

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

**3. Match the strips of paper, so that you have the right picture with the right description.****II. READING – 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*

### 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 the work of moving the hands of the watch. This form of energy is called 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. This causes the substance to feel hot. Mechanical energy is the energy needed to move the objects.

Electrical 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.

### III. Look at the ways of making definitions used in the text

Term =	Class	+ Characteristics	GRAMMAR
a) <i>Chemical energy</i>	<i>is potential energy (a place, a person, a scientific branch, substance, instrument = a general word)</i>	<b>that/which is/ studies/ is concerned with/ deals with/ relates to/ involves...</b> <i>is stored in gasoline, food, and oil.</i>	<b>defining relative clause (who/that/which...)</b> + verb
<p>Complete the sentences below with appropriate <b>relative pronouns</b> (give all possibilities)</p> <ol style="list-style-type: none"> <li>Elements are substances _____ cannot be broken down by chemical methods any further.</li> <li>Understanding electromagnetism and nuclear physics led to the development of products _____ have transformed modern society.</li> <li>Kampus is the part of Masaryk University _____ seminar rooms are equipped with modern audio-visual systems.</li> <li>The laws of classical physics describe systems _____ important length scales are greater than the atomic scale.</li> <li>Our teacher is the person _____ instructions we must obey.</li> <li>Geomagnetism is _____ deals with the study of earth's magnetic field.</li> <li>Newton was the scientist _____ discovered and unified the different laws of motion.</li> <li>_____ of you can describe Lagrangian mechanics?</li> <li>_____ knows the symbols of all the chemical elements?</li> <li>Destructive distillation is a method _____ involves separating a mixture of several components of different boiling points.</li> </ol>			
b)	<b>is/may be defined as...</b>	<b>of...</b>	<b>prepositional phrase (of + noun)</b>
c)	<b>means/ describes...</b>	<b>(needed) to ...</b>	<b>verb phrase (past participle + to infinitive/ to infinitive)</b>

**IV. Now change these sets of words into definitions**

*Example: Bronze - an alloy - copper and tin.  
Bronze is an alloy **which/that is produced** from copper and tin.*

Beaker – container – flat bottom, cylindrical

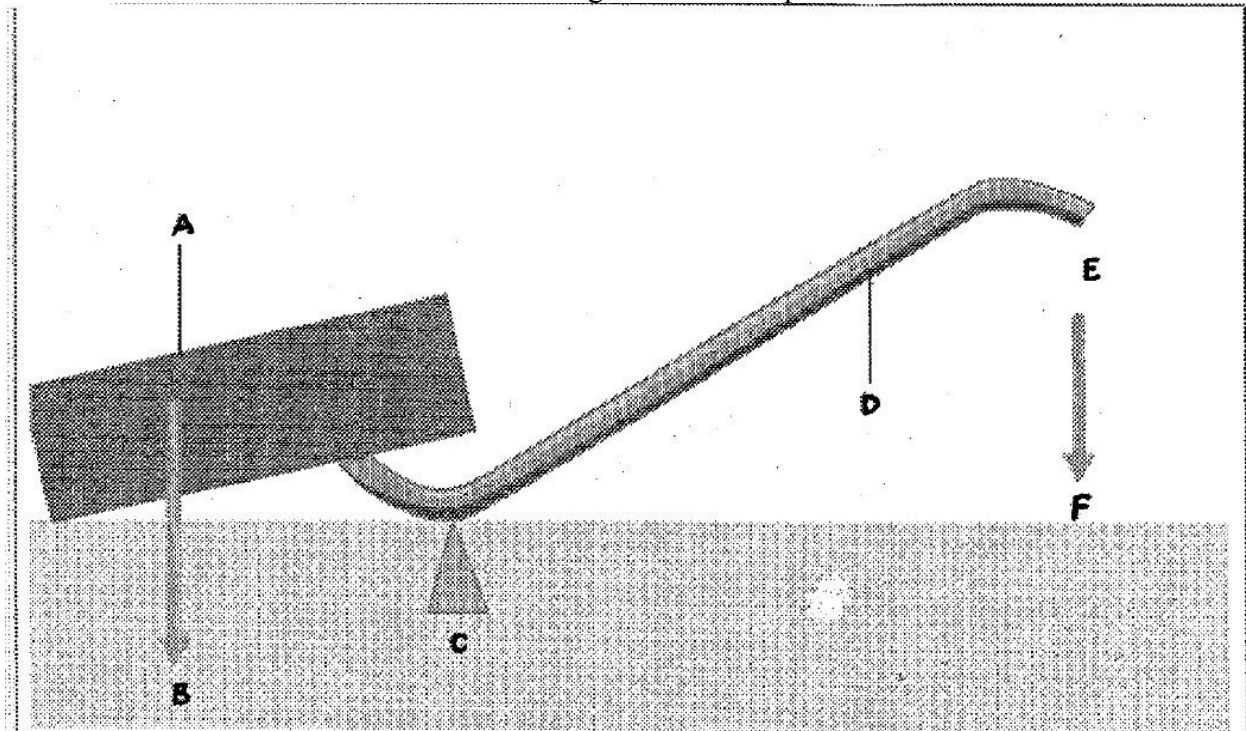
Combustion engine – engine – burning of petrol/ oil/ other fuel

Oxygen – element – breathing and combustion

Evaporation – process – liquid into gas

Generator – machine – one form of energy to another

One of your own

**V. LISTENING.** Listen to the recording and label the picture.

**VI. Give other examples of levers**, draw simple pictures and explain how it works (what is the load, where is effort applied, what acts as a fulcrum, etc).

Sources:

Oreska et al (2006) *English for Chemists*

Kelly, K. (2008) *Science* MacMillan

Ex. II-IV: adapted from A.Rozkošna: *Energy* JAC02 handout