МИНОБРНАУКИ РОССИИ

ГОУ ВПО «УРАЛЬСКИЙ ГОСУДАРСТВЕННЫЙ ЛЕСОТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков

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В ПОИСКАХ НАУЧНЫХ ОТКРЫТИЙ

Часть III

Методические указания
к изучению теоретического курса,
к практическим занятиям
для студентов очной и заочной форм обучения.
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Уважаемые студенты!

Данные методические указания имеют профессионально ориентированную направленность и нацелены на подготовку к Интернет-тестированию после изучения базового курса английского языка на ИЭФ. Согласно европейскому стандарту они выводят Вас на уровень владения английским языком *B2*. Поскольку Интернет-тестирование имеет своей основной целью проконтролировать, в первую очередь, Вашу компетентность в различных типах «чтения» (изучающее, ознакомительное, поисковое) и «письма» (главным образом, делового), то в соответствии с этим и построена структура методических указаний. В них Вы получите исчерпывающую информацию по всем дидактическим единицам, связанным с «чтением»:

1) ознакомительным (определение истинности утверждения, ложности утверждения);

2) поисковым (определение наличия или отсутствия в тексте запрашиваемой информации);

3) изучающим (элементы анализа информации, аннотирования, сопоставления, а также выделения главных компонентов содержания текста).

В отношении «письма» (как одного из видов речевой деятельности) Вы ознакомитесь с оформлением делового письма, электронного сообщения, письма-уведомления, письма-запроса, резюме, письма-заявления, служебной записки, повестки дня.

Мы будем рады принять все Ваши замечания в устной или в письменной форме. Это поможет нам в дальнейшей работе по совершенствованию содержания обучения на втором курсе ИЭФ.

Units 1-12 даны в Методических указаниях, части I и II.

Unit 13. Chemical processes

I. Before you read

1. Discuss these questions with your partner

- What does chemistry study?
- How old is the science of chemistry?
- Would you like to work as a chemist?

2. Vocabulary

Element	[ˊelimənt]	a substance that consists of only one type of atom
Compound	[ˊkɒmpaund]	a chemical substance that consists of two or more elements
Liquid	[ˊlikwid]	a substance that can flow and has no fixed shape, not gas
Gas	[gæs]	an air-like substance which expands freely to fill any space available
Solid	[ˊsɒlid]	a substance having a definite shape and volume, not liquid
Steam	[sti:m]	the hot wet substance like a thin cloud that is produced when water is heated
Hydrogen	[ˊhaidrəʤən]	a gas that has no colour or smell and is lighter than air. It is the lightest element, and is the most common in the universe Hydrogen combines with oxygen to make water. Symbol: H; at no. :1
Oxygen	[ˊɒksiʤ(ə)n]	a gas in the air that has no smell or taste, and that all living things depend on (to breathe). Symbol: O; at no. : 8.

3. Match the words to make phrases

1) solid	a) materials
2) chemical	b) form
3) different	c) number
4) atomic	d) process
5) modern	e) chemistry

4. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

1. A simple … of chemistry is that it is a discipline about chemical substances and chemical processes.	DEFINE
2. Hydrogen and oxygen are … from each other.	DIFFER
3. Hydrogen has the … number 1.	ATOM
4. Now we can … the temperature to 100^{O}C and it becomes ice.	REDUCTION
5. We are most familiar with … as a liquid.	WATERING
6. We boil water for… .	COOK
7. Other … processes look more complicated.	CHEMISTRY

II. Reading I

1. Read the text and find out the words, given in the vocabulary. Translate the sentences

CHEMICAL PROCESSES

Chemistry affects every part of our lives.

A simple definition of chemistry is that it is a discipline that looks at what exists in our world and finds out what it is made of and what it can do.

Take two elements, in this case hydrogen and oxygen. They are both very common and are different from each other. Hydrogen has the atomic number 1 and oxygen 8. Because they are elements there is nothing we can do to break them down any more. We can't turn one element into another. What we can do is join them together, to bond them as a chemist would say. Let's take two molecules of hydrogen and one of oxygen; we then have no two elements, but one compound. To a chemist it is H_2O, but to the non-scientist it is water. Now we can reduce the temperature of this water to 0^{O}C and it becomes ice. Or we can increase the temperature to 100^{O} C and it becomes steam. To a chemist though, it is still H_2O. What has happened is that the substance has changed its form. As ice, it is water in a solid form, as steam, it is water in the form of a gas. Of course, we are most familiar with water as a liquid. However, by adding or taking away heat from H_2O we have made it undergo a transformation, and this adding or taking heat away is, in a very simple form, a chemical process. We see it happen very often, when we make ice for a drink or in the winter when the rain falls as snow. We see it every time we boil water for cooking.

Other chemical processes look more complicated because they have more different materials bonding in different quantities, but the process is the same.

2. Read the following statements and decide if they are true or false or they don't have that information

	True	False	No information
1. Chemistry doesn't affect our lives. 2. Hydrogen is a gas. 3. Hydrogen is lighter than oxygen. 4. Water becomes steam when we reduce the temperature of it to 0^{o} C. 5. Water is a liquid. 6. Oxygen is important for all chemical processes.			

3. Fill in the table. [The words below can be used for help]

Helium [hi:liəm], milk, stone, iron, steel, water, oxygen, hydrogen, ice, juice, cooper

liquid	solid	gas

4. Discuss these questions with your partner

What is the difference between an element and a compound?
What is the difference between a liquid, a solid and a gas?
Name these substances (liquid, solid, gas) as many as you can:

Reading II

5. Read the text about chemistry. Fill in the gaps. Use the words from the box

CHEMISTRY

processes, substances, properties, connects, structure

Chemistry is the science which (1)… all other sciences. Through chemistry, we can study how things are made and what they can do.

Alchemists had discovered a lot of chemical (2)… before chemistry developed properly.

There are three main areas of study in modern chemistry. The first is about how (3)… change when something happens to them.

The second is about how things are made, and looks at the atomic (4)… of elements. The third is to look at the (5)… of elements.

What career opportunities are available for chemists?

There are two main areas where your knowledge of chemistry will be called upon: medicine and industry.

Many chemists work in medicine. Chemists are the people who carry out the research and develop new medicines. Doctors need the support of chemists analyzing samples from patients, conducting tests and measuring how well patients are responding to treatment.

One quickly developing area is in the testing and recording of DNA samples.

Almost all industries (food, pulp and paper, oil refining etc.) depend in some way on the work of chemists.

Career opportunities for chemists also exist in journalism, the law and education.

6. Do you agree or disagree

- Chemistry is the central science, as it connects all other sciences.
- Alchemists discovered many of the chemical processes.
- The father of modern chemistry is M.V. Lomonosov.
- In the 18th century the British scientist John Dalton stated that all matter was made up of atoms.
- The Russian scientist Dmitri Mendeleev arranged all the known elements by their atomic weight and chemical properties.
- Chemistry is the science that deals with the properties, composition and structure of substances.

III. Speaking &Writing

1. Complete the table below. Career opportunities working in chemistry:

Where chemists work	What they do
Medicine Industry Ecology Law …	

2. Types of formal Letters

Thesaurus

Apology	[ə´pɒlədʒi]	a statement that tells someone that you are sorry for doing something wrong or causing a problem
Application	[ˌæpli´keiʃn]	a formal request for permission to do or have something
Complaint	[kəm´pleint]	a written or spoken statement in which someone says they are not satisfied with something

Enquiry	[in´kwairi]	a question intended to get information about someone or something
Invitation	[invi´tei(ə)n]	a written or spoken request asking someone to spend time with you socially or to come to a social event
Rejection	[ri´ʤekʃ(ə)n]	a refusal to accept someone for a job or course of study

3. Match each of the extracts from business letters (a-f) with the type of letter (1-6) from which it is taken

1. Letter of invitation _____

2. Letter of rejection _____

3. Letter of apology _____

4. Letter of enquiry _____

5. Letter of application _____

6. Letter of complaint _____

a) Please find enclosed my CV and a recent photograph …

b) I should be grateful if you would send me more information about your LK range of products including details of prices and discounts

c) Kazoulis Communications would be pleaced to welcome Udo Schmidt to the opening of its new …

f) I am extremely sorry about the incident last week during the visit of your representative to our offices. Unfortunately …

d) I wish to draw your attention to the very poor treatment our representative received when she called on you last week

e) I regret to inform you that your application for the post Laboratory Technician has been unsuccessful. Thank you for …

Unit 14. Chemicals

I. Before you read

1. Discuss these questions with your partner

- What is a chemical?
- What common chemicals do you know?
- How do you use known you chemicals at home?

2. Vocabulary. Read the words and their definitions. Fill in the gaps

Acid	[ˊæsid]	
Ammonium hydroxide	[əˌməuniəm haiˊdrɒksaid]	a strong alkali that is a solution of ammonia.
Antacid	[æntˊæsid]	a medicine that reduces the amount of acid in the stomach.
Baking powder	[ˊbeikiŋ ˌpaudə]	a white powder that is used in cooking for making cakes rise while they are baking, and in fire extinguishers.
Base	[beis]	a chemical substance that turns red litmus paper blue. All alkalis are bases.
Bleaching agent	[ˊbli:tʃiŋ ˌeidʒ(ə)nt]	a substance in a detergent that removes colour from fabric so that it becomes whiter and disinfects the fabric.
Calcium hydroxide	[ˌkælsiəm haiˊdrɒksaid]	a white alkaline chemical compound used in the treatment of acid soil and in making cement, plaster, and glass.
Carbonate	[ˊka:bəneit]	a compound containing carbon and oxygen.
Caustic soda	[ˌkɔ:stik ˊsəudə]	
Chloride	[ˊklɔ:raid]	a chemical that consists partly of chlorine, usually with one other element.
Colloid	[ˊkɒlɔid]	a substance that is between a solution and a suspension. Aerosols, foams and emulsions are all types of colloids.
Deodorise	[diˊəudəˌraiz]	to make something smell better by removing odours.
Detergent	[diˊtɜ: ˌdʒənt]	a liquid or powder that is used for washing clothes or dishes.
Discolouration	[disˌkʌləˊreiʃn]	the process of becoming discoloured (=losing colour).

Dissolve	[di´zɒlv]	
Enos salts	[´i:nəuz¸sɔ:lts]	a medicine that reduces the amount of acid in your stomach.
Epsom salts	[´epsəm¸sɔ:lts]	a medicine that helps you to empty your bowels when you are constipated (=cannot go to the toilet).
Glauber's salt	[´glɔ:bəz,sɔ:lt]	a medicine that helps you to empty your bowels when you are constipated (=cannot go to the toilet).
Hydroxide	[hai´drɒk¸said]	a chemical compound that contains oxygen and hydrogen in the form OH.
Immiscible	[i´misib(ə)l]	immiscible liquids do not mix together to form a solution.
Micelle	[mi´sel]	a tiny droplet that consists of dirt and detergent molecules.
Miscible	[´misib(ə)l]	miscible liquids mix together to form a solution.
MSG	[¸em¸es´ʤi:]	monosodium glutamate: a chemical added to food to improve its flavour.
Oleum	[´əuliəm]	a form of sulphuric acid that is used to make soapless detergent.
Oxalic acid	[ɒk´sælik ´æsid]	an acid that occurs naturally in plants such as rhubarb.
Rhubarb	[´ru:bɒ:b]	a plant with long red or pink stems that is cooked and eaten as a fruit.
Rust	[rʌst]	the red-brown substance called iron oxide, that forms on the surface of iron or steel through a chemical reaction with water and air.
Solubility	[¸sɒlju´biləti]	
Tartaric acid	[¸ta:təric ´æsid]	an acid that used in baking powder and as a food additive.
Varnish	[´va:niʃ]	a clear sticky liquid that is put onto wood to protect in and make it shiny.

3. Fill in the gaps using the words from the box below

disinfectant, rust, acid, solubility, antacid, chloride, immiscible

1. He had a nasty burn on his hand from the spilt … .
2. She took an … to relieve her indigestion.
3. Common table salt is sodium … .

4. Clean kitchen surfaces regularly with a … .
5. Oil and water are … .
6. The tools had been left out in the rain and had a layer of … on then.
7. The … of salt in water can be increased by warming the solution.

4. Match the words with their definition

1) detergent	a) =water loving. Detergent molecules have a hydrophobic and hydrophilic end. The hydrophobic (=water hating) ends surround the dirt particle, leaving the hydropholic ends exposed. This makes it easier for the dirt to be washed away in water.
2) droplet	b) a liquid or powder that is used for washing clothes or dishes.
3) hydrophilic	c) a liquid mixture that is formed when a solute dissolves in a solvent and becomes part of the liquid.
4) soapless	d) a very small drop of liquid.
5) solution	e) a soapless substance does not contain soap.

II. Reading I

1. Read the text and complete the table below

There are different types of solution. We often think of solutions as being formed between a solid solute and a liquid solvent. However, gases and liquids can be solutes and solvents too.

There are solutions which are made up of solid in a liquid where the solute is a solid and the solvent is a liquid. Example of this are sugar in water, salt in water and iodine in ethanol.

Oxygen in water, carbon dioxide in water in fizzy drinks are examples of solutions where there is gas in a liquid. This is where the solute is a gas and the solvent is a liquid.

It is also possible to have a solution which is a liquid in a liquid where both the solute and the solvent are liquids. Examples of this are alcohol in water and syrup in water.

Type of solution	Solute	Solvent	Examples
solid in liquid			
gas in liquid			
liquid in liquid			

2. Read the text. Find out the sentences with the underlined words. Translate the sentences

A detergent molecule, whether soapy or soapless, consists of two parts. There is a polar, hydrophilic (water-loving) end, which is soluble in water and is often called the "head". There is also a non-polar, hydrophobic (water-hating) end which is soluble in fats and oils and is called the "tail". The tail is a long hydrocarbon chain, that is a chain of carbon atoms with hydrogen atoms attached to them. Dirt clings to surfaces, skin or fabric, by an oil film that surrounds the dirt particle. The tail end of detergent molecules will attach to the oil film around the dirt particle and completely surround it, making a tiny droplet of micelle. As all the tail ends are attached to the oil around the dirt particle, only the hydrophilic end of the detergent molecules will be exposed to the surface. As these are soluble in water, you can now wash away the dirt.

3. Properties of acids and alkalis. Sort the characteristics of acid and alkalis in the correct columns. One of the characteristics applies to both

Acids …	Alkalis …
1	7
2	8
3	9
4	10
5	11
6	12

a)… are corrosive.
b)… are slippery when touched, that is they feel soapy.
c)… are soluble in water.
d)… are the oxide or hydroxide of a metal.
e)… have a sour taste.
f)… react with acids to give a salt and water only.
g)… react with bases/alkalis to produce a salt and water only.
h)… react with fatty acids in the skin to form soap.
i)… react with many materials and some can damage human tissue.
j)… release hydrogen ions when dissolved in water.
k)… turn blue litmus paper red.

Reading II

4. Read the text. Match these stains with the correct paragraph to show how the stain can be removed

SOLVENT IN STAIN REMOVAL

blood, chocolate, coffee/tea, grease/oil, ink, nail polish, paint, varnish

a) _____ - Gloss is best removed whilst wet with turpentine or white spirit. Some versions can be removed with hot water and detergent.
b) _____ - If the stain cannot be removed by warm water and soap, pour on boiling water, provided that this will not damage the fabric. Or use a biological washing powder. If this does not work, dab with dilute hydrogen peroxide.
c) _____ - If stains cannot be removed with soap and hot water, try a biological detergent which contains bleach.
d) _____ - Water-soluble versions of this substance can be removed by washing with soap and water. However, many stains made by this substance can be removed by soaking the stain in milk for 1 or 2 days, changing the milk as it becomes discolored. Ethanedioic acid and methanol are non-aqueous solvents that can dissolve these stains.
e) _____ - Rub with alcohol. Then wash with warm water and soap.
f) _____ - Soak in cold water until stain turns lighter brown. Then wash in warm water and detergent.
g) _____ - Remove with acetone which is an organic solvent.
h) _____ - Wash in warm water and soap, or use clean while blotting paper, a piece on each side of the stain, and iron with a warm iron to remove as much of it as possible. Gasoline is a non-aqueous solvent that removes these stains.

III. Writing

1. Formal letters

a) Your address (but not your name) usually goes in the top right-hand corner, (but may alternatively go on the left)
b) The date: this can go on either the right or the left
c) The name and/or job title (if you know them) and address of the person you are writing to goes in the left-hand part.
d) To address someone whose name you don't know you can write:

- Dear Sir
- Dear Madam
- Dear Sirs
- Dear Sir/Madam
- Dear Sir or Madam
- To whom it may concern (especially AmE)

e) To address someone by name, use their title and surname:

- Dear Dr Smith (BrE)
- Dear Dr. Smith (AmE)

f) To end formal letters in American English you use:

- Sincerely
- Sincerely Yours

g) To end formal letters in British English you should write:
Yours Sincerely
(if you have addressed the person by name)
Yours faithfully
(if you have begun the letter: Dear Sir/Madam, etc.)

2. Tick if the extract from informal letter and cross if the extract from the formal letter

- Dear Jane
- Dear Sir
- Sincerely Yours
- Love

Unit 15. The Human Organism as a Complex Open System

I. Before you read

1. Discuss these questions with your partner

- What is the matter?
- What types of matter do you know?
- What does living matter include?

2. Read the words and find out their definitions in dictionary

Awareness		
Cerebellum		
Cerebral		
Conscious		
Digestive		
Intestine		
Living system		
Lung		
Muscle		
Non-living system		
Organ		
Organism		
Reason		
Respiratory		
Werniclee		

3. Use these words to write sentences

1. from/People/other/learn/people.

_____.

2. determines/scale/in the/Awareness/our position/of evolution.

_____.

3. The human body/a complex/is/system/open.

_____.

4. characteristics/the same/living system/All the/have.

_____.

4. Complete the following questions with the missing words

1._____ the universe have a form?
2._____ you always aware of the chemical reactions in your body?
3. What _____ we do that other species can't do?
4._____ the lungs bring oxygen to the cells?
5._____ human abilities can you name?

II. Reading I

1. While you read look for international words, given in a box below

molecules, organism, position, energy, process, organs, individual, evolution

THE HUMAN ORGANISM AS A COMPLEX OPEN SYSTEM

There are two basic types of matter: non-living and living. Non-living matter includes subatomic particles, atoms, small molecules and complex molecules. It also includes macromolecules. These elements interact to form non-living systems. Living matter includes cells, cell fibres, tissues, organs and systems of organs. Systems of organs form more complex systems like insects and animals including people. These organisms interact to form living system.

All the living systems have the same characteristics: they have a body or structure, reproduce and respire. They also feed and eliminate waste. Living systems inherit (have genes), grow and evolve. They live in an environment and interchange energy, matter and information with it. They are independent and can organise activities. Because of all this, living systems are called open systems. The human organism is a complex open systems.

The human organism includes many open systems that work together – digestive, circulatory, respiratory, nervous and others. The digestive system takes energy from the food and eliminates the waste. From the small intestine,

the blood takes these nutrients to all the cells. The lungs provide the oxygen for the cells to process the nutrients. These activities are complex but automatic – we don't need to think to perform them.

Humankind has the ability to use a complex language. This gives us superiority over the other species. People listen, understand, reason, speak, read, write, and learn from other people. Humans can perform about 192 abilities. These are conscious activities because we are aware of them. The degree of awareness of an individual determines its position in the scale of evolution.

The main language areas are in the left cerebral hemisphere. Wernick's area helps to understand speech. Broca's area helps to produce speech. Other language areas are: Writing, Reading, Naming, Naming colours (at the back of the brain). These areas have different functions but they work together. Nerve cell fibres called association fibres connect different areas of the same hemisphere.

2. Circle the correct answer. There is only one possible answer

1) A good example of non-living system is …
   a) a cell.
   b) a macromolecule.
   c) a bacteria.

2) Insects are complex systems
   a) Yes
   b) No
   c) Does not say

3) The different systems of the human body …
   a) interact
   b) are independent.
   c) a and b.

4) Reasoning is a conscious activity.
   a) Yes
   b) No
   c) Does not say

5) Awareness determines our …
   a) IQ (intelligence quotient).
   b) ability to communicate.
   c) degree of evolution.

Reading II

3. Read the text. Find out the sentences with the underlined words and translate them

SILICONE, THE ILLEGAL WAY TO SMOOTH WRINKLES

Silicone injections are one way to smooth wrinkles, but they have been illegal in the U.S. since 1965. Only doctors who had permission to experiment on humans could use silicone. But many doctors, including well-known dermatologists whose patients are movie stars, have been using silicone illegally. Doctors say their patients experienced few side effects, and therefore they thought silicone was safe. Besides, when using silicone to erase wrinkles, they used only a few drops of liquid silicone, not a large amount.

Other the years there have been reports on silicone injections causing lumps, sores that don't heal, infections, tissue damage, and pain from diseases like arthritis. In addition, deaths were caused by silicone migrating to the lungs. In 1965 the Food and Drug Administration concluded that silicone injections were not safe.

That same year, the Dow Corning Corporation, a manufacturer of silicone, convinced the Food and Drug Administration to permit several doctors to do experiments with liquid silicone injections. Unfortunately the experiments were not done according to accept scientific procedures: in later years the doctors did not check up on the participants, and many of the side effects were not reported. Moreover, some participants in the experiments claimed that they had not been informed that they were part of an experiment.

Silicone is illegal and should remain illegal. People who don't want wrinkles should stay out of the sun.

4. Read the following statements and decide if they are true or false or they don't have that information.

	True	False	No information
1. Silicone injections are one way to smooth wrinkles.			
2. Silicone injections have been illegal in the USSR since 1965.			
3. Only dermatologists had permission to experiment on the humans to use silicone.			
4. Patients thought silicone was safe.			
5. In 1965 the Food and Drug Administration concluded that silicone injections were safe.			
6. Dow corning Corporation is a manufacturer of silicone.			
7. A lot of movie stars such as Elizabeth Taylor used silicone injections.			

III. Speaking and Writing

1. Try this. You can observe the mechanics of your thought. Work in groups to complete the task

Read the situation below:

You arrive in a remote country and you lose your baggage and passport. You have little cash and you don't know anybody there.

- How do you react?
- How do you solve this problem?

Think carefully, make a plan and write down the steps.

Now put the following basic steps of thinking in order. You can number them.

a) _____ Remember the complete procedure for future appilication.
b) _____ Be calm.
c) _____ Prepare a plan.
d) _____ Identify the problem.
e) _____ Evaluate the results.
f) _____ Execute the plan.
g) _____ Think of what I need to do to solve the problem.
h) _____Reflect upon different possibilities.

Do you follow all these steps to solve a problem? These steps represent the process of thinking, the same process followed in the scientific method.

2. Truth in advertising

Bring to class two or three advertisements for health, beauty, and fitness products. Discuss how the ads try to get you to buy the product.

- It's fun to use the product.
- Rich or popular people use the product.
- Everybody has this product.
- It will make you more attractive.
- It's something special.
- Other:

_____

What do the ads tell you about the finances of the people who buy the products?

Who are the models in the ads? What are their ethnic backgrounds?

About how old are the models? How are they dressed?

What do these things tell you about what is valued by people today?

3. Informal letter

Read the letter and answer the questions below

(a) 12 Rose Lane
Sudbury
Suffolk
C010 3WY
(b) 19 June 2010

(c) Dear Janie,

(d) This is just a quick note to get in touch again. How are you? How's the new job going? I'd love to see you again soon. How about coming to stay with us one weekend next month, if you can find the time?

We had a great holiday in Canada and we have got Rots of photos to show you!

(e) Hope to see you soon
Best wishes

(f) Cathy

Questions:

- Who is it from?
- Who is it to?
- What is the sender's address?
- When was the letter written?
- Where was the addressee on

Match the parts of the letter (a-f) and the names of these parts (1-6)

1. Your address but not your name (sender's address)
2. The date
3. Greeting
4 Main body
5. Closing remarks – looking to the future
6. Signature (your first name)

Unit 16. Brain and Knowledge

I. Before you read

1. Discuss these questions with your partner

1. What do you know about human brain?
2. Have you ever heard about hemispheres of the human brain?
3. How many hemispheres does human brain have? What is their role?

2. Vocabulary. Look up the dictionary. Fill in the gaps

Brain	[brein]	the organ inside your head that allows you to think and feel, and controls your body.
Hemisphere		
Analysis	[ə´næləsis]	a process of studying or examining something in detail in order to understand it or explain it.
Synthesis		
Separation		
Circuit	[´sɜ:kit]	act of going or moving around.
Dendrite(s)		the branching process of a neuron which conducts impulses toward the cell.
Axon	[´æksən]	the appendage of the neuron that transmits impulses away from the cell.
Relay		
Intelligence		
Reason	[´ri:z(ə)n]	the human ability to think in an intelligent way make sensible decisions, and form clear arguments.
Universe		
Mind	[´maind]	1) the part of you that thinks, knows, remembers and feels things 2) your ability and intelligence to understand things.

3. Read the following sentences about the human brain. Put the verbs in brackets into the right form

- The brain is the organ that … (to place) us in a position of superiority over all the other creatures on Earth.
- In the 6th century BC the Greek philosopher Pythagoras … (to write) that the brain was the organ of the mind.
- Medieval thinkers … (to have) a different view.
- They … (to believe) that analysis, reason and memory occupied three different areas that were interconnected.
- Today many scientists … (to accept) a different theory, the theory of Modules.
- This theory … (to explain) that the brain has mechanisms that interpret and follow orders from the mind.

4. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

1. The brain stores experiences and reaches … .	CONCLUDE
2. Our senses convert the external stimuli into … signals that the neurons sent to a "transit area".	ELECTRICITY
3. The ... then enters the short term memory and, after a few seconds it goes to the long term memory.	INFORM
4. There, it … with data that is already stored.	CONNECTION
5. When the information is … and well organized, we remember it.	IMPORTANCE
6. Different people often interpret the same information in … ways.	DIFFER
7. This is because we all have different ..., accumulate different experiences and have different styles of perception.	EDUCATE

II. Reading I

1. Check you understand the key words

brain, left/right hemisphere, process, analysis, synthesis, reasoning, learning, senses, nerve cells, electrical/chemical impulse, knowledge, branches, philosophy, relay

2. Read the text. Find out the sentences with key words and translate them

BRAIN AND KNOWLEDGE

The American psychobiologist Robert Sperry shared a 1981 Nobel prize for his discoveries about the human brain. He studied the two brain hemispheres and presented laboratory proof of many interesting facts. According to him, the left hemisphere separates the information into parts and studies each part. This hemisphere also looks for the similarities among all the parts. This complete process is called analysis. Our left hemisphere is very curious and is always asking questions about everything. It dominates the right hemisphere.

The right hemisphere is different. It looks for unity and connects all the parts that the left hemisphere separates. This complete process is called synthesis. Analysis and synthesis determine reasoning and the learning process.

The separation and connection of information into parts and wholes show the basic dynamics of thought.

Our senses are windows to the world. The information enters thought the senses and travels thought nerve fibres. These long fibres of nerve cells are our body's electric circuits. When we read, for example, our sense of sight detects changes in the levels of light on the paper (black on white). These changes form the letters and the words. Our eyes perceive the changes and convert them into electric signals that take turns with chemical signals to transmit the information. A nerve cell has three main parts: dendrites, nucleus and axon. The dendrites receive the information and send it through the axon. At the end of the axon the electric signals become chemical signals, cross to the next cell and continue the relay. There is a kind of intelligence in the cells. They organise and cooperate to perform a task. Intelligence gives us the ability to construct a mental model of the world, live in it, solve problems and accumulate knowledge.

As human knowledge increased we divided it and organised it into branches. Knowledge is one large subject that includes many divisions with a common objective: to understand our origin, reason for being and place in the universe.

3. Match the parts to make sentences

1. The American psycholobiologist Robert Sperry …	a) synthesis.
2. He studied the …	b) shared a 1981 Nobel prize for his discoveries about the human brain.
3. The left hemisphere separates the information …	c) our body's electric circuits.
4. The right hemisphere is …	d) two brain hemispheres.
5. This complete process is called …	e) into parts and studies each part.
6. Our senses are …	f) different.
7. These long fibres of nerve cells are …	g) windows to the world.

Reading II

4. Read the text to find out interesting ideas about memory techniques

MNEMONICS AND HOW THEY WORK

One useful learning technique is mnemonics. The ancient Greeks developed this memory system from their worship of Mnemosyne, who was the goddess of memory. They learnt that you can remember things by linking them together in some way. For example, as soon as your brain registers the word "apple" it remembers the colours, tastes, textures, smells, etc. of that particular fruit. So memory links can be made stronger and longer-lasting by following these principles:

1) IMAGINATION The more you apply your imagination to memory links, the more easily you will remember something.

2) EXAGGERATION Exaggerate the size, shape, sound, etc. of your mental images.

3) HUMOUR The funnier and more ridiculous you make your images, the more memorable they will be.

4) MOVEMENT In any mnemonic image, movement makes it even easier for your brain to remember things.

So, if you wanted to remember the order of the nine planets from the sun, you might simply create a fantastic story in your imagination.

This all sounds very good, but is there any scientific support for these beliefs? The answer is *yes*! After all, what the ancient Greeks were suggesting means that we use both the left and the right side of our brains, and there is a lot of evidence that association techniques *do* work.

5. Read the text again and say if the following sentences are true or false or they don't have that information

	True	False	No information
1. One useful learning technique is mnemonics.			
2. The ancient Greeks improved their memory using different memory systems.			
3. Mnemosyne was the goddess of Memory in ancient Greece.			
4. Ancient Germans invented five principles to make memory links to be stronger and longer-lasting.			
5. The principles of mnemonics are: imagination, exaggeration, humor and movement.			
6. What the ancient Greek were suggesting means that we use the left hemisphere of our brains.			

III. Speaking and Writing

1. Discuss these questions in small groups

- What kinds of techniques do you use to help you to learn new English vocabulary? New English grammar?
- What principles of mnemonics do you following learning new English words?
- Would you like to use the principles of mnemonics in your learning?
- What do your teachers think is the best way to learn new rules, new words, poems, extracts from the text, etc.

2. You have three minutes to learn the order of the planets, from the nearest to the sun to the furthest (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto)

Complete the notes below

How did you remember them? Did you:

1. _____
2. _____
3. _____
4. _____
5. _____

(Know the order of the planets in your own language; use a diagram; use a picture; repeat the names many times, your ideas.)

3. Complete the letter to a friend with the phrases below

- How are you?
- And my team like me
- 89 Gilhurst Road
- Dear Stephen
- Please woite and tell me your news
- Best wishes
- 2nd December

(1) Flat 15
(2) Plymouth

(3) _____
(4) _____ I hope you're well.

I have a new job: I'm still will Copy Fast but I'm a manager now. I get up early and I work late but I like my job.

(5)_____.

David, the old manager, is a sales rep now. He works for a small company. He doesn't like his new job. He starts work early and he drives all over the country.

(6)_____
(7)_____
Gareth.

Unit 17. Genetics

I. Before you read

1. Discuss the questions with your partner

- What is genetics?
- How old is it?
- What famous geneticists do you know?

2. Vocabulary

Genetics	[ʤəˊnetiks]	the study of how the individual features and behaviour of living things are passed on through their genes.
Inheritance	[inˊheritəns]	something that you receive from your parents or from people who lived before you.
Bone	[ˊbəun]	one of the hard parts that form a frame inside the body of a human or animal.
Muscle(s)	[mʌsl]	a piece of flesh that connects one bone to another and is used for moving a particular part of your body.
Chromosome	[ˊkrəumə¸səum]	one of the things like very small strings in the nucleus of all living cells.
Protein	[ˊprəuti:n]	a substance in food such as meat, eggs, milk that people need in order to grow and be healthy.
Gene	[ʤi:n]	a pattern of chemicals within a cell that carries information about the qualities passed on to a living thing from its parents.
Genome	[ˊʤi:ˊnəum]	the complete set of genes in a living thing.
Hemophilia	[¸hi:məˊfi:liə]	a serious illness that prevents your blood from cotting (=becoming thick).
Sex	[seks]	males or females considered as separate groups.

Implication	[impli´keiʃən]	the fact of suggesting or showing that someone is involved in something illegal or morally wrong.
Clone	[´kləun]	to create an animal or plant in a laboratory that is an exact copy of another using the original animal's or plant's DNA.
Accident	[´æksidənt]	a crash involving a car, train, plane or other vehicle.

3. Read the sentences. Fill in the gaps using the words from the box below

to clone, chromosomes, bones, inheritance, accident, genes, sex, muscles

1. Cook the fish, then carefully remove the … .
2. He was tragically hilled in a motocycle … .
3. They were the first … a sleep from adult cells.
4. … contain genes.
5. He believes that shyness is in the … .
6. The three countries shared a common linguistic and religious … .
7. These exercises are good for your stomach … .
8. The hostel has separate sleeping areas for each … .

4. ***Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line***

Our genes carry the (1)… that makes us the	INFORM
(2)… we are. They are sequences of	PERSONALLY
(3)… telling the chemicals in our bodies what to do	INSTRUCTOR
and how to do. If the (4)… are damaged or faulty, then	GENETICS
genetic disorders can (5)… . Gene therapy is a new	HAPPENED
(6)… in medicine that tries to correct	APPLY
(7)… genes. There are a number of ways that this can be done.	FAULT

II. Reading I

1. Read the text and find out the sentences with the words given in vocabulary. Translate them

GENETICS

Genetics is the science of inheritance. It studies the cells and the anatomical and functional characteristics transmitted from parents to children.

A cell is an intelligent organism made from atoms. We are made from more than sixty billion cells. There are cells to make bones, muscles, blood and so on. In the nucleus of every cell there are twenty-three pairs of chromosomes, half of them are from the mother and the other half are from the father. Chromosomes are made of DNA (deoxyribonucleic acid) and protein. Each chromosome contains many genes in its DNA. The DNA carries the instructions to construct a human being.

Each species has its own set of genes. The different combinations of genes determine the characteristics of each individual. With the exception of identical twins, nobody in the world has the same combination of genes and this is what makes everyone a unique individual. What all humans do have in common is the genome, That is, we all have the same number of chromosomes and the same genetic material. There are no superior or inferior genes.

Genetic manipulation refers to human intervention in the design or function of the cells. Many people oppose it. They argue that the main problem is that man can be both a master and a monster. At an institute of pharmaceutical engineering in Virginia, USA, scientists injected pigs with a human gene that produces a protein called Factor VIII. This protein makes the blood thicker and helps patients with hemophilia. The fourth generation of these pigs will possibly produce enough Factor VIII in their milk to supply the world's demand. On the other hand, through genetic manipulation people could select spermatozoids and decide the sex of their future babies. This alters the course of nature and for many people it has ethical implications.

Cloning is another important topic. From a few cells scientists can produce cartilage. This will probably soon help people who don't have a part of their face like an ear, after an accident. But in the future we could clone and manipulate people.

Our problem is always the same. People disagree about what is ethical and what is not.

2. Read the article carefully. Then answer the multiple choice questions

1. In the nucleus of every cell there are:
   - 46 chromosomes

- 50 chromosomes
- 23 chromosomes

2. The characteristics of each individual depend on:
   - the genome
   - the combination of genes
   - the chromosome
3. Which of the following best describes genetic manipulation?
   - heart transplant
   - plastic surgery
   - cloning
4. Which of the following examples of cloning could be beneficial to humans is close to your point of view?
   - saving of endangered species (plants, animals)
   - scientists will help people who don't have a part of face after an accident
   - produce more food

Reading II

3. Read the text and find out the sentences with international words given in a box below. Translate them

experimental, immune, system, complex, form, normal, problems

GENE THERAPY

At the present time, gene therapy is still experimental and no treatments have been licensed for use on humans. There are still some difficulties to overcome. In experiments some patients' immune systems have rejected the new genes and others have not proved long-lasting enough. Although they work in the short term, successful treatment requires repeated therapy. This is expensive for the healthcare system and uncomfortable for the patient. Some conditions are more complex and are caused by several faulty genes. At present gene therapy only offers the hope of treatment for people with relatively simple single gene malfunctions.

As this is a new form of treatment for what was until recently thought to be untreatable conditions, the use of this kind of therapy at all is still a matter for debate. Ethical considerations have to be taken into account and

it is not just the doctor-patient relationship that may change, but the way that society looks at illness and treatment. One question yet to be answered is what is the difference between a disorder (which may be corrected), and a disability (which cannot or need not). It is asking us to reconsider what we mean when we say someone is or is not "normal". It is not certain who will decide. Of course the patient wants to be able to live life to the full and the doctor wants to cure medical problems. What we have to decide is whether we want to use our resources to cure problems as they happen or prevent them in the first place.

4. Read the text again. Are these statements true or false? If the statement is false, correct it

1. At the present time, gene therapy is used on people.
2. Gene therapy is very expensive.
3. Gene therapy may change the relationship between doctor and patient.
4. Medicine must decide who to treat.
5. Medicine must decide whether to cure or prevent.

5. Find the opposites below

healthy----------patient
answer----------balance
doctor----------cheap
ability----------ill
expensive----------ask
imbalance----------disability

III. Speaking & Writing

1. Debate on advantages or disadvantages of genetic manipulation.
Use the following information as a guide

Advantages	Disadvantages
•Restore some parts of your body •Can help to treat an illness •Choose future baby's sex •Etc.	•Expensive •Can produce population imbalance •Etc.

Example

Student A: Genetic information can restore some parts of your body
Student B: Yes, but it's very expensive. Only rich people can do that.

Your example!

_____
_____
_____
_____
_____
_____

2. ***Give a short presentation on the development in genetic research***

- What genes are/do
- Medical uses for genetic knowledge
- Cloning plants/animals
- Benefits and concerns of genetic research

3. Fill in the table about benefits and concerns of gene therapy :

Benefits	Concerns
• Treat more problems etc… . •_____ •_____ •_____ •_____	• Not really understood … etc. • _____ • _____ • _____ • _____

4. Formal letter (Готовимся к Интернет-экзамену)

Put the parts of formal letter in logical order

(a)We look forward to hearing from you.
Yours faithfully,

_____
Jim Forms
Managing Director

(b)Your company has been recommended to us by a business associate an we are writing to enquire about your translation services. We would be grateful if you could send us your prices and terms of payment.

(c) Director General Globus
15, High Street
Salton
PO576

1 ____
2 ____
3 ____

Unit 18. Thomas Edison

I. Before you read

1. Discuss these questions with your partner

- What household appliances use electricity?
- Where does electricity come from?
- When did the age of Electricity begin?

2. Vocabulary

Know-how	[ˊnəu hau]	knowledge needed to do something usually something practical
Magnetism	[ˊmægnəˌtiz(ə)m]	the power that a magnet has to make iron objects come to it and stick to it
Bride	[braid]	a woman who is getting married, or who has recently married
Bulb	[bʌlb]	a light bulb
Filament	[ˊfiləmənt]	the thin wire inside a light bulb
Platinum	[ˊplætinəm]	a silver-grey metal used in industry and for making expensive jewellery
Leather	[ˊləðə]	a strong material made from animal skin
Cable	[keibl]	Thick wire covered with plastic that is used for carrying electricity or electronic signals
Fuse box	[fju:z]	a box containing the fuses for the electrical system in a building
Engine	[ˊendʒin]	a machine with moving parts that uses energy to produce movement

3. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

a) Edison had his greatest … in making practical use of electricity.	SUCCESSFUL
b) In 1878 Thomas Edison … the Edison Light Company.	FORMATION
c) To do this Edison had to develop a long-lasting, growing … light bulb.	ELECTRICITY
d) Later he gave a public … of his light bulb.	DEMONSTRATE
e) Then Edison built complete electrical … systems to provide his bulbs with power.	GENERATION
f) Soon electricity was used for lighting streets, heating houses and driving railroad	ENGINEER

4. Choose the correct word to complete the sentences

1) _____ is something through which electricity can pass.

A _ a conductor B _ a magnet C _ Static

2) An electrical _____ supplies power in our home.

A _ bulb B _ current C _ particle

3) The electromagnetic field _____ a force on the particles.

A _ put B _ exerted C _ applied

4) To _____ power you need a way to control electricity.

A _ attract B _ exert C _ generate

5) Normally, electricity is carried through homes by _____.

A _ wires B _ charges C _ forces

6) Is 6 o'clock a _____ time for your meeting?

A _ comfortable B _ fitting C _ convenient

II. Reading I

1. Read the text and find out the sentences with the words given in vocabulary. Translate them

THOMAS EDISON

Americans have always been proud of their ability to find practical solutions to practical problems. During the nineteenth century they developed thousands of products to make life easier, safer or more enjoyable for people. Barbed wire is one example, the sewing machine is another.

Up to the middle of the nineteenth century the inventors of such products often had little scientific knowledge. Their inventions were based on practical "know-how". So long as the inventions worked, everyone was satisfied.

Many later developments, however, called for an understanding of basic scientific principles in, for example, electricity, magnetism and chemistry. One man above all others showed an ability to use such knowledge to solve everyday problems. His name was Thomas Alva Edison.

Edison was born in 1847 and died in 1931. He made more than a thousand original inventions. Edison's laboratory contained every material and chemical that was then known. Wearing a long, white chemist's coat, his fingers stained by chemicals and his hair dirty with oil and dust, he would work for days without eating or sleeping when he was close to solving a problem.

Some of Edison's sayings became almost as well known as his inventions. "There is no substitute for hard work" was one of them. Sometimes he took this principle too far. On the day he got married, for example, he forgot his bride and spent the night working in his laboratory.

Edison had his greatest success in making practical use of electricity. In 1878 he formed the Edison Electric Light Company. He had a clear commercial aim – to capture from gas the huge market for lighting homes, streets and places of work.

2. Read the text and decide if the following statements are true or false or they don't have that information

	True	False	No information
1. Americans have always been proud of their ability to find practical solutions to practical problems.			
2. During the 19th century they developed thousands of products to make life easier, safer or more enjoyable for people.			
3. Up to the middle of the 19th century the inventors of such products were well-educated people.			
4. Thomas Alva Edison received education at Harvard University.			
5. On the day he got married he forgot his bride and spent the night working in his laboratory.			
6. In the 1888 Edison formed the Edison Electric Light Company.			
7. Edison's main problem was to develop a long-lasting electric light bulb.			
8. Electricity could not become the world's chief source of energy in those times.			

Reading II

3. Read the following information about electricians' safety at work

Electricians wear safety clothes like rubber shoes and gloves because accidents sometimes happen. Rubber is an insulator. Electrons can't go through it.

Electricians usually turn off the electric power before working.
They don't work outside when it is raining, because water is a conductor.
Electricians are not afraid of electricity but they respect its power.

4. Use the information above to complete these sentences

When you work with electricity …

1. You can … accident.
2. You don't have to … of electricity but you have to be careful.
3. You have to … the electric power.
4. You can not … when it's raining.

III. Speaking & Writing

1. Complete the table, using keys given below the table

Ways of generating electricity	
Advantages	*Disadvantages*
Fuel	
Nuclear power	
Hydroelectricity	
Wind power	

Keys: cheap; easily available; pollution; the cheapest way to make electricity; the problem of storage of radioactive waste; no pollution; is very expensive; moving people away from their homes; clean; not enough electricity for the needs of a modern city.

2. Discuss with your partner the following topic

"How would life be different without electricity?"

Talk about

1. Things we use electricity for
2. Things we don't need electricity
3. Places that use electricity
4. Luxury items that use electricity

Speaking tips

Ask questions
Let your partner express his/her ideas
Ask for explanations if you don't understand

Business letters

Match the letters (a-n) the different parts of the letter.

1	salutation	e
2	signature	
3	letterhead	
4	enclosures	
5	complimentary close	
6	final paragraph	
7	sender's title	
8	sender's address	
9	main paragraph	
10	website	
11	introductory paragraph	
12	date	
13	sender's name	
14	addressee's name and address	

(a) **Great Eastern Associates**
(b) 377 Kind James Street
Edinburgh ED$ 1 MU
Scotland
Tel: 00 44 1301 56767
fax: 00 44 1301 567586
e-mail: infogreas@warmmail.com

(c) 7 February 2002

(d) Mr. Felix Dubois
Banque Regionale du Sud- oust
14 Route Nationale
24340 Mareuil
France

(e) Dear Mr Dubois

(f) Thank you for recent enquiry.

(g) I enclose our brochure which gives you information about the services we offer and our prices. If you would like any more information, please do not hesitate to contact us.

(h) We look forward to hearing from you.

(i) Yours sincerely
(j) *Fiona Mc Duff*

(k) Fiona Mc Duff
(i) Partner

(m) Enc. GE Associaties brochure

Great Eastern Associates
Partners: F. McDuff, Z.MCDuff, H.MCKechinie
(n) www.geras.co.uk

Keys

Unit 13. Chemical processes

I. Ex.4: 1-definition; 2-different; 3-atoms; 4-reduce; 5-water; 6-cooking; 7- chemical;

II. Ex.2: 1-F; 2-T; 3-No; 4-F; 5-T;

Ex.5: 1-connects; 2-properties; 3-substances; 4-structure; 5-processes.

Unit 14. Chemicals

I. Ex.3: 1-acid; 2-antacid; 3-chloride; 4-disinfectant; 5-immiscible; 6-rust; 7-solubility;

Ex.4: 1-b; 2-d; 3-a; 4-e; 5-c;

II. Ex.2: 1-a; 2-c; 3-e; 4-g; 5-j; 6-k; 7-b; 8-c; 9-d; 10-f; 11-h; 12-i;

Ex.3: 1-paint; 2-coffee/tea; 3-chocolate; 4-ink; 5-varnish; 6-blood; 7-nail polish.

Unit 15. The human Organism as a Complex Open System

I. Ex.3: 1. People learn from other people.

2. Awareness in the scale of evolution;

3. The human body;

Ex.4: 1-does; 2-Are; 3-can; 4-Do; 5-What;

II. Ex.2: 1-b; 2-a; 3-a; 4-a; 5-a,c

Ex.4: 1-T; 2-No; 3-F; 4-T; 5-F; 6-T; 7-No.

Unit 16. Brain and Knowledge

I. Ex.3: 1-places; 2-wrote; 3-had; 4-belived; 5-accept; 6-explains;

Ex.4: conclusions; 2-electrical; 3-information; 4-connect; 5-important; 6-different; 7-education;

II. Ex.3: 1-b; 2-d; 3-e; 4-f; 5-a; 6-g; 7-c;

Ex.4: 1-T; 2-No; 3-T; 4-F; 5-T; 6-F;

III. Вид документа.

Unit 17. Genetics

I. Ex.3: 1-bones; 2-accident; 3-to clone; 4-chromosomes; 5-genes; 6-interitance; 7-muscles; 8-sex;

Ex.2: 1-information; 2-person; 3-instructious; 4-genes; 5-happen; 6-application; 7-faulty;

II. Ex.2: 1-a(c); 2-b; 3-c; 4-(a,b,c)

Ex.4: 1-F; 2-T; 3-T; 4-F; 5-T.

Unit 18. Thomas Edison

I. Ex.3: 1-success; 2-formed; 3-electric; 4-demonstration; 5-generation; 6-engines;

Ex.4: 1- a conductor; 2-current; 3-exerted; 4-generate; 5-wires; 6-**convenient**

II. Ex.2: 1-T; 2-T; 3-F; 4-No; 5-T; 6-F; 7-T; 8-F;

Ex.4: 1-happen; 2-be afraid; 3-respect; 4-work.

Таблица неправильных глаголов

№	present	past	past participle	translation
1	be	was/were	been	быть, находиться
2	become	became	become	становиться
3	do	did	done	делать
4	feed	fed	fed	питать(ся), кормить(ся)
5	find	found	found	находить
6	get	got	got(gotten am e)	получать, доставать, добывать
7	go	went	gone	идти, ходить, ездить
8	have	had	had	иметь
9	know	knew	known	знать
10	leave	left	left	покидать, уезжать
11	lose	lost	lost	терять, лишаться, утрачивать
12	make	made	made	делать
13	put	put	put	класть, положить
14	see	saw	seen	видеть
15	show	showed	shown	показывать, появляться
16	tell	told	told	сообщать
17	think	thought	thought	думать
18	write	wrote	written	писать

Словарь

A a		
Accident $_{n}$	[ˊæksidənt]	случай, авария
acid $_{n}$	[ˊæsid]	кислота
ammonium $_{n}$	[əˊməuniəm]	аммоний (хим.)
ammonium chloride $_{n}$	[əˊməuniəm ˊklɔ:raid]	нашатырный спирт
analysis $_{n}$	[əˊnæləsis]	анализ, разложение
antacid $_{n}$	[æntˊæsid]	нейтрализующее кислоту вещество (мед.)
antiseptic	[ˌæntiˊseptik]	антисептическое вещество
application $_{n}$	[ˌæpliˊkeiʃ(ə)n]	заявление, прошение
available $_{adj}$	[əˊveiləbəl]	доступный, пригодный, полезный.
B b		
base $_{n}$	[beis]	основа, основание
bleaching powder	[ˊbli:tʃiŋ ˊpaudə]	белильная или хлорная известь
brain $_{n}$	[brein]	мозг, рассудок, ум
C c		
calcium $_{n}$	[ˊkælsiəm]	кальций (хим.)
canser $_{n}$	[ˊkænsə]	рак (мед.)
carbonate $_{n}$	[ˊka:bəneit]	соль угольной кислоты; карбонат; черный алмаз (хим.)
caustic $_{n}$	[ˊkɔ: stik]	каустическое средство; едкое вещество (soda)
cerebellum $_{n}$	[ˌserəˊbeləm]	мозжечок (анат.)
cerebral $_{adj}$	[səˊri:brəl]	черепно-мозговой (анат.)
chlorine $_{n}$	[ˊklɔ:ˌri:n]	хлор (хим.)
compound $_{n}$	[ˊkɒmpaund]	состав, соединение
conscious $_{adj}$	[ˊkɒnʃəs]	здравый, сознающий
D d		
dendrite $_{n}$	[ˊdendrait]	дендрит (мед.)

destruction n	[di´strʌkʃən]	разрушение, уничтожение, разорение
detergent n	[di´tɜ:ʤənt]	Очищающее, моющее средство
digestive n	[dai´ʤestiv]	средство, способствующее пищеварению
diluted adj	[dai´lu:tid]	разведенный, разбавленный
disastrious adj	[di´za:strəs]	бедственный, гибельный
disease n	[di´zi:z]	1) болезнь; 2) неисправность (тех.)
dissolve v	[di´zɒlv]	растворяться; разлагаться
drug n мед.	[drʌg]	лекарство, медикаменты
E e		
endemic adj	[en´demik]	эндемический, свойственный данной местности
engine n	[´enʤin]	машина, двигатель, мотор, локомотив
enzyme n	[´enzaim]	энзим, фермент
eruption n	[i´rʌpʃ(ə)n]	1) сыпь (мед.), высыпания; 2) извержение (вулкана) (геолог.)
essential adj	[i´senʃəl]	необходимый, существенный
exception n	[ik´sepʃən]	исключение, возражение
F f		
fibre n	[´faibə]	волокно, фибра, нить; древесное волокно
fission n	[´fiʃən]	1) расщепление, деление атомного веса (физ.); 2) размножение путем деления клетки (биол.)
G g		
gene n	[ʤi:n]	ген (биол.)
genetics n	[ʤə´netiks]	генетика
genome n биол.	[ʤi:´nəum]	геном (биол.)

H h		
hemoglobin $_{n}$	[ˌhi:məˊgləubin]	гемоглобин (физиол.)
helium $_{n}$	[ˊhi:liəm]	гелий (хим.)
hemisphere $_{n}$	[ˊhemisfiə]	полушарие головного мозга (анат.)
hemophilia $_{n}$	[ˌhi:məˊfiliə]	гемофилия (мед.)
hydrogen $_{n}$	[ˊhaidrədʒən]	водород (хим.)
I i		
implication $_{n}$	[ˌimpliˊkeiʃən]	вовлечение; причастность, соучастие
individual $_{n}$	[ˌindiˊvidʒuəl]	личность, человек
inert $_{adj}$	[inˊɜ:t t]	инертный, неактивный, нейтральный
ingestion $_{n}$	[inˊdʒestʃən]	прием пищи (физиол.)
inheritance $_{n}$	[inˊheritəns]	1) наследство, наследие; 2) наследование; 3) наследственность
intelligence	[ˌinˊtelidʒ(ə)ns]	ум, рассудок, смышленость
intestine $_{n}$	[inˊtestin]	кишки, кишечник
J j		
judge $_{n}$	[dʒʌdʒ]	судья, эксперт, знаток
junk food $_{n}$	[ˋdʒʌŋk]	нездоровая пища
L l		
leather $_{n}$	[leˊðə]	кожа
liquid $_{adj}$	[likwid]	жидкий; жидкость
lung $_{n}$	[lʌŋ]	легкое (анат.)
M m		
malnutrition $_{n}$	[ˊmælnjuˊtriʃ (ə)n]	недоедание; неправильное питание
medicine $_{n}$	[ˊmedsən]	медицина, лекарство
membrane $_{n}$	[ˊmembrein]	мембрана, диафрагма
mind $_{n}$	[maind]	разум, ум, рассудок
N n		
nerve $_{n}$	[ˊn ɜ:v]	нерв (мед.)
neutron $_{n}$	[ˊnju:trən]	нейтрон (физ.)

O o		
organism $_{n}$	[ˊɔ:gəniz(ə)m]	организм
oxygen $_{n}$	[ˊɒksiʤ (ə)n]	кислород (хим.)
P p		
potable $_{adj}$	[ˊpəutəbəl]	годный для питья; питьевой
proceed $_{v}$	[prəˊsi:d]	действовать, поступать; отправлять дальше
R r		
reason $_{n}$	[ˊri:z(ə)n]	причина, повод; соображение; разум
ruthenium $_{n}$	[ru: ˊθi:niəm]	рутений (хим.)
S s		
sodium $_{n}$	[ˊsəudiəm]	натрий
solid $_{adj}$	[ˊsɒlid]	твердый (нежидкий, негазообразный)
steam $_{n}$	[sti:m]	пар
synthesis $_{n}$	[ˊsinθəsis]	синтез
T t		
tissue $_{n}$	[‘tiʃu:]	ткань
U u		
universe $_{n}$	[ˊju:nivɜ:s]	вселенная
V v		
vital $_{adj}$	[ˊvaitl]	жизненно важный
vulnerable $_{adj}$	[ˊvʌlnərəbəl]	ранимый
W w		
waste $_{n}$	[weist]	потери; убыль, ущерб, убыток; траты
watery $_{adj}$	[ˊwɔ:təri]	водяной, мокрый
Y y		
yolk $_{n}$	[jəuk]	желток

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В ПОИСКАХ НАУЧНЫХ ОТКРЫТИЙ

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