

# *UNIT TWELVE*

## Protection of the environment



## Pre-reading task

Work in pairs to complete the following tasks before you read the text below.

- ❖ What can be done to protect the environment from pollution?
- ❖ Name a major nuclear power plant accident of the 20<sup>th</sup> century in Europe.

### Reading 1

Read the text below to check your answers to the pre-reading task.

## Environment - Energy production

**T**he limited supply of fossil fuels, coupled with their contributions to *global warming, air pollution, and acid rain*, makes it clear

that alternative forms of energy will be needed to fuel industrial production and transportation. A number of energy alternatives are available, but many of these options are unlikely to replace fossil fuels in the foreseeable future because they cost more, produce less energy than fossil fuels, or pose safety risks.

A handful of countries produce a portion of their electricity using nuclear energy. But many people oppose nuclear energy because an accident can cause *massive devastation*. The 1986 accident at



the Chernobyl nuclear power plant in Ukraine scattered *radioactive contamination* over a large part of Europe. Approximately 200,000 people were *evacuated*, and human health has been dramatically affected. Studies in 1999 found that the rate of thyroid cancer in young Ukrainian children was ten times higher than prior to the accident.

So, in order to protect the environment, one reasonable solution would be to combine *conservation strategies* with the increased use of solar energy. The price of solar energy relative to traditional fuels has steadily dropped, and if environmental concerns were factored into the cost, solar power would already be significantly cheaper.

Source: Adapted from Microsoft Encarta Student 2009 DVD

## ➔ Reading task 1

*Complete the following sentences using words or phrases from the previous text.*

1. Nuclear accidents can cause massive .....
2. Fossil fuels contribute to air pollution, .....
3. In a nuclear power plant, detection and measurement of radioactivity and ..... is often the job of a Certified Health Physicist.
4. .... is an umbrella term that refers to any source of usable energy intended to supplement or replace fuel sources without the undesired consequences of the replaced fuels.
5. After the Chernobyl disaster, thousands of people were ..... by the authorities.

## Word study 1

*Connect the words in the left hand column with their appropriate counterparts on the right to form collocations which appear in the previous text.*

1.	global	A.	contamination
2.	acid	B.	strategies
3.	radioactive	C.	rain
4.	conservation	D.	pollution
5.	air	E.	concerns
6.	environmental	F.	warming

1. ....	2. ....	3. ....	4. ....	5. ....	6. ....
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## ➔ Reading task 2 – Cloze

Skim the passage quickly to get the gist, and then select the appropriate word for each blank from the choices provided.

### The disposal of Nuclear waste

The Atomic Energy Commission has built enormous tanks in remote areas to hold nuclear 1. .... The tanks are specially designed to provide 2. .... for the waste liquids, which are literally “hot” and radioactively “hot”. The tanks are designed to be corrosion-proof and 3. ....-proof for more than a hundred years.

Considerable 4. .... has been under way on better methods of handling radioactive wastes. Several processes have been developed for 5. .... them and solidifying them to a much smaller and much more manageable form. Under one 6. ...., the concentrated wastes could be stored deep 7. .... in abandoned salt mines or in natural caverns. Another



1. a. garbage    b. wastes  
c. litter
2. a. cooling    b. heating  
c. boiling
3. a. peak    b. leak  
c. peat
4. a. review    b. revision  
c. research
5. a. concentrating    b. consuming  
c. liquefying
6. a. proposition    b. preposition  
c. proposal
7. a. underneath    b. underground  
c. overland

<sup>1</sup> The generators have been called atomic and SNAP generators (from the capitals in “System for Nuclear Auxiliary Power”).

approach to the problem is to find uses for the more highly radioactive wastes. This is in effect an effort to solve the waste problem by making of the waste a desirable **8.** ..... Some successes have already been achieved in this direction. Therefore small, compact radioisotopic generators have been **9.** ..... with isotopes that were formerly considered to be radioactive wastes, such as strontium-90, serium-144 and cesium-137<sup>1</sup>.

- 8.** a. by-pass      b. by-product  
c. offspring
- 9.** a. fueled      b. combusted  
c. activated



## Pre-reading task

*Skim the Reading text that follow in order to match the terms on the left with their definitions on the right.*

1. deterrent	<i>a. capable of being maintained at a steady level without exhausting natural resources or causing ecological damage</i>
2. legislation	<i>b. activity that disregards moral or civil law</i>
3. violation	<i>c. the collection of rules imposed by authority</i>
4. irreversible	<i>d. having no boundaries or limits</i>
5. sustainable	<i>e. tending to prevent something from happening</i>
6. infinite	<i>f. that cannot be changed back</i>

1. ....	2. ....	3. ....	4. ....	5. ....	6. ....
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## Reading 2

Read the text again and do the task that follows.

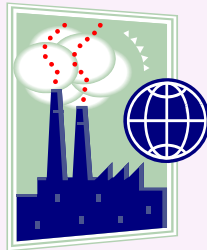
### Protection of the environment

**M**ost scientists agree that if pollution and other environmental *deterrents* continue at their present rates, the result will be *irreversible damage* to the *ecological cycles* and balances in nature upon which all life depends. Scientists warn that fundamental, and perhaps drastic, changes in human behaviour will be required to *avert* an ecological crisis.

To safeguard the *healthful* environment that is essential to life, humans must learn that Earth does not have *infinite resources*. Earth's limited resources must be conserved and, where possible, reused. Furthermore, humans must *devise* new strategies that combine environmental progress with economic growth. The future growth of developing nations depends upon the development of *sustainable* conservation methods that protect the environment while also meeting the basic needs of citizens.

Many nations have acted to control or reduce environmental problems. For example, Great Britain has

largely succeeded in cleaning up the waters of the Thames and other rivers, and London no longer suffers the heavy *smogs* caused by industrial *pollutants*. Japan has some of the world's strictest standards for the control of water and air pollution. In Canada, the Department of Commerce has developed comprehensive programs covering environmental contaminants.



In the United States, the Environmental Protection Agency (EPA) was established in 1970 to protect the nation's natural resources. In addition, the U.S. Congress has provided governmental agencies with *legislation* designed to protect the environment. Many U.S. states have also established environmental protection agencies. Citizen groups, such as the Sierra Club and the National Audubon Society, educate the public, support *environment-friendly legislation*, and help assure that federal and state laws are *enforced* by pointing out *violations*.

Source: Adapted from [http://www.who.int/phe/health\\_topics/en/index.html](http://www.who.int/phe/health_topics/en/index.html)

## ➔ Reading task

*Read the text again to find words or expressions which mean the following:*

1. Conducive to good health of body or mind. ....
2. To prevent the occurrence of. ....
3. A form of air pollution produced by the reaction of sunlight with hydrocarbons, nitrogen compounds, and other gases primarily released in automobile exhaust. ....
4. To ensure observance of laws and rules. ....
5. designed to minimize harm to the natural world, e.g. by using biodegradable ingredients. ....

## Word study – Vocabulary building

*Using your dictionary, complete the table below with the correct word forms which can also be found in Reading 2.*

	Verb	Noun	Adjective
1.	to contaminate	.....	.....
2.	.....	sustainability	.....
3.	.....	deterrence	.....
4.	to pollute	.....	.....
5.	.....	.....	legislative
6.	.....	.....	violative
7.	to .....	.....	reduced



## Writing

*The following extract of a lecture discusses the future prospects of the environment. Use it as a stimulus to write an essay (200-250 words) on:*

- a. whether there is hope or not for the protection of the environment, and*
- b. what measures should be taken by governments and people in order to avert an ecological crisis.*

"(...) Global environmental collapse is not inevitable. But the developed world must work with the developing world to ensure that new industrialized economies do not add to the world's environmental problems. Politicians must think of sustainable development rather than economic expansion. Conservation strategies have to become more widely accepted, and people must learn that energy use can be dramatically diminished without sacrificing comfort. In short, with the technology that currently exists, the years of global environmental mistreatment can begin to be reversed". (...)



## Speaking

- a. Look at the photograph below and answer the questions that follow.*



1. What kind of pollution does this picture depict?
2. What are some of the possible causes for this kind of pollution?



3. Does this kind of pollution exist in your country and if yes, to what extent?

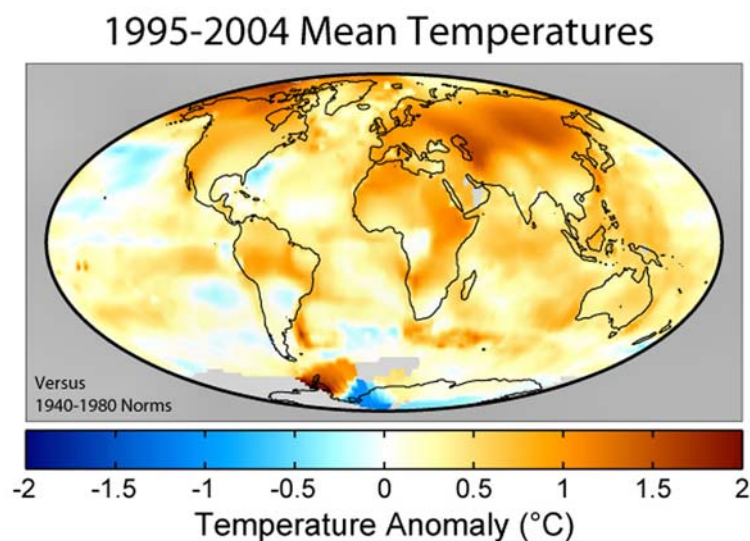
*b. The photograph on the previous page shows a situation that requires urgent action. What action do you think should be taken in order to solve the problem or to improve the situation? You can use the following expressions and vocabulary to present your ideas.*

### Expressions for making suggestions:

- Perhaps we could... + *inf*
- We might... + *inf*
- I suggest that we should... / I suggest that we + *bare infinitive*
- How about... + *ing* / What about... + *ing*
- Why don't we... + *inf*

### Useful vocabulary

- ban, forbid, prohibit, restrict, limit / factories in cities
- relocate, move / industrial complexes, factories
- impose penalties on industries for not complying...
- invest in technology for prevention / clean-up
- invest in renewable sources of energy





## Listening

*a. Listen to the recording of a short interview between a newspaper journalist and a marine biologist about an oil spill in Sulu Sea, Philippines. Then decide whether the following sentences are **true** or **false**, according to what you have heard.*

1. Oil spills are deadly for marine life.
2. The immediate effect of oil on water is that it can suffocate fishermen.
3. The marine biologist suggests that officials should undertake investigations immediately after the spill.
- 4 It may take decades to rehabilitate marine life in affected areas.
5. In tropical countries, marine life needs more time to recover from the pollution.

*b. Listen to the recording again to check your answers.*



*Fig. 1: An oiled bird. Black Sea oil spill*

## Language study

### **First, second and third conditional, stating facts**

**First conditional:** What is stated in the condition is possible to happen.

*This condition refers either to present or to future time.*

**Second conditional:** What is stated in the condition is improbable or impossible to happen.

*This condition refers to present time, although the tense used is past.*

**Third conditional:** What is stated in the condition is unreal.

*This condition refers to the past.*

**Notes:** 1. There is also a “mixed type” for the present results of an unreal condition in the past (the condition refers to the past but the result is in present time).

2. For the second conditional, “were” replaces “was”.

Study the following table (first, second, third and mixed conditional):

First	<b>If clause:</b> <i>if + simple present</i>	<b>Main clause:</b> <i>will + infinitive</i>
Second	<b>If clause:</b> <i>if + simple past</i>	<b>Main clause:</b> <i>would + infinitive</i>
Third	<b>If clause:</b> <i>if + past perfect</i>	<b>Main clause:</b> <i>would have + past participle</i>
Mixed	<b>If clause:</b> <i>if + past perfect</i>	<b>Main clause:</b> <i>would + infinitive</i>

### **Examples:**

1. **First conditional:** *If you **see** Old Faithful, the giant geyser in Yellowstone National Park, you **will have** an idea of how much heat is trapped inside the earth.*