

## ENERGY

### I. LEAD IN.

#### 1. Discuss with your partner: What gives you energy? Consider

- a) daily routine
- b) food
- c) sports
- d) people
- e) pastime
- f) place
- g) anything else I just cannot think of

#### 2. Energy idioms: Match the underlined phrases with their meaning

- a) Danny's bouncing off the walls, he's starting a new job on Monday.
- b) Hey Lucas, dial it back a bit!
- c) Our new assistant is a real eager beaver.
- d) I'm out of gas.
- e) No wonder Mary is ill. She has been burning the candle at both ends for a long time.

- to lack energy, be tired;
- to work very hard and to stay up till late at night;
- to be too excited about something, in need to tone sth down;
- to be very excited and full of nervous energy;
- to be hard-working and enthusiastic, sometimes considered overenthusiastic

### READING

#### 1) Exam Practice. Read the text and find words corresponding with those definitions/synonyms:

1. *hits*
2. *applies*
3. *for that reason*
4. *collecting*
5. *particles*
6. *sending, setting in motion*
7. *characterized*

#### 2) Now underline the definitions for as many types of energy as you can.

#### *The Many Forms of Energy*

*Energy is the ability to do work. When a hammer strikes a nail, it exerts a force on the nail that causes it to move. The movement of the hammer has the ability to do work and therefore has a form of energy that we call kinetic energy. Kinetic energy is the energy of motion.*

*An object may have energy not only because of its motion but also because of its position or shape. For example, when a watch spring is wound, it is storing energy. When this energy is*

released, it will do work of moving the hands of the watch. This form of energy is called potential energy. Potential energy is stored energy. Water in a dam is another example of potential energy.

There are many types of kinetic and potential energy, including chemical, thermal, mechanical, electrical, and nuclear energy. Chemical energy is potential energy that is stored in gasoline, food, and oil. Just as the watch spring needs to be released to do work of moving the hands, the energy stored in food molecules needs to be released by enzymes or substances in the body, and the energy stored in gasoline must be released by the spark plug to do its work of propelling the car forward. Thermal energy may be defined as the kinetic energy of molecules. When a substance is heated, the molecules move faster, which causes that substance to feel hot. Mechanical energy is energy related to the movement of objects. Electric energy is energy that is produced by electric charges. Nuclear energy is the energy that is stored in the nucleus of certain kinds of atoms, like uranium.

*Fran Zimmerman: English for Science*

**3) Analyze the underlined definitions and complete the chart.**

<b>TERM = GENERAL CLASS + CHARACTERISTICS WORD</b>	<b>GRAMMAR</b>
	<b>relative clause</b> (who, which, that, where)
	<b>reduced relative clause</b> (no relat. pronou)
	<b>infinitive phrase</b>
	<b>prepositional phrase</b>
	<b>may</b> (more than one way of defining)

**4) In the following definitions, underline the general class once, and the specific characteristics twice.**

1. A machine is a device that transforms energy from one form to another.
2. An insulator is a substance that does not conduct energy from one form to another.
3. Ecology is the study of the environment.
4. A satellite is a celestial body that orbits another celestial body.
5. Fission is the process of breaking or splitting into parts.

**5) Join the following pairs of sentences to form a relative clause. Use who, which, that, where.**

1. Evaporation is the process.
2. A dew point is the temperature.

3. Marine biologists are scientists.
4. A laboratory is a place.
5. Oxygen is a colourless, tasteless, odourless, gaseous element..
6. A generator is a machine.
7. A bond is the chemical link.

1. It is essential to life and required for combustion.
2. It converts kinetic energy to electricity.
3. It holds atoms together in molecules and giant structures.
4. Dew condenses from air.
5. A liquid changes into a gas.
6. They study animals and plants living in the sea.
7. Experiments are performed there.

**6) Say what is wrong with the following definitions and correct them.**

1. An apple is round, red, and about the size of a fist.
2. Radium is an element.
3. A unicorn is not a real animal.
4. A camera is very expensive.
5. Acoustics is a science.
6. An ear is an auditory appendage of Homo sapiens and other species.

*Tasks 4,5,6 adapted from Fran Zimmerman:English for Science*

**7) Listening** <https://www.youtube.com/watch?v=iyxy1sZfDTA> (2:10 – 7:00)

**Sixty symbols – Energy**

**Listen and complete the missing parts of statements.**

- a) This little figure is ..... and the speaker got him from .....
- b) The doll is pretending to be .....
- c) Doll's kinetic energy turns into ..... energy of its rod.
- d) Then he has potential energy due to his .....
- e) This is an example of converting .....into .....into  
.....due to its.....
- f) His center of .....is below the bar.
- g) When the speaker was a child, his mother helped him swing by .....
- h) The movements of the swing slows down due to .....
- i) The sum of potential and kinetic energy is .....
- j) One of the most fundamental laws of nature is .....

**8) Grammar. Complete the sentences below with appropriate relative pronouns (give all possibilities)**

1. Elements are substances \_\_\_\_\_ cannot be broken down by chemical methods any further.
2. Understanding electromagnetism and nuclear physics led to the development of products \_\_\_\_\_ have transformed modern society.
3. Campus is the part of Masaryk University \_\_\_\_\_ seminar rooms are equipped with modern audio-visual systems.
4. The laws of classical physics describe systems \_\_\_\_\_ important length scales are greater than the atomic scale.
5. Our teacher is the person \_\_\_\_\_ instructions we must obey.
6. Geomagnetism is a field \_\_\_\_\_ deals with the study of earth's magnetic field.
7. Newton was the scientist \_\_\_\_\_ discovered and unified the different laws of motion.
8. \_\_\_\_\_ of you can describe Lagrangian mechanics?
9. \_\_\_\_\_ knows the symbols of all the chemical elements?
10. Destructive distillation is a method \_\_\_\_\_ involves separating a mixture of several components of different boiling points.

**8) Taboo words. Work in groups of 4. Play Taboo and then try to add two examples of your own.**