

Unit 5

Lesson 1

SB pages 44-45

Sources of energy

Teacher: Our project today is to find out about renewable energy resources. That means resources which are continually replaced and will not run out any time soon. Ramzi, what have you chosen as an example of a renewable resource?

Ramzi: The sun is a renewable source of energy. A lot of living things depend on its energy for heat and light. This energy can also be captured and used to power things. For example, if you have a **solar** calculator, it contains a solar **cell**, which uses sunlight to power the calculator. Solar **panels** that are used on houses have thousands of solar cells, and they make electricity from the sun's heat. The major advantage of solar energy is that, after the solar panels have been installed, electricity is not expensive to generate.

Teacher: What about you, Nadia? What did you find out? Nadia: In windy places, wind energy can be used to make electricity, using wind **turbines**. These turbines are found in 'wind farms'. They have blades that are attached to a **generator** at the centre. The wind spins the blades and the generator runs. This

makes **electricity**. However, wind turbines can't work if there is no wind, and sometimes the wind speed is so high it damages them.

Teacher: Ibrahim, what's your example of a renewable resource? Ibrahim: It's biomass. Biomass is **plant** material and animal waste that is used as **fuel**. For example, wood is a biomass fuel as long as we continue to plant new trees to replace those we cut down. Biomass can be used to provide heat and also to make electricity. The biomass is burnt to heat water and make **steam**. The steam is then used to make electricity.

Before you begin

1 Look at the pictures of different energy sources. Do you know what they are called?

a solar panels b wind turbines c nuclear power station.

2 Read the words in the box. Which refer to energy from the sun and which refer to energy from the wind? Check the meaning of any words you don't know in the Activity Book glossary or in a dictionary. solar wind farms turbines panels windy heat cell generator sunlight.

Sun: solar, panels, heat, cell, sunlight

Wind: wind farms, turbines, windy, generator

3 Three students have researched renewable energy sources. Read and listen to the conversation. Complete the text with the words in the box.
turbines electricity solar steam plant panels fuel generator cell.

1 solar 2 cell 3 panels 4 turbines 5 generator 6 electricity 7 plant 8 fuel 9 steam

Comprehension

4 Read and listen to the conversation again and answer the questions.

1 What do the underlined words refer to?

Our (line 1): the teacher and the students'; its (line 7): the sun's; They (line 21): turbines; those (line 33): trees

2 Which is the only form of renewable energy that is a fuel?

Biomass is the only renewable energy that is a fuel.

3 What disadvantages do the three energy sources have? Complete the following table. Disadvantages of energy sources Solar Wind Biomass.

Solar	Wind	Biomass
expensive	do not work if there is no wind	trees must be planted to produce biomass

4 In what other situations would biomass fuel not be renewable? Explain your answer.

Suggested answer: Biomass would not be renewable if it was energy produced by burning wood, and the trees cut down for fuel were not being replanted, since this would mean that it was not being renewed.

5 Which of the energy sources in exercise 3 do you think is the best for producing electricity? Justify your answer.

Suggested answer: I think it depends on the country you live in. For example, in Jordan there is a lot of sun, so the sun would be the best source for producing electricity.

6 Wind turbines are expensive to build and maintain although the electricity they generate does not cost much at all. Is wind power a good source of renewable energy?

Suggested answer: In my opinion, you should find out if there is enough electricity produced by the wind to make up for the high cost of building the turbines.

Pronunciation

5 In the text on page 44, we have three words that have the same sound. Listen to these words in the box and identify the sound. What other letter combinations make this same sound?

our

out

about

Read the text and find another word that has the same sound.

thousands, houses, found, power, however, down

Unit 5

Lesson 1

Activity Book page 31

Sources of energy

Vocabulary

1 The words in bold are in the wrong sentences. Choose words from the box to correct them so that the sentences make sense. Three words are not needed.

Solar heat turbines panels cells steam generators

1 Water can be heated up by heat panels, which contain thousands of small solar turbines.

2 Wind biomass can be used to convert wind energy into electricity.

3 Solar is natural material which is grown or produced to be used as fuel.

4 When biomass is burnt, the heated water produces generators, which is used to make electricity.

Answers

1 solar / cells

2 turbines

3 Biomass

4 steam

المعلم الالكتروني الشامل