonder you were late.

We can use **without** + -ing to say that a second action doesn't happen:

- I went to work **without eating** breakfast.
- They left **without paying**.

Often, however, it has a similar meaning to 'although ... not' or 'unless':

- Without meaning** to, I seem to have offended her. (= Although I didn't mean to ...)
- Without using** the app, I can't judge how good it is. (= Unless I use the app ...)

**D** Adverbial meanings can also be added by a clause beginning with a conjunction or adjective but with no verb. This kind of clause has the same meaning as a clause beginning with a **conjunction** + **subject** + **be** and is used in fairly formal English (more informal alternatives are given in brackets):

- While in Poland**, they will play two concerts in Warsaw. (*or* **While** they are in Poland ...)
- Although just two feet apart**, they didn't speak. (*or* **Although** they were just ...)
- I try to use public transport **whenever possible**. (*or* ... **whenever** it is possible.)
- Unhappy with the decision**, Johnson swore at the referee. (*or* **Because** he was unhappy ...)

1.1 Complete these sentences using a preposition from (i) and the **-ing** form or **being + past participle** form of a verb from (ii). You may use the words from (i) more than once. **A**

(i)

after before since  
through while

(ii)

~~come~~ interview leave overthrow  
sell take welcome work

- 1 Since coming out of hospital, I have been to the gym every day.
- 2 ..... on TV last night, the minister mentioned that she would be retiring soon.
- 3 ..... the back off the computer, make sure it is unplugged.
- 4 ..... the government's new policy, I think it should have been introduced months ago.
- 5 ..... in a military takeover, the king has been under house arrest.
- 6 ..... with young children for the last 40 years, she has come to understand their behaviour better than most.
- 7 ..... to the public, most milk is pasteurised.
- 8 ..... Oxford University in 1983, Painter spent three years teaching at a local school.

2 Join the sentences, beginning them with **by + -ing**, **on + -ing**, or **in + -ing**. **B**

- |                                |   |
|--------------------------------|---|
| 1 She returned home.           | a She soon began to lose weight.                            |
| 2 She gave up sugar.           | b She saved over a hundred pounds a month.                  |
| 3 She turned down the job.     | c She knew that she might offend him.                       |
| 4 She moved to a smaller flat. | d <del>She found Dave waiting outside her front door.</del> |
| 5 She entered the classroom.   | e She gave up the possibility of a huge salary.             |
| 6 She criticised her father.   | f She was surprised when all the children stood up.         |
- 1 + d On returning home, she found Dave waiting outside her front door.

3 Rewrite these sentences beginning **With ... -ing** or **Without ... -ing**. **C**

- 1 We couldn't go on holiday because Maryam had flu.  
.....
- 2 I won't be able to advise you unless I have more information.  
.....
- 3 He had solved the problem, although he didn't realise it.  
.....
- 4 I couldn't wait for Andrei any longer as time was running out before the train left. .  
.....

4 Revise this biography by replacing six more full clauses with reduced clauses (as in the examples in section D opposite), and making any other necessary changes. **D**

Although from a poor background  
~~Although she was from a poor background~~, Paula Regis gained a place at Southam University. She was always fascinated by the stars and she took a first degree in astrophysics. Once she was at university she also became interested in student politics and, because she was popular with her fellow students, was elected University President in her second year. This didn't distract her from her studies, however, and while she was in the final year of her degree, she won the International Young Scientist of the Year award for her work on star classification. When she was asked what was the secret of her success she said, 'Just hard work and a little luck.' She is determined to continue her research and she has recently begun work on her PhD.

# Adjective + to-infinitive, -ing, that-clause, wh-clause

**A**

When an adjective comes after a linking verb (e.g. **appear, be, become, seem**; see **Unit 21**) we can use a number of patterns after the adjective including a **to-infinitive, -ing, that-clause, and wh-clause**. (For **It + linking verb + adjective**, see **B**.)

	<i>adjective +</i>	<i>example adjectives used in this pattern</i>
i	<b>to-infinitive</b> <input type="checkbox"/> You're <b>free</b> <i>to leave</i> at any time you want.	(un)able, careful, crazy, curious, difficult, easy, foolish, free, good, hard, impossible, inclined, mad, nice, prepared, ready, stupid, welcome, willing
ii	<b>-ing</b> <input type="checkbox"/> He was <b>busy</b> <i>doing</i> his homework.	busy, crazy, foolish, mad, stupid; (after the verb <i>feel</i> ) awful, awkward, bad, good, guilty, terrible
iii	<b>that-clause</b> <input type="checkbox"/> He became <b>worried</b> ( <i>that</i> ) she might fall down.	afraid, alarmed, amazed, angry, annoyed, ashamed, astonished, aware, concerned, disappointed, glad, (un)happy, pleased, shocked, sorry, upset, worried; certain, confident, positive, sure
iv	<b>wh-clause</b> <input type="checkbox"/> I'm not <b>certain</b> ( <i>of / about</i> ) <i>why</i> he wants to borrow the money	afraid, not aware / unaware, not certain / uncertain, doubtful, not sure / unsure, worried
v	<b>to-infinitive or that-clause</b> <input type="checkbox"/> She was <b>afraid</b> <i>to say</i> anything. <input type="checkbox"/> I was <b>afraid</b> <i>that</i> I would be late.	the adjectives in (iii) above, except aware, confident and positive
vi	<b>to-infinitive or -ing</b> <input type="checkbox"/> He'd be <b>stupid</b> <i>to leave</i> now. <input type="checkbox"/> He'd be <b>stupid</b> <i>giving up</i> the job.	crazy, foolish, mad, stupid
vii	<b>-ing or that-clause</b> <input type="checkbox"/> She felt <b>awful</b> <i>leaving</i> him with all the clearing up. <input type="checkbox"/> She felt <b>awful</b> <i>that</i> she was late.	(after the verb <i>feel</i> ) awful, awkward, bad, good, guilty, terrible

**B**

## It + linking verb + adjective

We can sometimes use **it + linking verb + adjective + to-infinitive** as an alternative to **subject + linking verb + adjective + to-infinitive** (see also **Units 96 and 97**):

- The fireworks were **amazing** *to watch*. *or*
- It was amazing** *to watch* the fireworks.

*Also: annoying, awkward, easy, good, interesting, lovely, simple, terrific, wonderful*

In informal speech we can use an **-ing** form instead of a **to-infinitive**:

- It is easy** *understanding* her.
- It was amazing** *watching* the fireworks.

We can use a similar pattern with **adjective + wh-** or **that-clause** (see **Unit 96A**):

- It is not **clear** *why* he did it.
- It was **odd** *that* she left so suddenly.

After certain adjectives we often include **of + subject** between the adjective and a **to-infinitive**:

- It was rude (**of them**) *to criticise* her. *or*
- They were rude *to criticise* her.

*Also: brave, generous, kind, mean, thoughtful, unprofessional, unreasonable*

When we talk about how somebody reacts to a situation we can use **it + make** with an adjective and **to-infinitive, -ing** or **that-clause**:

- It made me angry** (*to discover*) *that* so much money was wasted. (*or It made me angry* *discovering* *that ... or I was angry to discover that ...*)

*Also: ashamed, furious, glad, happy, miserable, nervous, sad, tired, uncomfortable*



1 Complete the sentences with a **to-infinitive** or an **-ing** form of the verbs in the box. Give alternatives where possible. **A**

cheat    know    leave    open    panic    reduce  
resign    talk    turn    underestimate

- 1 I'm afraid I can't afford that much. Would you be prepared ..... the price if I pay cash?
- 2 Kenzo was stupid ..... in the exam. He was bound to get caught.
- 3 He felt good ..... that he had helped solve the problem.
- 4 Don't feel that you need to stay to the very end. You're free ..... at any time.
- 5 Anyone trying to climb the mountain would be foolish ..... the challenge facing them.
- 6 People said I was crazy ..... a shop in the village, but it's been a success so far.
- 7 She was too busy ..... on the phone to notice that Roya had come into the room.
- 8 It's so difficult to get a job at the moment you'd be mad .....
- 9 Some people would be inclined ..... if they smelt smoke in the house.
- 10 I felt awful ..... people away from the concert, but there just wasn't any more room.

2 Correct any mistakes in the italicised parts of this email about a holiday in Thailand. **A**

... After a couple of days Mark announced that he was going walking in the hills near the hotel. I thought he was (1) *stupid that he would go* alone and that it was dangerous. But he said that he was (2) *confident not to get lost*. We ended up arguing and finally he stormed off, saying he (3) *wasn't sure when he'd be back*. I went into town, but I felt a bit (4) *guilty to shop* all day. On the bus on the way back to the hotel I got talking to a local woman and (5) *was concerned learning* that it got very cold in the hills at night. I started (6) *to get worried* that he might be in danger, but I (7) *wasn't certain what* to do. But when I got back to the hotel, there was Mark (8) *busy to drink* orange juice by the pool. He'd decided not to go walking after all! He said he (9) *was sorry upsetting me*. At first I was angry and said he was stubborn and that he just (10) *wasn't prepared admitting* that I'd been right. But really I was just (11) *pleased that* he was safe ...

3 Rewrite these sentences using **It + be + adjective**. If possible, use **of + a personal pronoun** after the adjective. **B**

- 1 She was brave to spend the night in the old house alone. *It was brave of her to spend the night in the old house alone.*
- 2 Such a magnificent performance was wonderful to hear.
- 3 You were mean to eat all the cake and not leave any for me.
- 4 They were unreasonable to complain about the exam results.
- 5 The top of the jar was awkward to get off.
- 6 The shelves were simple to put up.
- 7 He was unprofessional to criticise the headteacher in front of the staff.
- 8 You were kind to give birthday presents to the children.

4 Complete these sentences with **It made me + any appropriate adjective**. **B**

- 1 *It made me angry* to hear how she had been insulted.
- 2 ..... listening to his lies.
- 3 ..... that we wouldn't be working together again.
- 4 ..... to learn how badly we treated immigrants in the 1950s.
- 5 ..... hearing the dentist's drill as I sat in the waiting room.

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