

10

SOURCES OF ENERGY



READING

Before You Read

a) Match the pictures with the correct words or phrases.





1. wind _____
2. coal _____
3. nuclear energy _____
4. solar energy _____
5. garbage _____
6. biogas _____
7. natural gas _____
8. oil _____

b) Read brief descriptions of two main kinds of energy sources. Put the names of the 8 energy sources in a) into the correct columns.

- Renewable energy sources can be reformed naturally in a short period of time. They are not used up when the energy is exploited.
- Non-renewable energy sources cannot be re-made or regrown in a short period of time. They consist of fossil fuels and minerals.

Renewable Energy Sources	Non-renewable Energy Sources
– wind	–
–	–
...	...

Reading Text

Read the text and do the tasks that follow.

- A. Energy is fundamental to poor people – the one-third of humanity that does not have modern energy supplies like electricity, with which their life could be improved. What are their energy sources now? What new sources may help then?

- B. Mr. John Ngujuna and his family live on a small farm near Nakuru in Kenya. His wife, children, and grandparents spend hours each day gathering fuel wood. They buy over four liters of kerosene a week for the lamps that provide dim light in their house at night. They spend a lot of their spare cash on dry cell batteries for their radio and flashlights.
- C. For many families in Kenya, the prospect of better energy services would make their life different. An improved solar stove for cooking would reduce the arduous work of firewood collection, and women and children would not be breathing thick smoke while the cooking was going on. Small solar systems in the village would also mean that the clinic could operate at night and urgent operations could be carried out. Very small solar lighting systems would allow children to study in the evening and the school to run literacy classes for adults. Solutions such as solar stoves and lanterns are now introduced to a lot of Kenyan families in remote areas.
- D. For many people living in rural areas in other developing countries of the world, biogas is the largest energy resource available, without which their life would be very difficult. The main use of biogas is for cooking and heating. As biogas is smoke-free, it helps solve the problem of indoor air pollution, hence preventing respiratory diseases among women and children, who are exposed to wood-burning stove smoke far more than men. Plant waste and animal manure cost almost nothing, yet they are valuable sources for generating power to pump water or run machines that farmers grind grains with.
- E. The tendency to use renewable energy sources is on the increase when non-renewable ones are running out. In the near future, people in the developing world may use wind or sea waves as the environment-friendly energy sources – who knows?
- a) *Choose the best title for the text.*
1. Renewable and Non-renewable Sources of Energy
 2. Solar System and Biogas
 3. Sources of Energy for the Poor
 4. Advantages of Renewable Energy Sources

b) *In which paragraphs are the following ideas discussed?*

1. Smoke affects people's health. _____
2. Non-renewable sources are being used up. _____
3. The new source helps farmers do their work better. _____
4. The new source generates electricity for poor people. _____
5. The new source may save people's lives. _____
6. The new source is not costly. _____
7. People may use wind power to serve their life in the future. _____
8. People don't have electricity. _____

c) *Answer the questions.*

1. Why are solar systems and biogas introduced to poor people?
2. What energy sources does John Ngujuna's family use to sustain their life?
3. In what way can solar energy improve the life of poor people in Kenya?
4. What are the advantages of using biogas?

d) *Discuss in groups.*

Which energy sources are people in different areas in Viet Nam currently using for cooking in their homes?



LISTENING

a) *Below is a set of pictures describing some kinds of biomass. Work in groups. Discuss how each kind of biomass can be used as a source of energy.*

Types of Biomass



b) Mr. John Jackson is giving a lecture on energy sources. Listen to the first part and check (✓) the ideas that are mentioned in his lecture.

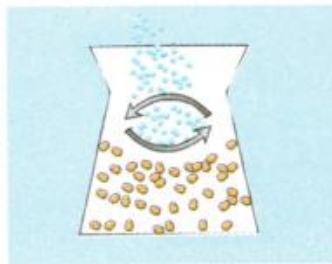
1. People on Earth are in need of more nuclear energy.
2. People have used coal and oil to generate electricity for a long time.
3. Coal and oil are non-renewable energy sources.
4. Burning coal and oil produces smoke.
5. Burning coal and oil may cause lung cancer.
6. People have to look for new energy sources because coal and oil will be used up.
7. The new energy sources are called renewable.
8. Renewable energy sources such as wind and the Sun are limitless and clean.

c) Look at the pictures. Listen to the second part and complete the diagram.



a

car using ethanol



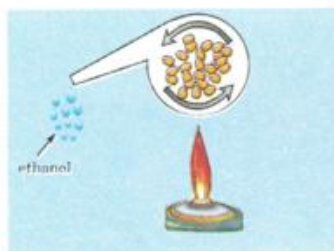
b

made into sugars



c

corn is ground



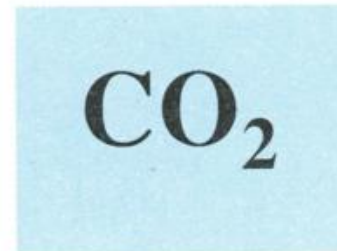
d

ethanol is made



e

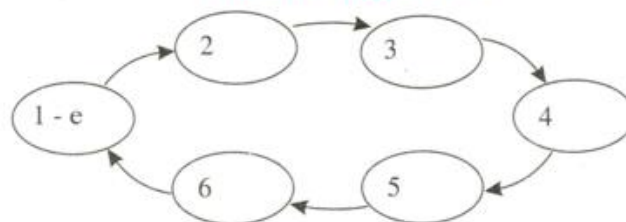
corns



f

carbon dioxide

The Biomass Cycle



d) Work in pairs. Use the information in the diagram in c) to retell how biomass is recycled.



SPEAKING

Alternative Ways of Saying Things



Useful Expressions

Asking people to clarify

- I don't quite understand.
- What exactly do you mean?
- What does that mean?
- ...

Saying something in another way

- That means... / I mean...
- What I mean is, ...
- In other words, ...
- Let me put it another way.
- Let me give you an example.

a) Work in pairs. Complete the following table with the given information.

- | | |
|------------------------------|------------------------|
| - (not) costly | - dangerous |
| - harmful to the environment | - pollution-free |
| - limitless | - running out |
| - smelly | - dependent on weather |
| - environment-friendly | |

Energy source	Advantages	Disadvantages
Coal		
Wind		
Sun		
Nuclear		
Garbage		

- b) *Work in pairs. One of you talks about the advantages or disadvantages of some sources of energy. The other wants clarification.*



Example

A: I think using coal as an energy source is not a good idea. It's running out.

B: What does that mean?

A: I mean there will be no coal left if we continue to exploit it.

B: Really?

- c) *Work in pairs. Talk about the advantages and disadvantages of cooking fuel (natural gas, wood, kerosene, electricity, ...) and transportation fuel (gasoline, electricity, ...) currently used in your home or neighborhood.*



Example

A: We use natural gas for cooking at home. It's very convenient.

B: What exactly do you mean?

A: Let me give you an example. I can prepare breakfast within only 10 minutes, without wasting time making a wood fire!

B: I see.



WRITING

Writing about Places

a) Read the following paragraph and complete the table.

The Kingdom of Thailand is 513,115 square kilometers in area. It has a population of more than 64,631,595 million. Bangkok, its capital, has about 6 million people. Thailand exports a lot of textiles, garments, electronic goods, prawns, rice, and precious gems. It imports petroleum, petroleum products, iron, and steel. Its main source of electricity comes from traditional thermal power stations (91.51%), while water power stations generate 6.31%, and wind and solar sources just 2.18%. Nuclear power plants are still undeveloped and account for 0% in this country.

Kingdom of Thailand	
Area (sq. km)	
Population	
Capital	
Population of the capital	about 6 million
Exports	
Imports	
Percentage of electricity from traditional thermal sources (burning fossil fuels)	
Percentage of electricity from hydroelectric sources	
Percentage of electricity from nuclear sources	
Percentage of electricity from solar and wind sources	

b) Complete a brief outline of this paragraph.

1. _____
2. _____
3. Electricity production

- c) Use the information provided in the following table to write a paragraph about one of the three countries.

	Kingdom of Sweden	Bolivarian Republic of Venezuela	Brunei Darussalam
Area	449,964 sq. km	916,445 sq. km	5,765 sq. km
Population	9,016,596	25,730,435	379,444
Capital	Stockholm	Caracas	Bandar Seri Begawan
Population of the capital	761,721	1,836,000	50,000
Exports	Transportation equipment, electronic sound equipment, power-generating equipment	Petroleum, natural gas, agricultural products	Crude petroleum, petroleum products
Imports	Petroleum, petroleum products, transportation equipment	Raw materials, transportation equipment, chemicals, food, live animals	Manufactured goods, food products
Percentage of electricity from traditional thermal sources	6.80%	31.87%	100%
Percentage of electricity from hydroelectric sources	41%	68.13%	0%

Percentage of electricity from nuclear sources	48.59%	0%	0%
Percentage of electricity from solar and wind sources	3.61%	0%	0%

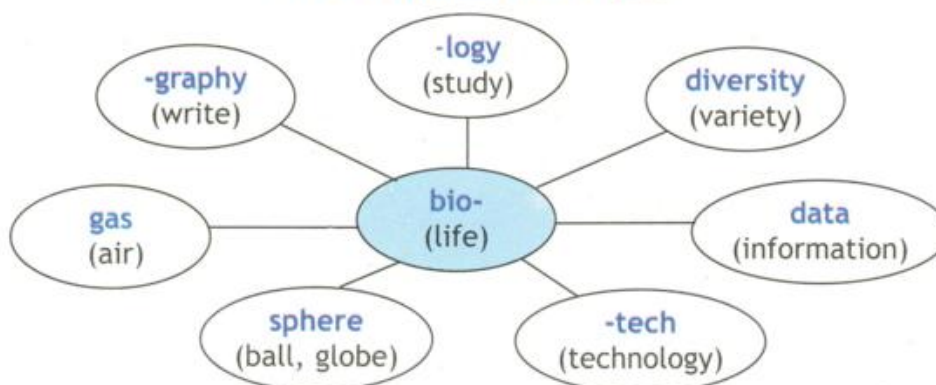
d) Look for facts and figures about Viet Nam and write a paragraph about it.



LANGUAGE FOCUS

Word Study

Word Formation with *Bio-*



a) Match the words in column A with their meanings in column B.

A	B
1. biology	a. the use of living cells and bacteria in industrial and scientific processes
2. biography	b. the variety of animals and plants found within a specified region
3. biogas	c. information about a person and about what they have done in their life
4. biosphere	d. science or study of life
5. biotech	e. gas, especially methane, that is produced by dead plants and that can be burned to produce heat
6. biodata	f. the story of a person's life written by somebody else
7. biodiversity	g. the part of the Earth's surface and atmosphere in which plants and animals can live

b) Complete the sentences with appropriate words from a).

1. The police investigated his _____ and found that he once robbed a bank in the USA.
2. I like to study _____. It helps me know a lot about life on earth.
3. Many countries are encouraging students to study _____ in order to develop their agriculture and industry.
4. Have you read Martin Luther King's _____? I really admire him.
5. Do you think our government should encourage people in the countryside to use _____ as a new energy source?

Grammar

Relative Clauses with Prepositions



Examples

- Plant waste and animal manure are valuable sources for generating power to run machines *that farmers grind grains with*.
- For many people living in rural areas in other developing countries of the world, biogas is the largest energy resource available, *without which their life would be very difficult*.

a) Look at the information about Mary, and then complete sentences about the people in her life. The first one has been done for you.

Mary lives in a big apartment with a roommate whose name is Ann. Her parents are working on a farm in the south, and she sees them only once or twice a year. Now she is working for Mr. Eric Wilson in Chicago. On weekends, she plays badminton with Mina, her colleague. Sometimes she reads to an 80-year-old neighbor, Karen, or baby-sits for a couple called Kim and Joe. Everybody in the apartment building likes her. She is now in love with Bill, a young handsome man, who lives next door.

1. Ann is the roommate Mary lives with.
2. Mr. Eric Wilson is _____
3. Mina is _____
4. Karen is _____
5. Kim and Joe are _____
6. Bill is _____

b) Read the situations and complete the questions. The first one has been done for you.

1. John stayed at a hotel.

You ask him: "Did you like the hotel you stayed at?"

2. Sue had lunch at a coffee shop.

You ask her: "What's the name of the coffee shop _____?"

3. Sam lives in a town.

You ask him: "Do you like _____?"

4. Peter works in a water power station.

You ask him: "How big is _____?"

5. Nga is listening to music.

You ask her: "Is _____ good for the nerves?"

c) Join the sentences by changing the second sentence of each pair into a relative clause.

1. Here's the address. You should write to this address.

2. They finally found the most beautiful church. In front of the church stood a statue.

3. Renewable energy sources are difficult topics. I'm not familiar with these topics.

4. This country now has 300 wind turbines. The national network relies on these turbines.

5. Solar energy is the only way to solve the problem of energy shortage now. We've been very much worried about that problem.
