ENGLISH
for
MEDICAL PROFESSIONALS

Culegere de texte
- note de curs practic pentru anul I -

ENGLISH

FOR

MEDICAL PROFESSIONALS

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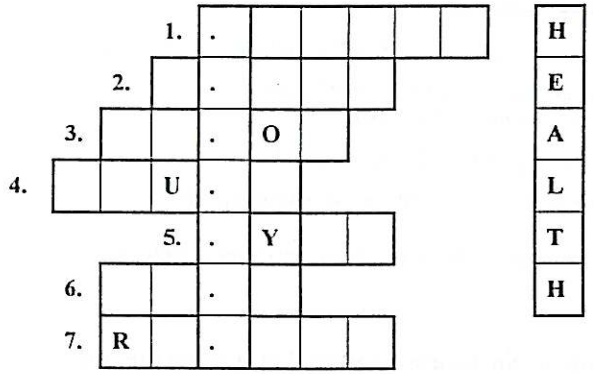
note de curs practic
pentru anul I

The Nervous System

Unit 7

A. LEAD-IN

Solve the puzzle to find out what you have to do with your health.



1. watery fluid of the body
2. control organ of the body
3. fluid circulating in our vessels
4. cavity where you put meals and drinks
5. a pair of sense organs
6. part of the body connecting head with trunk
7. the light-sensitive layer at the back of the eyes

B. PRE-LISTENING ACTIVITIES

Task 1

Scanning.
Scan the table to find answers to the following questions.

1. Into which parts is the nervous system divided?
2. What's the main function of the brain?
3. What's the main task/role of PNS?
4. Of which nerves and cells is the PNS composed?
5. Which nervous system controls the function of the cardiac muscle, smooth muscle, glands?
6. Which nervous system responds to stress and emergency situations?
7. What's the task of the parasympathetic nervous system?

4. Mature red blood cells are incapable of producing mRNA. Red blood cells do not have nuclei.
5. The soft gland is known as the pancreas. The soft gland extends from the liver to the spleen.
6. Valves are found in most veins. Valves direct the blood flow proximally.

B. SHORT-FORM RELATIVE CLAUSES

A relative clause containing *a passive verb* can be shortened as follows:

*Bile, **which is excreted** by the liver, is stored in the gall-bladder.*
*Bile, **excreted** by the liver, is stored in the gall-bladder.*

A relative clause containing *an active verb* can be shortened as follows:

*The soft gland **which extends** from the liver to the spleen is known as the pancreas.*
*The soft gland **extending** from the liver to the spleen is known as the pancreas.*

Task 2

Join the following sentences into a short-form relative clause using the *-ing* or *-ed/irregular* form of the appropriate verb.

1. The surface of the body is covered by a layer of skin.
   The layer of skin protects the body tissue.
2. The oesophagus is a tube.
   The oesophagus leads from the pharynx to the stomach.
3. The skull may be divided into these parts: the face, with its cavities and sinuses, and the cranium. The cranium contains the brain.
4. The nucleoplasm makes up the interior mass of the nucleus.
   Nucleoplasm contains genetic material called chromatin.
5. Most cells contain a control centre. This control centre is called a nucleus.
6. Tissue consists of living and non-living intercellular substances.
   The intercellular substances join tissue cells together.

C. THE PRESENT PARTICIPLE AND THE PAST PARTICIPLE AS MODIFIERS

The **-ing form** (present participle) and the **-ed/irregular form** (past participle) of the verb can be used like adjectives to modify a noun.

e.g. ***a secreting** gland* = a gland which secretes
***an injured** vessel* = a vessel that is injured

Task 3

Convert the following relative clauses to participle modifiers.

1. the food which is partly digested. .....
2. heat loss which has been reduced .....
3. muscles which contract .....
4. blood pressure which is increased .....
5. a thyroid gland which is enlarged .....
6. cells which are scattered widely .....
7. a valve which is not functioning .....
8. materials that minimize blood loss .....

F. PRE-LISTENING ACTIVITY

Think of the event when you had your blood pressure measured. Describe what the nurse did.

G. LISTENING ACTIVITY

Listen to the description of blood pressure taking. The following words may help you to understand the text. Then write the measuring technique in the form of brief instructions and number the instructions step by step.

E.g. *1. Take an inflatable cuff and ...*

	inflation bag	*to inflate*
inflatable cuff	*to reduce*	*compression*
to wrap	*palpable*	*brachial artery*
Korotkoff	*to place*	*Riva-Rocci*

H. COMMUNICATION ACTIVITY

Role play: A consultation with a doctor.
Take the patient's blood pressure explaining him what you are doing.

Task 6

Fill-in the blanks with reference to the diagram. Use the verbs *pass* or *flow*, and appropriate prepositions.

1. Blood _____ _____ the vena cava _____ the right atrium.
2. Blood _____ _____ the tricuspid valve _____ the right ventricle.
3. Blood _____ _____ of the right ventricle _____ the pulmonary artery.
4. It _____ the pulmonary artery _____ the lungs.
5. It returns _____ the lungs _____ the pulmonary veins _____ the left atrium.
6. It _____ _____ the mitral valve _____ the left ventricle, which pumps it _____ _____ the aorta.

E. LANGUAGE AWARENESS

A. RELATIVE CLAUSES

A relative clause adds extra information about one of the nouns in the main clause.

a) Relative clause about people:

There's **the doctor** { **who*** / **that** } used to live next door.
(main clause) *(relative clause)*

There's **the doctor** { **who*** / **whom** / **that** / **0** } I met yesterday.

* Some people think **who** is more correct. You can use **that**, but not to refer to a name (I spoke to Mrs Black who/that owns the bookstore) and not in non-definig clauses (see point 2 below). **Who**, **whom**, or **that** can all be used as a relative object pronoun referring to a person. **Whom** is rare, but is more "correct" than **who** in written English.

b) Relative clause about things:

I'm speaking about **a microscope** { **which** / **that*** } doesn't work properly.

I'm speaking about **a microscope** { **which** / **that*** / **0** } I bought in your shop.

* We use **that** commonly instead of **which**, especially in speech. But **which** is used in non-defining clauses (see point 2 below).

0: We often omit the relative pronoun when it is the object of the relative clause. (But don't omit it when it is the subject.)

(Adapted from: Geoffrey Leech (1989): *An A-Z of English Grammar & Usage*. Thomas Nelson and Sons Ltd.)

There are two kinds of relative clauses in the written language:

1 Relative clauses without commas (sometimes called **defining**, **restrictive**, or **identifying**). They provide essential information about the subject or object.

*The physician **(who) you spoke to** is my general practitioner.*
*The patient **who was operated on yesterday** is my neighbour.*

2 Relative clauses with commas (sometimes calle **non-defining**, **non-restrictive**, or **non-identifying**). They provide additional information, which can be omitted.

*Dr. Smith, **who you spoke to**, is my general practitioner.*
*John, **who was operated on yesterday**, is my neighbour.*

The inclusion or omission of commas may seriously affect the meaning of a sentence.
Compare: *The government which promises to cut taxes will be popular.*
The government, which promises to cut taxes, will be popular.

The first sentence refers to *any* government which may come to power in the future. The second is making a statement about the popularity of the government that is actually in power at the moment. Whatever it does, this government will be popular. Alternative punctuation, such as dashes, would further emphasize the introduction of additional information:

The government - which promises to cut taxes - will be popular.

Or we could use brackets:

The government (which promises to cut taxes) will be popular.

In speech, a break in the intonation pattern indicates these markings.

Not *all* relative clauses need be rigidly classified as defining or non-defining. This inclusion or omission of commas may be at the writer's discretion when it does not result in a significant change in meaning:

He asked a lot of questions (,) which were none of his business (,) and generally managed to annoy everybody.

L. G. Alexander (1988): *Longman English Grammar*. Longman Group UK Limited.

In medical writing there are many relative clauses with a preposition before **which.** For example:

*The cranium is a large bony case, **by which** the brain is protected.*
*The stomach is attached to the abdominal wall by its mesentery, **through which** run blood vessels and nerves.*

Task 1

Repeat the vocabulary from the previous units and join the following sentences into a single sentence. Use commas when necessary.

1. Bile is stored in the gall-bladder. Bile is excreted by the liver.
2. The juices help the process of digestion. The juices are secreted by the stomach.
3. The diaphragm is a dome-shaped muscle. This dome-shaped muscle separates the thorax from the abdomen.

2. Why can't the blood flow from the ventricles back to the atria?
3. What's the difference between oxygenated, deoxygenated and reoxygenated type of blood?
4. When can the heartbeat be raised ?
5. What's the task of coronary arteries?

Task 2

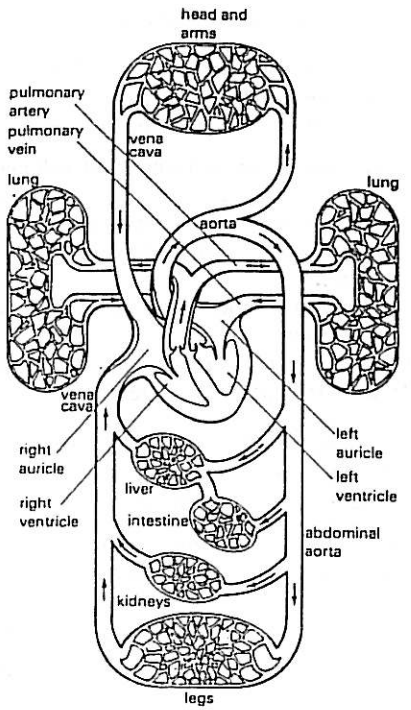
Look at the diagram and describe the systemic and pulmonary circulations.

Task 3

Fill in the missing words. The diagram should help you to choose the right ones.

1. The heart is a remarkable _____. **2.** It _____ day and night, during a lifetime without _____. **3.** A healthy heart can _____ more than 10 gallons of _____. **4.** A round trip through this _____ system takes little more than a minute. **5.** The heart has four _____. **6.** The two top chambers are called _____, the bottom chambers are called _____. **7.** The right atrium gets blood from the _____ through the superior and inferior _____ _____ **8.** The right atrium then pumps blood through the _____ valve into the right ventricle, which pumps the blood into the pulmonary _____. **9.** The pulmonary artery delivers blood to the _____. **10.** In the lungs, the blood picks up _____ and gets rid of _____ _____. **11.** From the _____, blood travels through the pulmonary _____ to the left atrium. **12.** The left atrium pumps the blood through the _____ valve into the left _____, which pumps the blood into the _____. **13.** The aorta delivers the blood to the rest of the _____.

CIRCULATION OF THE BLOOD



From: Dr. A. S. Playfair (1980): *The Essential Medical Dictionary*. Chancellor Press. p. 116

Task 4

Multiple choice excercise.
The following terms are related to the heartbeat. Choose the correct phrase.

A. The heartbeat
a) includes a contraction phase and a relaxation phase.
b) includes a systolic phase and a contraction phase.

B. Conduction refers to the action in which there is a transfer of ..... throught the heart.
a) electrical impulses
b) heart sounds

C. The thickening and shortening of the heart muscle occurs during .....
a) contraction.
b) relaxation.

D. The relaxation of the heart is said to be in the ..... phase.
a) systolic
b) diastolic

E. The instrument used for listening to the sounds of the heart is called a(n).....
a) electrocardiograph
b) stethoscope

F. A pulse is felt as a result of .....
a) the impact of blood on the artery walls.
b) the relaxation of the left ventricle.

G. The normal rate and rhythm of the heart is called .....
a) arrhythmia.
b) sinus rhythm.

Task 5

Fill-in one of the following verbs of description.

to be lined up	*to be separated*	*to be made up of*
to be surrounded by/with	*to be filled with*	*to be covered by/with*
to be divided into	*to separate*	

1. The heart is _____ by a fibrous sac - the pericardium.
2. The wall of the heart is _____ of three layers.
3. The inside of the heart is _____ with endocardium.
4. The heart is _____ into four chambers.
5. The heart is _____ by the lungs.
6. Visceral pleura _____ the heart from the lungs.
7. Arteries and veins are _____ with blood.
8. The thorax is _____ from the abdomen by the diaphragm.

The Cardiovascular System

Unit 6

A. LEAD-IN

Following are idioms connected with the word heart. Match them with their definitions/examples.

1. To lose one's heart to sb.	a) he was very much discouraged
2. My heart bleeds for you.	b) to be very kind/cruel to other people
3. Have a heart!	c) to memorise
4. To take words to heart	d) to give somebody serious consideration
5. His heart was in his boots	e) I am extremely sorry for you.
6. To have a heart of gold/stone	f) to fall in love with somebody
7. To learn/know by heart	g) Don't be unkind!

B. PRE-READING ACTIVITIES

Task 1

Think of five related words to put in each box.

HEART	CIRCULATION

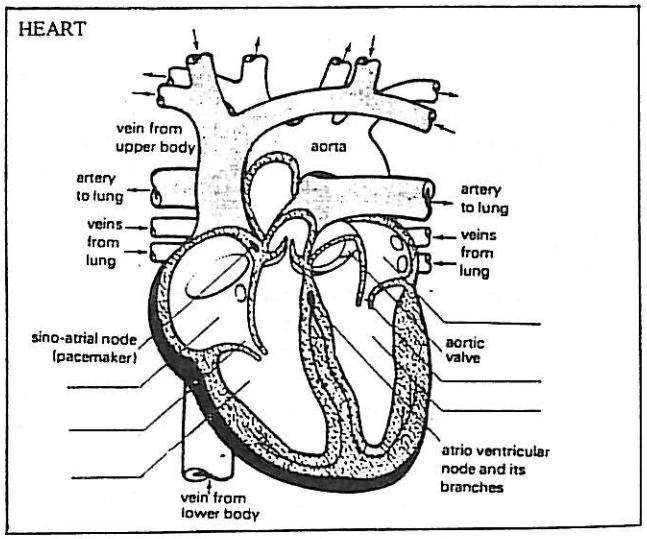
Task 2

Scanning.
Check how many words appeared in the text.

Task 3

Complete the labelling of the diagram of the heart.

Diagram adapted from:
Dr. A. S. Playfair (1980): *The Essential Medical Dictionary.* Chancellor Press, p. 116.



C. WHILE-READING ACTIVITY

Task 1

Read the text and decide if the given statements are true or false.

(a) The heart of an adult male always weighs more than the heart of an adult female disregarding the height and weight of the compared persons.

(b) The apex of the heart lies above the base.

(c) The average heartbeat in a healthy adult person is 70 beats/strokes per min.

(d) The wall of the heart is made up of three layers: the outer endocardium, the middle myocardium and the inner epicardium.

(e) The heart contains two chambers and two ventricles.

(f) The atria lie superior to the ventricles.

(g) The right atrium receives blood from the pulmonary circuit.

(h) The right ventricle pumps blood round the pulmonary circuit.

(i) The muscle wall dividing the heart vertically into a right heart and a left heart is called the septum.

(j) The heart needs about 10 per cent of all the blood it pumps.

(k) Blood always enters the heart by veins and leaves it through arteries.

The Heart and Blood Circulation

About five litres of blood continously circulates in a closed system of about 160,000 kilometers of blood vessels, bringing oxygen and nutrients from the lungs and digestive tract to every living tissue and removing waste products to be discharged (disposed of) by the lungs and kidneys. The heart takes only a little more than a minute to pump a complete cycle of blood throughout the body.

The centre of this circulatory system is the **heart**. It is a hollow, tough-walled muscular organ of conical shape; roughly like a pear. It is about the size of the clenched fist of its owner. It averages about 12 cm long and about 9 cm wide. The heart of an adult male weighs about 250 to 390 g, and the heart of an adult female usually weighs between 200 to 275 g.

It lies in the chest cavity, slightly to the left of centre. The pointed end of the cone is called the **apex** and is formed entirely by the left ventricle. The uppermost part of the heart, formed mainly by the left atrium and partly by the right atrium, is the **base.** The base is in a relatively fixed position because of its attachment to the great vessels, but the apex is able to move. When the ventricles contract, they change shape just enough so that the apex moves forward and strikes the left chest wall near the fifth intercostal space. This thrust of the apex is what we normally feel from the outside as a **heartbeat.**

The heart beats approximately 70 times a minute in a resting individual, but the **rate** can rise if activity, as body exercise, emotions, stress, illness, demands a greatly increased oxygen supply. It is the heart rate that nurse or doctor is measuring when s/he takes the pulse. The normal rate and rhythm of the heart is called sinus rhythm.

The heart does not hang freely in the chest. It hangs by the great blood vessels inside a protective sac called the **pericardium** ("around the heart") which is securely bound to the sternum, spinal column, and other parts of the chest cavity by means of connective tissue. The wall of the heart is made up of three layers: (l) the outer **epicardium** (*epi*, upon), (2) the middle **myocardium**, or muscular layer (*myo*, muscle), and (3) the inner **endocardium** (*endo*, inside). Inside the epicardium, and often surrounded with fat, are the main coronary blood vessels that supply and drain blood from the heart.

Structurally the heart is divided into four cavities, or chambers - the **atria** and the **ventricles**. The upper thin-walled atria receive blood from the veins, and the two lower larger thick-walled ventricles pump this blood away through arteries. One-way valves control the blood flow through the heart.

The heart works as an electrically-activated pump, contracting rhythmically without stopping during the whole life-time. Such a round trip through the circulatory system can be described as follows: *oxygenated blood* from the lungs fills the left atrium. This contracts, driving blood past the **mitral valve** into the left ventricle. Then this contracts, and the blood pressure inside it shuts the mitral valve, forcing blood out through the **aortic valve** to the **aorta**, which supplies oxygenated blood to all parts of the body. Meanwhile, *deoxygenated blood* from the body tissues enters the right atrium through the **superior** and **inferior vena cava**. It contracts, driving blood past the **tricuspid valve** into the right ventricle, which then contracts and forces blood out via the **pulmonary artery** to the lungs, where it is *reoxygenated.*

In reality there are two circulations. The greater, or **systemic circulation**, through the body as a whole, and the lesser, or **pulmonary circulation**, through the lungs. For this purpose the heart is functionally divided by a wall of muscle called the **septum** into the right and the left halves. The right half serves the pulmonary circulation and the left one the systemic circulation. Both halves of the heart work simultaneously in rhythmical phases of ventricular relaxation called **diastole**, and ventrical contraction, called **systole**.

The heart muscle needs more oxygen than any other organ except the brain. To obtain this oxygen, the heart must have a generous supply of blood. Like other organs, the heart receives its blood supply from arterial branches that arise from the aorta and are known as the **coronary arteries.** The heart pumps about 380 litres to its own muscle tissue every day, or about 5 percent of all the blood pumped by the heart.

Arteries are blood vessels which transport blood away from the heart to the organs and tissues of the body. The largest artery is the **aorta** and the smallest ones are **arterioles**. **Veins** carry (bring) blood back to the heart. The largest vein is the **vena cava** and the smallest ones are called **venules**. The tinest blood vessels are **capillaries**, where nutrients and gas exchange between blood and tissues takes place.

Adapted from: *The World Book of Science Encyclopedia* and *Human Anatomy.*

D. POST-READING ACTIVITIES

Task 1

Answer the following questions.

1. Why can we hear the heartbeat?

Divisions	Functions
CENTRAL NERVOUS SYSTEM (CNS) Brain and spinal cord	Body's central control system. Receives impulses from sensory receptors, relays impulses for action to muscles and glands. Interpretive functions involved in thinking, learning, memory, etc.
PERIPHERAL NERVOUS SYSTEM (PNS) Cranial and spinal nerves, with afferent (sensory) and efferent (motor) nerve cells.	Enables brain and spinal cord to communicate with entire body. **Afferent (sensory) cells:** Carry impulses from receptors to CNS. **Efferent (motor) cells:** Carry impulses from CNS to effectors (muscles and glands).
Somatic nervous system Characterized by axons (nerve fibers) of lower motor neurons that go directly from CNS to effector muscle without synapsing.	**Afferent (sensory) division:** Receives and processes sensory input from skin, skeletal muscles, tendons, joints, eyes, ears. **Efferent (motor) division:** Excites skeletal muscles.
Visceral nervous system Characterized by nerve fibers of motor neurons that go from CNS to interact with other nerve cells within a ganglion located outside CNS; nerve fibers of second nerve cells that go to effectors.	**Afferent (sensory) division:** Receives and processes input from internal organs of cardiovascular, respiratory, digestive, urinary, and reproductive systems.
Autonomic nervous system	**Efferent (motor) division** May inhibit or excite smooth muscle, cardiac muscle, glands.
Sympathetic nervous system	Relaxes intestinal wall muscles; increases sweating, heart rate, blood flow to skeletal muscles.
Parasympathetic nervous system	Contracts intestinal wall muscles; decreases sweating, heart rate, blood flow to skeletal muscles.

Adapted from: *R. Carola, J.P. Harley, C. R. Noback (1992): Human Anatomy. McGraw-Hill, Inc. p. 309.*

C. LISTENING ACTIVITY

For a listening activity we suggest a dialogue *Using Your Brain* from the book *Progress to First Certificate* by Leo Jones. CUP. 1990. p. 186. Before you listen to the dialogue, try to guess what message is hidden behind the title?

D. POST-LISTENING ACTIVITIES

Task 1

Answer the following questions.

1. How many nerve cells does the brain contain?
2. What's the total number of possible neuron combinations or connections?
3. Which hemisphere controls language learning?
4. What causes deterioratation of the memory function?
5. Which excuses should not be used when complaining about faulty memory?
6. Do you remember the three golden rules of brain power?

Task 2

Discussion.

a) Do you really agree that we all have equal brain potential?
b) Can you confirm or contradict this statement by additional facts?
c) Which are more important for intelligence - hereditary or environmental factors?

Task 3

Predictions.
Make some factual or fantasy predictions about the brain and its function in future human life. For example:

In fifty years people may not have to go to school because they will be able to use special computers attached to their brains.

E. WHILE-READING ACTIVITY

Task 1

Scanning.
Scan the following text to find definitions of the following eye and ear ailments.

presbyopia: _____
cataract: _____
glaucoma: _____
otosclerosis: _____

Task 2

Skimming.
Complete the table:

Disease	When appearing	Symptoms
a) Alzheimer's disease:		
b) Parkinson's disease:		

THE EFFECTS OF AGING ON THE NERVOUS SYSTEM

During old age, neurons continue to die, but there is usually no shortage. Some neurons lose their processes, and other neurons are replaced by fibrous cells, but there is only a 10-percent decrease in the *velocity of the nerve impulses.* However, reflexes do slow down. The many convolutions of the brain smooth out somewhat, and the blood supply to the brain is reduced. Although the number of brain cells is reduced, there is no appreciable loss of brain function unless the blood supply is cut off temporarily by a stroke or other disorder. A stroke may lead to the progressive loss of intellectual abilities, personality, and memory.

Short-term memory may be impaired somewhat in old age, especially if the blood supply to the brain is decreased by diseased arteries. There is usually little or no change in *learning ability*, although many elderly people have been conditioned to think that their mental faculties are seriously diminished by the aging process.

Several age-related diseases affect brain functions. In ***Alzheimer's disease***, which often appears between 40 and 60 years of age, some spaces between parts of the brain are enlarged, degenerative changes occur (amyloid plaque formation), and memory loss is common. ***Parkinson's disease***, a motor disability, is commonly called shaking palsy because it is characterized by tremors of the head and hands, slow movements, rigid joints, and sagging facial muscles. It is a common ailment that usually appears between 55 and 70, and occurs more often in men than in women.

Eyesight is usually impaired because of the degeneration of fibers in the optic nerve and an accumulation of injuries to the eyes. Common ailments are ***presbyopia*** (loss of the ability to focus on close objects), ***cataract*** (opaque density of the lens of the eye), and ***glaucoma*** (increased fluid pressure within the eyeball). Color perception is reduced as cones in the retina degenerate. People over 60 usually need twice as much light as a 40-year-old because some rods in the retina have degenerated.

Hearing, smell, and *taste* are reduced. Most elderly people have adequate hearing. but high-pitched sounds become increasingly difficult to hear as the eardrum loses its elasticity and fibers in the auditory nerve degenerate. Hearing may also be impaired by the accumulation of hardened wax in the outer ear. ***Otosclerosis*** is a disease of the small bones in the middle ear in which the bones fuse together, making it impossible for them to vibrate properly and amplify sound waves that must reach the auditory nerve. The abilities to smell and taste begin to deteriorate at about 60, as the lining of the mucous membrane becomes thinner and less sensitive, and as the number of active taste buds is reduced.

Elderly people often sleep up to two hours less than they did when they were younger, and wake up more often during the night. The more-frequent awakenings may be due to breathing problems and, in men, the need to urinate because of an enlarged prostate gland.

From: R. Carola, J.P. Harley, C. R. Noback (1992): *Human Anatomy.* McGraw-Hill, Inc. p. 312.

F. POST-READING ACTIVITY

Asking and answering questions.

Ask your friend if

1. the velocity of nerve impulses decreases in old age,
2. short-term memory becomes impaired,
3. hearing is reduced in elderly people,
4. elderly people need to sleep the same amount of hours as they did when they were younger.

Then ask him about

5. the cause of reflex slow down
6. the cause of brain function loss,
7. the possible consequences of a stroke,
8. the causes of eyesight deterioration.

G. LANGUAGE AWARENESS

NEGATIVE PREFIXES

Negative prefixes are used to give nouns, adjectives or verbs a negative meaning. Unfortunately, there is no easy way of knowing which prefix to use to form a word of opposite meaning.

A

un-	unable, unload, uncomfortable, unjust, unfair
in-	indirect, inconvinient, inedible *(nestráviteľný, nejedlý)*, indifferent
il-	illegal, illegible *(nečitateľný)*, illiterate *(negramotný)*
ir-	irresponsible, irreplaceable, irreversible
im-	impossible, immature *(nezrelý)*, immunity
dis-	disagree, dissimilar, disloyal, dislike, disabled (person)
mal-	malnutrition, malformed, maltreat, malfunction

Task 1

Try to add suitable negative prefixes to the following words.

_____interesting	_____honest	_____capable	_____successful
_____logical	_____patient	_____regular	_____thinkable
_____appear	_____lock	_____rational	_____location
_____organic	_____evitable	_____pleasant	_____treatment

Task 2

Say that you don't agree with the following statements.

E.g. He's a very reliable person. - I don't agree. I think he's an unreliable person.

1. I'm sure she's discreet.
2. I always find him very sensitive.
3. This child is very obedient.
4. I considered her very responsible.
5. His boss is a tolerant person.
6. This is a very convincing argument.
7. That's a relevant point.
8. This treatment is very effective

B

a-, an-	amoral, aseptic, afebrile, aperiodic, anoxia, anoxemia
ab-	abnormal, aboral, abreaction *(odreagovanie sa)*
anti-	antibiotics, anti-war, antigen, antibody
mis-	mishear, mislead, mistake, miscarriage
non-	non-smoker, non-fatal, nonsense, non-resistant
dys-	dyspepsia, dyspnoe, dysuria, dystrophy, dysfunction
contra-	contraceptive, contradiction, contraindication

Task 3

Try to add suitable negative prefixes to the following words.

_____essential	_____understanding	_____febrile	_____alcoholic
_____normal	_____indication	_____septic	_____information
_____pathogenic	_____driver	_____social	_____moral

Task 4

Fill the gaps in the following sentences using a negative prefix of the words given in brackets.

1. Metabolic _____(orders) are often rather difficult to treat.
2. _____(digestion) is also referred to as _____(pepsia).
3. Tissue consists of living and _____(living) intercellular substances.
4. All _____(organic) substances have been found as _____(solved).
5. Some proteins are _____(essential), others are _____(dispensable).
6. As a _____(smoker) I can't tell you which cigarettes are the best.
7. The man involved in the car accident was found _____(conscious) and taken to hospital.

Task 5

Say in one word.

1. Drugs that beat infectious diseases _____
2. Situation when people have no job _____
3. Protection against unwilling pregnancy _____
4. Unsuccessfully finished pregnancy _____
5. A person that suffers from sleeplessness _____

H. COMMUNICATION ACTIVITY

Role-play.

Work in pairs. One of you will be a relative of a patient and the other will play the role of a doctor. The relative will describe the symptoms of a disease mentioned above; and the doctor has to explain the causes of the "patient's" disease.

Sleep

Unit 8

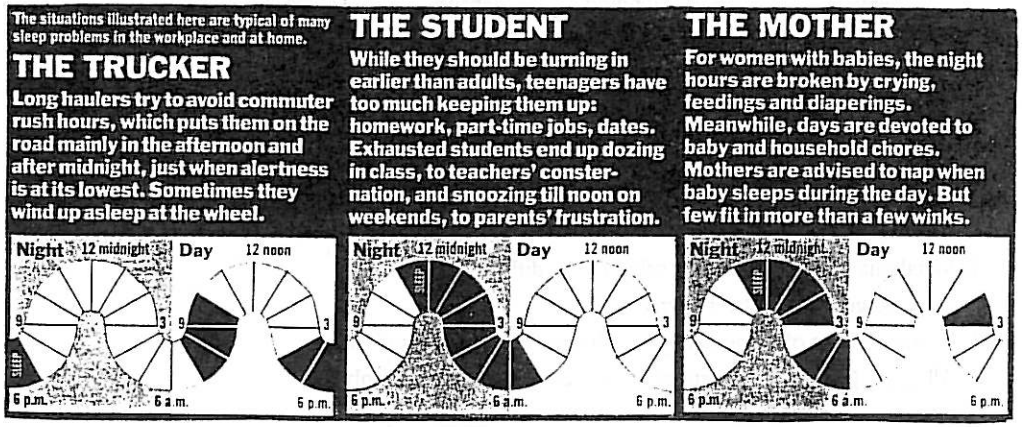
A. LEAD-IN

Discuss these questions and compare your answers, giving reasons where relevant.

* Why do people have to sleep?
* Do you find it easy to sleep?
* How many hours did you sleep last night?
* Do you sleep with your window open or closed?
* Do you prefer a hard or a soft bed?
* Do you remember your dreams? Tell us about one of them.
* Do you think that we can learn important things from dreams?
* Did any of your dreams come true? Tell us.

B. PRE-READING ACTIVITY

Compare the three sleep graphs of a trucker, a student, and a mother. Which do you think is the healthiest?



Time, No 51, December 17, 1990

C. WHILE-READING ACTIVITY

Task 1

Read and check to see if your answer is correct.

Task 2

Read the article and decide if the following statements are true or false.

1. Sleeping late on the weekend makes up for a lack of sleep during the week.
2. Lack of sleep is a major health problem.
3. A typical adult needs five to six hours of sleep a night.
4. If you need an alarm clock to wake up, you don't get enough sleep.
5. A normal person falls asleep within five minutes of going to bed.
6. The most common sleep complaint is insomnia.
7. People who work night shifts have fewer health problems than people who work day shifts.
8. Sleep is as necessary to health as food and drink.
9. Millions of Americans don't get enough sleep.

Sleep

It was civilization that created the dilemma of sleep loss. The sun presumably dictated the habits of ancient people: when it was up they were awake, and when it went down they slept. The discovery of fire probably allowed the first change in that pattern. As flames lit the dark, surely some adventurous souls delayed bedtime. But sweeping change came only a century ago with the introduction of the light bulb. U.S. inventor Thomas Edison's glowing device permitted cheap, safe and efficient illumination throughout the darkest nights. By the end of World War II, Americans were sleeping about eight hours a night.

Today new cultural and economic forces are combining to turn the U.S. into a 24-hour society. Many TV stations, restaurants and supermarkets operate through the day and night. Result: Millions of Americans complain of lack of sleep, but how many do anything about it? Sleep is a biological imperative, but do people consider it as vital as food or drink? Not in a society in which stores don't close, assembly lines never stop, TV beckons all the time. For too many Americans, sleep has become a luxury that can be sacrified or a nuisance that must be endured.

Yet scientists are increasingly making the case that forgoing rest is a foolish and often perilous bargain. In fact, evidence is mounting that sleep deprivation has become one of the most pervasive heath problems facing the U.S. Researches have not proved conclusively that losing sleep night after night directly causes physical illness, but studies show that mental alertness and performance can suffer badly. People who don't get enough sleep can't think, they can't make appropriate judgments, they can't maintain long attention spans.

Such mental fatigue can be as threatening as a heart attack. Recent evidence indicates that drowsiness is a leading cause of traffic fatalities and industrial mishaps. Human eror causes between 60 % and 90 % of all workplace accidents, depending on the type of job. And inadequate sleep is a major factor in human error, at least as important as drugs, alcohol and equipment failure. Sleep loss contributes to everything from drug abuse to poor grades in school.

A typical adult needs about eight hours of shut-eye a night to function effectively. By that standard, millions of Americans are chronically sleep deprived, trying to get by on six or seven hours or even less. In many households, cheating on sleep has become an unconscious and pernicious habit. In its mild form, it's watching late-night TV and then getting up early to get to the gym. Some people try to compensate it by snoozing late on weekends, but that makes up for only part of the shortfall. Most Americans no longer know what it feels like to be fully alert.

One sign of sleep deprivation is requiring an alarm clock to wake up. Another is falling asleep within five minutes after one's head hits the pillow; well-rested people drop off in 10 to 15 minutes. A third clue is napping at will. On the other hand, when people get enough rest, they remain awake no matter what the provocation: droning teachers, boring books, endless roads, heavy meals, glasses of wine - even articles about sleep.

People, who work in the evening or night hours, or rotate through day, evening and night duty, are both sleep starved and out of synch with their natural sleep-wake cycle. For most people, biological alertness peaks in the morning and early evening. It dips in the afternoon and plummets between mid-night and dawn. Nightworkers are fighting against those rhythms. Shift workers are more likely to suffer from heart disease and gastric complaints, including ulcers, as well as stress and emotional problems.

But not all sleeplessness is caused by hectic schedules. Clinical sleep disorders are a major contributor to the national drowsiness. Many Americans suffer from **nocturnal myoclonus**, a condition in which their legs twitch throughout the night and break up their sleep. About 3 million adults, mostly overweight men, are afflicted with sleep **apnea**. In this disorder, muscles in the upper airway regularly sag and fail to keep the passage open. The struggle to take in air can result in snoring. A person with apnea might not even be aware that he woke up 500 to 1,000 times last night because the arousals are so brief. Both apnea and myoclonus can be treated, once diagnosed.

By far the most common sleep complaint is **insomnia**. About a third of Americans have trouble falling asleep or staying asleep, problems that result in listlessness and loss of alertness during the day. Most of the time the distress is temporary, brought on by anxiety about a problem at work or a sudden family crisis. But sometimes sleep difficulties can extend for months and years. Faced with a chronic situation, insomniacs frequently medicate themselves with alcohol or drugs. Doctors warn that in most cases sleeping pills should not be taken longer than two or three weeks. Such drugs lose their effectiveness with time, and it takes higher and higher dosages to work. People run the risk of becoming dependent on the pills.

Adapted from: *America. The Drowsy* by Anastasia Toufexis. In: Time, No 51, December 17, 1990

D. POST-READING ACTIVITY

Task 1

Read the definitions of sleep.

Sleep: a) the natural resting state of unconsciousness of the body
Longman Dictionary of English Language and Culture. Longman 1992.

b) a condition that occurs regularly in humans and animals, esp. at night, in which the eyes are closed and the muscles, nervous system, etc. are relaxed
Oxford Advanced Learner's Dictionary. Oxford University Press 1989.

Skim the text to write the definitions of the following sleep disorders:

1. nocturnal myoclonus _____
2. apnoea _____
3. insomnia _____

Task 2

Answer the following questions.

1. Why do people suffer from sleep loss?
2. When did people create the dilemma of sleep loss?
3. How much did Americans sleep at the end of the World War II?
4. How would you explain that the US turned into a 24-hour society?
5. Is sleep a luxury, a necessity or a nuisance to you?
6. Do scientists have enough evidence of sleep deprivation?
7. Does loss of sleep directly lead to any physical illness?
8. What's the "contribution" of sleep loss?
9. What would you advise to an insomniac?

E. LISTENING ACTIVITY

For a listening activity we suggest the listening activity *Sleep and Dreams* from the book *Progress to First Certificate* by Leo Jones. Cambridge University Press. 1990. p. 90.

F. POST-LISTENING ACTIVITY

Answer the following questions. Read the text "*The biology of sleep*" to check the answers.

1. What is the usual pattern of sleep?
2. How many stages / phases of sleep do you know?
3. How long does each last?
4. Does REM mean a deep sleep?
5. In which phase of sleep do people dream?
6. Is there any "biological clock" that determines when people should sleep?

THE BIOLOGY OF SLEEP

For something we spend so much time doing, sleep is still essentially a mystery. Even the basic question - Why do we sleep? - has not been adequately answered. Though sleep has value for the entire body, its chief beneficiary appears to be the brain. Scientists suggest that sleep helps repair the wear and tear of consciousness, and aids in the assimilation of information or the impression of memory.

Electroencephalograms of the brain's electrical activity show that sleep alternates through two major states:

NON-REM SLEEP, which occupies about three-quarters of total slumber, comes first and is quiescent: blood pressure and body temperature drop, the heart rate and metabolism slow, and muscles relax. Non-REM sleep has four separate stages, each progressively deeper. The bulk of time is spent in the second of these stages, but the last two appear to offer the most restorative rest.

REM (RAPID EYE MOVEMENT) SLEEP occurs at intervals through the night and has characteristics of wakefullness: muscles twitch, eyes move, blood pressure rises and falls, and the heartbeat speeds up and slows down. Most dreaming occurs during this phase. People deprived of REM sleep one night will spend more time in that state on subsequent evenings.

The body appears to have two mechanisms that regulate the natural cycle between sleep and wakefulness:

THE BIOLOGICAL CLOCK, a bundle of 10,000 nerve cells - about the size of pinhead - located in a segment of the brain called the hypothalamus, controls both sleep and wake-up times. The biological clock takes its cue largely from variations in the amount of sunlight entering the eye: light hits the retina, and the message is carried to the brain.

HOMEOSTASIS is the term for the body's natural tendency to seek equilibrium. Recent experiments at Stanford University suggest that this force exerts the primary pressure toward sleep. Researchers speculate that a sleep-inducing chemical, as yet unidentified, accumulates during the time a person is up. The urge to doze grows stronger and stronger, and eventually a person nods off.

TIME, DECEMBER 17, 1990.

G. LANGUAGE AWARENESS

Expressing certainty/uncertainty, possibility or probability

Certainty	Uncertainty (possiblity/probability)
He **is** ill.	He **may/might/could be** ill. He **appears/seems (to be)** ill.
The children **are** asleep.	The children **appear/seem to be** asleep.
This **is** an orange.	This **looks/tastes/smells** like an orange.
John **is** at home.	John **should be/ought to be** at home.
He **is certain/sure to sign** ...	He is **uncertain/unlikely to sign** the contract.

Deduction based on evidence:
Jane's light is on. She **must be** at home. She **can't be** out.
You hadn't eaten for hours. You **must have been** hungry.
You had already eaten. You **can't/couldn't have been** hungry.

ask 1

Read the following sentences and write C (= Certainty) or D (=Deduction) after ich one.

1. John Wright is a man of action. ____
2. He was in the Galapagos ten years ago. ____
3. Now he lives in an enormous house. ____
4. He is writing a book. ____
5. He has been writing this book since he came back from the Galapagos. ____
6. He must be writing about his travels. ____
7. He must have seen the giant tortoises and the iguanas on the Galapagos. ____
8. He can't have seen any elephants on the Galapagos. ____
9. He can't have been working very hard on his book. ____
10. He must have taken a lot of photos while he was on the islands. ____
11. He must have done a lot of research for his book. ____
12. He must enjoy life. ____

Exercise taken from the book: L. G. Alexander (1990): *Longman English Grammar Practice.* Longman. p. 164.

Task 2

Read the first paragraph of the article "Sleep" and underline all the ntences expressing probability. Change them into sentences expressing certainty.

COMMUNICATION ACTIVITY

groups of 4 or 5 carry out some "research" by asking the following estions. Then share your answers with the class.

* How much sleep do you need?
* Have you ever been unable to fall asleep? If so, what do you do to help you?
* Do you read a book, listen to your favourite music or have a drink before you go to bed?
* How do you feel if you have less sleep than normal?
* Are you a "night owl" or an "early bird"?
* Are you a light sleeper? What kinds of things wake you up?
* Have you ever stayed up all night to study? Did it help?

Medical Examination

Unit 9

A. LEAD-IN

What are the qualities of a good doctor?
Look at the following statements about doctors. Choose three which you think are important. Discuss your decision.

A doctor should:

a) have a profound knowledge of medicine
b) be able to establish good relations with his/her patients
c) never be involved in his patient's personal life
d) always be interested in a patient's personal and social background because they might be related to diseases
e) try to prescribe as many drugs as possible to cure diseases
f) try to avoid patients who are obviously hypochondriacs
g) be empathetic at all times
h) practise professionalism in harmony with humanity

B. PRE-READING

Task 1

Pair work.
What kind of memories do you have from visits to G.P.'s surgeries? Fill in the table and explain:

G.P.'s SURGERY VISIT

Positive memories	Negative memories
e.g. *The doctor is always kind to me.*	*I always have to wait too long.*

Task 2

What happens when you get ill and decide to see your doctor?

Example: 1. Wait in the waiting room.

2. .....
3. .....

4. .....
5. .....
6. .....

C. WHILE-READING

Task 1

Scanning.
Scan the text in order to compare your procedure with the one in the text.

Task 2

Scan the text in order to complete the following chart.
When your chart is completed you will have a summary of the text.

MEDICAL EXAMINATON AT THE G.P.'s SURGERY

MAKING A PATIENT'S DIAGNOSIS common symptoms			
CLINICAL PICTURE O/E - objective findings			
		EXAMINED FOR	
BLOOD			
SPUTUM			
URINE			
STOOLS			
CEREBROSPINAL FLUID			
OTHER INVESTIGATIONS			
		THE AIM OF MEDICAL EXAMINATION	AIDS USED BY G.P.
MEDICAL EXAMIN. METHODS	1		
	2		
	3		
	4		

MEDICAL EXAMINATION AT THE G.P.'s SURGERY

Patients in need of medical treatment usually go to see their doctor in his consulting room or surgery. As a rule, they have to wait in the waiting room until their turn comes.

In order to make the patient's diagnosis, the G.P. must first learn about the common symptoms, the subjective manifestations of the patient's chief complaint. He will want to know if the patient is running a temperature, and if so, he will take it or ask the patient to take it, using a thermometer. Apart from attacks of fever the most **common symptoms** include: sweating, general body ache, headache, backache, muscle or joint ache, malaise, nausea, diarrhoea, constipation and breathlessness. The patient may also complain of sore throat, cough, giddiness, weakness, tremor and pain.

On examination (O/E in clinical notes), the doctor may find rash, swelling, distension or tumour. These belong among **objective findings** called signs which also include the results of routine laboratory examination of the blood, sputum, urine and stools and possibly the cerebrospinal fluid, too.

Thus, for instance, the blood sedimentation rate (B.S.R. or E.S.R. - erythrocyte sedimentation rate) and blood count, simple or differential, are important guides for the establishment of a reliable diagnosis. So is the examinaton of the sputum for bacilli of tuberculosis, pneumococci, staphylococci, pus or blood. It may be found frothy, mucoid or mucopurulent.

The urine is analysed for the presence or exact proportion of albumin, sugar, acetone, blood and bilirubin as well as for colour, specific gravity and total quantity per 24 hours. The stools (faeces), which may be anything from loose to hard and painful to pass, have to be examined for consistency and colour and again for the presence of blood, parasites and fat (split, unsplit and total fat). In examining the cerebrospinal fluid (taken by means of a lumbar puncture), the pressure and the proportion of chlorides, glucose and protein have to be established.

In order to obtain a clear clinical picture, the doctor may want to have the patient X-rayed, or to have him undergo an E.C.G. /electrocardiographic/ or E.E.G. (electroencephalographic) investigation. He may want to have his gastric juices analysed, brochoscopy, proctoscopy, cystoscopy etc. performed. But these rather sophisticated investigations are better made on an outpatient or, if need be, on an inpatient basis in the nearest hospital of the particular catchment area. In his surgery, the G.P. is much more likely to use, first of all, the four classical methods of:

inspection - to ascertain visible signs of the patient's condition; thus, for instance, the appearance of the patient's tongue (furred, florid or pale, moist or dry or glazed as in fever) is a valuable sign,-

palpation - to feel tumour, swelling, distention, the presence of tenderness etc.-

percussion - by tapping the chest or other parts of the body and listening to the quality of the note, whether resonant or dull, impaired, and so on.-

auscultation - to hear chest sounds, irregularity of heart beat, peristaltic sounds in the abdominal cavity etc.

In the course of the examination in his surgery, the doctor makes use of his stethoscope, speculum, magnifying glass, sphygmomanometer and other **aids**, to make the diagnosis as accurate as possible. To do this, he has to rely on what the patient himself can tell him about his condition; e.g. how often he has his bowels open, if he has any difficulty in passing water etc. If the patient has pains, the doctor is interested to learn whether it is sharp, dull, constricting, gnawing, lancinating, boring, shooting, throbbing, deep or superficial, transitory or chronic, whether the patient complains of cramp or spasm. He has to find out if the fever is just subfebrile, slightly, moderately or highly febrile, whether it is continued, remittent, intermittent, fluctuating, or relapsing etc.

In examining the patient, the doctor proceeds, as a rule, from the top of the head down the neck, to the chest and abdomen, and finally to the extremities.

This - together with the patient's past history and family history - helps to establish a reliable diagnosis and to determine what kind of treatment is called for. Then the G.P. is in a positon to write out a prescription, to recommend bed rest or hospitalization, to invite the patient for another consultation or - if necessary - to refer him to a specialist.

(Taken from: Harrerová Š.: (1979): *Základy lékařské angličtiny.* Praha Avicenum, p.69)

D. POST READING

Task 1

Complete the following sentences.

a) If there are many patients in the waiting room they have to wait until .....

b) Which subjective manifestations was the patient .....?

c) The results of routine laboratory examinations are important guides for the .....

d) In order to obtain a clear clinical picture, the doctor may want to have the patient .....

e) In the course of the exmination in his surgery the doctor makes use of different aids to make the diagnosis.....

f) In examining the patient, the doctor proceeds as a rule from the top of the head .....

g) Examination of the patient together with the patient's past history and family history helps to establish a diagnosis and to determine .....

Task 2

Match the expressions in column A with those in column B.

A	B
1. he was invited for	a) another consultation
2. my turn	b) was analysed
3. his temperature	c) was recommended
4. he was complaining of	d) was determined
5. a reliable diagnosis	e) was written out
6. his urine	f) was running
7. appropriate treatment	g) common symptoms
8. a new prescription	h) was established
9. a short hospitalization	i) was coming

Task 3

Choosing the proper adjective given in the brackets, describe the sort of pain you can feel when you have:

1. a toothache	5. a heartache
2. a headache	6. a stomachache
3. a joint ache	7. a sorethroat
4. an earache	8. cramps

(sharp, dull, constricting, gnawing, stabbing, boring, shooting, throbbing, superficial, transitory)

E. LANGUAGE AWARENESS

CHECK YOUR GRAMMAR

CAUSATIVE USE OF HAVE

Read the following sentences:

I had my eyes tested.
My son had his tooth filled.
The man had his leg amputated.

In all these sentences the work is done by somebody other than the subject. This structure is called the *causative use* of ***"have"*** and it is formed by the appropriate tense of the verb ***have*** with a ***past participle***. The order of words is very important:

Have + Object + Past Participle

To go back to the above examples:

The man had his leg amputated.
It is not the patient who amputates body parts but someone else, a surgeon.

I have my eyes tested.
The eyes are tested by an optician or an opthalmologist.

When ***have*** is used in this way, the negative and interrogative of the present and past tenses are formed with ***Do*** and ***Did***:

Do you have your instruments sterilized?
/This is another way of saying: Does somebody else sterilize instruments?/

Do you have your blood pressure checked regularly?
Did you have your eyes tested last year?
Did he have his urine tested?

Negative:

She doesn't have her baby's health checked.
They didn't have their feet examined.

Adapted from: Parkinson, J. (1978): *English for Doctors and Nurses: A Grammar with Medical Examples.* Evans Brothers (Nigeria Publishers) Limited.

Task 1

Use causative *have* according to the example:
Example: My watch needs reparing. - *I must have it repaired soon.*

1. This ambulance needs servicing.
2. His eyes should be tested.
3. This blood sample needs analyzing.
4. Your E.C.G. apparatus needs checking.
5. His sputum should be thoroughly investigated in the laboratory.
6. The immigrant's health should be checked.
7. Mary's arm needs bandaging.
8. Paul's ear needs syringing.
9. Mr. Carter's tube needs removing.

Task 2

Using the phrases below ask and answer questions in pairs.

to test your hearing	to remove your appendix
to extract your tooth	to test your eyes
to reset your nose	to test your blood pressure

Example: *Have you ever had your tonsils removed? Yes, three years ago.*
When did you last have your blood tested? Two months ago.

F. COMMUNICATION ACTIVITY

Role-play.
Use the table to help you compile a short case history on a patient who comes to you complaining of an upset stomach (headache, earache, influenza).

Communication between Doctor and Patient

Unit 10

Good communication between doctor and patient is vital. A doctor-patient interview, where a doctor tries to find out and treat a patient's problems, is called a ***consultation***. During consultation no medical terms should be used that the patient cannot understand. The instructions should be clear and simple.

In different stages of taking a ***case history*** various phrases are used by a doctor.

Greetings and identification:

Good morning, Mrs Rayner, come and sit down.
Come and sit down, Mr Brown.
It's Miss Atkinson, isn't it? Do take a seat.
My name is Dr Hudson.
My name is Dr Jameson, and I've read Dr Woodside's letter.

Asking about present complaints:

What can I do for you?
What's brought you along today?
What seems to be the problem?
Now, Mr Green, what's troubling you?
Well, Mrs Morgan, what seems to be the problem?

I. History of present illness:

How long have you had it?
How long have they been bothering you?
How long has this been going on?
How long have you had this problem?
When did you first notice this?
When did the trouble first start?

a) Pain location:

Where is the pain exactly?
Can you show me where it hurts?
Where does it hurt?
Where is it sore?
Which part of your ...is affected?

b) Asking about type of pain/severity of problem

What's the pain like?
What kind of pain is it?
Can you describe the pain?
Does it bother you when you are ...?
Does the pain have any relation to ...?

Is it bad enough to (wake you up)?
Does it affect your work?
Is it continuous or does it come and go?
How long does it last?

c) Asking about relieving (aggravating) factors

Is there anything that makes it better/worse?
Does anything make it better/worse?

d) Asking about precipitating factors:

What seems to bring it on?
Does it come on at any particular time?

e) Asking about medication

Have you taken anything for it?
Did (the tablets) help?

II. Taking a past history

Questions about a patient's past are predominantly used in the ***present perfect form*** of verb. ***Have you ever ...?*** is a common question form as in:

Have you ever had diphtheria?
Have you ever been operated on?
Have you ever had your tonsils out?
How about your bowels? Have you had any problems?
Did you ever have any fractures as a child?
Do you ever suffer an allergic reaction?

III. Taking a family history

When taking a family history the ***present tense*** is often used. In particular the forms ***Do you have ...?, Is your ...? Are your ...?***

Are your parents alive and well?
Do you have any brothers and sisters?
What did he/she die of?
How old was he/she?
Does anyone else in your family suffer from this problem?
Are you married?
Do you have any children?
How about your relations with your husband?
Does your husband smoke (drink)?
When did your wife die?

IV. Asking about systems

These questions obviously depend on the type of illness presented by a patient, e.g. psychiatric, orthopedic, etc. Here are some examples:

Have you any trouble with (passing water)?
Any problems with (your chest)?
What's (your appetite) like?
Have you noticed any (blood in your stools)?
Do you ever suffer from (headaches)?
Do (bright lights) bother you?

A. PRE-LISTENING

You are suffering from headaches. Predict 3 questions your doctor might ask you.

B. SUGGESTED LISTENING I.

Task 1

Listen to the dialogue and see if your questions are asked.

(Dialogue from: Glendinning, E. & B. Holmström. (1994): *English in Medicine.* Cambridge University Press. Unit II. Task 12, p. 28).

Task 2

For this activity see:

Glendinning E. & B. Holmström. (1994): *English in Medicine.* Cambridge University Press. Unit II. Task 12, p. 28.

C. POST-LISTENING

Pair-work.
Act the dialogue between the doctor and a patient using as many phrases you have just learned as possible.

V. Instructions for doing a physical examination

The physical examination is carried out by means of polite instructions to the patient. In this situation the most common verb forms are: ***Could you ...? Would you ...? Can you ...?*** Adverbial expressions ***just*** and ***for a second*** are also used in these situations to make the instructions more polite and less embarrassing.

It is essential that you learn the names of garments worn by your patients.

Can you name all the clothes you are wearing?

a) Instructions for taking off garments:

Would you mind taking off all your clothes except your pants (for men) except your pants and bra (for women).
Slip off your shoes and socks.
Roll your sleeve up (for examination of elbow or lower arm).
Could you just take off your shirt for a second?
Strip to the waist, please.

b) Instructions for position on couch and during clinical examination.

Please lie on your tummy (for children) - stomach, front.
Could you just hop on the couch for a moment?
Would you lie flat on the couch for a moment?
Could you give me your arm?
Would you open your mouth wide?
Just hold out your arms for a second. ... Good.
Can you take a deep breath and hold it? Great.
Now blow the air out and hold it.
Please turn over and lie on your back.
Roll over onto your left/right side.
Bend your knees.
Sit up.
Lean forward.
Get off the couch and stand up, please.
Walk across the room.

D. SUGGESTED LISTENING II.

For this activity see:

Glendinning E. & B. Holmström. (1994): *English in Medicine*. Cambridge University Press. Unit III, Task 3, p. 32.

E. POST-LISTENING

Pair-work.
Present a situation similar to that in suggested listening task 3 giving as many of the instructions you have just learned as possible.

VI. Closing the consultation

a) Reassurance

All patients need reassuring whether their complaint is trivial or life-threatening. It is a complex subject and is not limited to verbal communication. The physical presence of a doctor can reassure: his appearance, manner, attitude and intonation, all play a part. Certain verbal patterns of reassurance are common here:

- Don't worry about this. It's quite a common condition and should clear up in a week or so.
- This is not a serious condition. These tablets should help. The only way to treat this is by an operation. It is routine surgery and you should be back to normal two months after the operation.
- Well, Mrs Smith I can't see anything wrong here.
- Well. Mr Wilson, I don't think there's anything to worry about.
- Okay, Mr Taylor, I'm going to give you something to relieve the pain.
- Okay, Mrs Morgan, we'll give you something to calm you down.
- Right, I'll give you a prescription for some tablets to ease the pain.
- Well, try these tablets for two weeks and see how you get on.
- Drop in and see me again in about a month's time.
- Well, Mrs Walton, we'll send these samples off to be tested, and we'll let you know the results as soon as we get them.

b) Imparting bad news.

It is sometimes necessary to give news to the patient that is unwelcome, frightening, or bad. The choice of words is important and can help reduce the shock. The phrase ***I'm afraid*** is commonly used to signal bad news.

- I'm afraid this is a serious condition. You'll need an operation.
- I'm afraid your gangrenous leg hasn't responded to treatment. We shall have to amputate it.
- I'm afraid your mother died during the operation. Her heart wasn't strong enough.

It is helpful to a patient if a doctor shows understanding.

- I know this is bad news for you but there is not a lot we can do to help you.

Task 5

Hold the dialogue using the information below. Then try and complete it. Use some phrases typical for:

a) doing a physical examination,
b) a closing consultation.

Role A: Doctor
A patient comes into your surgery. You need to ask him:

- what his problem is
- if he has lost weight
- if he has a cold or cough
- if he has any aches or pains
- if he is short of breath
- how his appetite is
- about his bowel movements
- whether he smokes or drinks
- whether he sweats a lot and where
- if he has shaky hands

Role B: Patient
You have been feeling unwell for about a year. You:

- have lost 3 kg in weight
- are short of breath when playing cricket
- smoke 10 cigarettes a day
- don't drink
- prefer hot weather
- your fingers and feet sweat a lot
- had hepatitis in 1987 and 1992

Otherwise you feel healthy, so answer the doctor's questions appropriately.

Hospitalisation

Unit 11-12

A. LEAD-IN

Task 1

Answer the questions:

1. Have you ever been hospitalised?
2. Can you remember your first impression of a hospital environment? Try to describe it.
3. What is your opinion of people who refuse to be admitted to hospital?

Task 2

Write a short list of factors which should not be missing in any hospital to make the patient's stay stressless and comfortable. Discuss them with your partners.

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

Do these exist in most hospitals in Slovakia?

B. PRE-READING

Prediction.
Predict 8 words which will appear in the text entitled "*Hospitalisation*". Write them into the table and compare with those of your colleagues.

C. WHILE-READING

Task 1

Skim the text in order to find which of your words is contained in it.

Task 2

Scan the text in order to complete the following sentences:

1. ..... carries overall responsibility for the nursing services within the hospital.
2. ..... - the most senior grade in medical posts, has ultimate decision on patient care.
3. ..... include menial tasks and nursing proper.
4. ..... help patient with personal or domestic difficulties, that may arise from illness.
5. ..... has its own staff and most of its work is surgical.
6. ..... a fully qualified and experienced nurse responsible for organising and running a ward unit.
7. ..... are taken to hospital even without any doctor's recommendation.
8. ..... carry heavy responsibility for the day-to-day running of many wards.
9. ..... are normally admitted straight to the department or ward concerned.
10. ..... assist patient care and give a valuable service in relieving the qualified nurse of many duties.
11. ..... should contain the date of admission and discharge, the historian's name and diagnosis.

Task 3

Discovery activity.
While reading the information on medical and nursing staff in Britain look at the diagrams in your books and try to give Slovak equivalents for the medical and nursing posts. Write them below the English expressions and discuss the differences you have found.

HOSPITALISATION

A. Patients whose state is too serious to be coped with by the general practitioner are referred to hospital. Emergencies are taken to hospital even without any doctor's recommendation. List patients are normally admitted straight to the department or ward concerned.

On admission the patient's history is taken as part of clinical case-taking. This includes complete physical examination and laboratory studies, the systematic classification of the common symptoms and signs as well as compilation of the patient's case record (clinical notes). Apart from the patient's personal data (name both Christian and surname, address, age, social status, occupation etc.), the case record should contain the date of admission and discharge, the historian's name and diagnosis.

A general hospital is usually divided into two parts, an ***outpatient department*** and an ***inpatient department.*** The outpatient department has a number of surgeries and consulting rooms, waiting rooms, a filing cabinet where records are kept, and laboratories and X-ray units unless such services are provided by the inpatient department.

The basic component unit of the ***inpatient*** department is called the ***ward*** where patients are admitted for treatment. The number of wards will differ according to the size of the hospital, but in general there will be several groups of wards: internal, surgical, obstetric and gynaecological, paediatric etc.

A ***ward*** consists of rooms for patients, a treatment room, sisters' room, bathroom and lavatories; there may also be an admission room, a kitchenette, a small laboratory. In addition to beds and bedside lockers, the equipment of a ward usually includes washbasins, bedpans, urinals, commodes, scales etc.

B. The ***medical staff*** of a British teaching hospital consists in order of seniority of:

The Head of the Department - the most senior grade in teaching hospital, usually professor or associate professor.

Consultant - the most senior grade in medical posts, having the ultimate decision on patient care.

Medical Assistant - doctors occupying these posts have many years' experience but may not possess the appropriate qualifications to be eligible for consultant posts.

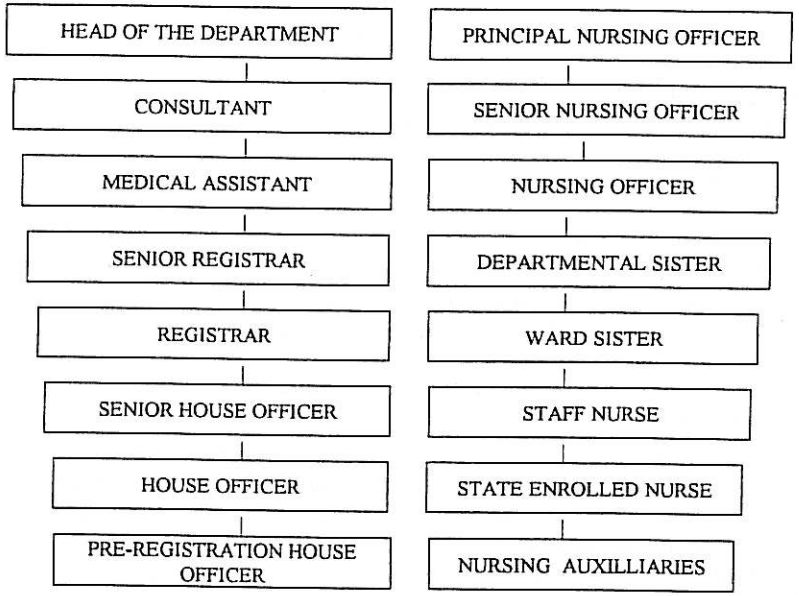
Senior Registrar - is a potential consultant who has worked as a Registrar for two years in his speciality in a teaching hospital after two years in a general hospital.

Registrar - may be medical or surgical and will practically always have a higher qualification. A Surgical Registrar for example will do the routine surgery (appendectomy) without supervision of a more senior surgeon but he will only perform major operations with a more senior surgeon present.

Senior House officers - are almost always required to be resident in the hospital when on duty. They look after the routine medical care of the patient.

House Officer, Pre-registration House Officer - these doctors are considered in law to be doctors only for the purpose of a specific post. They carry heavy responsibility for the day-to-day running of many wards (departments).

MEDICAL STAFF NURSING STAFF



As for the ***nursing staff*** in British hospitals there is the following hierarchy of nursing workers:

Principal Nursing Officer - carries overall responsility for the nursing services within the hospital,

Senior Nursing Officer - responsible to Principal Nursing Officer for the services and management of a certain ward (department).

Nursing Officer - responsible for the work of several ward units.

Departmental Sister - is in charge of a particular out-patient department or operating theatre.

Ward Sister - a fully qualified and experienced nurse responsible for organizing and running a ward unit.

Staff Nurse - a representative of nurses (the first post that trained nurses can hold).

State Enrolled Nurse - a qualified nurse who cannot become a Ward sister without obtaining further qualification.

Nursing Auxilliaries and Nursing Assistants - untrained women or men who assist with patient care and give a valuable service in relieving the qualified nurse of many duties.

C. The duties of the nursing staff include menial tasks and nursing proper, such as doing bedpan rounds, bed making, washing patients, dressing wounds, giving out medicines, taking the temperature, managing transfusions, conducting certain investigations and, in general, carrying out medical orders.

The patients are seen daily by the medical staff, usually during the morning ward round. Most of the operations are also performed during the morning; the place is the operating theatre with the surgeon being assisted among other staff by the instrument sister and theatre sister. As a rule the same medical staff see the outpatients as give them treatment if they subsequently become inpatients. In other words, the inpatient team and the outpatient team is the same and is in close contact with the general practitioner who has referred the patient to hospital.

Among all the departments and wards, a place of particular importance is taken by the casualty department. It has its own staff and most of its work is surgical. It has its own X-ray department and plaster room to treat all kinds of fractures, except perhaps minor injuries which can be treated without actual hospitalization on an outpatient basis by the orthopedic surgeon at the fracture clinic.

In some larger hospitals it has been found expedient to have special wards and departments with their own permanent staff. These are likely to include an accident unit, an intensive care unit, a chest surgery unit, a head injuries unit, a plastic surgery and burns units, a rehabilitation department, a department of physiotherapy, a blood transfusion department, and other special purpose units.

Appart from a medical and nursing staff that is structurally similar to that in other countries, hospitals in several western countries such as Great Britain also employ medical social workers (M.S.W.). They help patients with personal or domestic difficulties that may arise from illnesses, and who work closely with the medical and nursing staff. Psychiatric social workers (P.S.W.) do similar work with the mentally ill patients and are, therefore, found in mental hospitals or the psychiatric departments of large hospitals. Both are meant to act as a link between doctor and patient.

Parts A + C taken from: Harrerová Š. (1979): *Základy lékařské angličtiny*.Praha Avicennum, p. 81.

D. POST-READING

Task 1

Comprehension.
Decide whether the following statements are true or false. If false, give the correct version of the sentence concerned.

a) Emergencies are admitted to hospital only after a G.P.'s recommendation.
b) The patient's case record contains his personal data and the historian's name.
c) The Head of Department is the most senior grade in a teaching hospital.
d) The registrar may be medical or surgical and is usually a professor or associate professor.
e) A general hospital is usually divided into two parts, an outpatient department and inpatient department.

f) The principal Nursing Officer is responsible to the Senior Nursing Officer for the services and management of certain wards.
g) Patients are seen daily by medical staff, usually during laboratory examinations.
h) The duties of the nursing staff include menial tasks and nursing proper.
i) Most of the operations are performed during the morning when the surgeon is assisted by some nursing assistants.
j) P.S.W. help mentally ill patients and are, therefore, found in mental hospitals or the psychiatric departments.

Task 2

Answer the following questions:

1. Which patients are usually referred to the hospital?
2. What does the doctor do when admitting patients to hospital?
3. Which data should a patient's case record contain?
4. What can you say about the outpatient department of the hospital?
5. What is the basic component unit of the inpatient department called?
6. How can you characterize the post of Medical Assistant?
7. What is the Ward Sister responsible for?
8. When and where are the majority of operations performed?
9. What can you say about the casualty department?
10. What is the relation of M.S.W. and P.S.W. to their patients' doctors?

E. LANGUAGE AWARENESS

CHECK YOUR GRAMMAR

To be used to

Study the example with the verb to be used to:

- The nurse *is used to* being on her feet all day.
  (This means that she has done this for a long time, is still spending a lot of time standing up all day and it doesn't worry her now.)
- He *is* now *used to* walking with his artificial legs.
- Doctors *are used to* making important decisions.

Negative form is as follows:

I'm not used to eating such rich food.
We are not used to working in such bad conditions.

After ***to be used to, to become used to*** and ***to get used to***, the verb is always in the gerund. We can use any form of the verbs ***to be, to become*** and ***to get + used + preposition to + gerund.***

Get + used + to + gerund is very commonly used in hospital situations. It means to become used to but get is the verb we use the most in speech and informal writing.

Here are examples illustrating the use of this verb in many tenses:

It takes time to get used to hospital food in a foreign country.
I can't get used to wearing bifocal glasses.

Have they got used to the new treatment?
She got used to her disability remarkably quickly.
Did they get used to their new treatment?
Don't worry about this plaster cast. You'll soon get used to wearing it.

Adapted from: Parkinson, J. (1978): *English for Doctors and Nurses: A Grammar with Medical Exaples.* Evans Brothers (Nigeria Publishers) Limited.

Task 1

Add a suitable gerund where neccesary (not all sentences need a gerund).

1. Nurses get used ..... certain unpleasant jobs.
2. Patients get used ..... one doctor and they don't like to change.
3. Mary has got used ..... with her mother.
4. I've never got used ..... alone.
5. Have you got used ..... your new glasses yet?
6. Has she got used ..... alone?
7. He can't get used ..... the English climate although he's lived there many years.
8. I couldn't get used ..... in great heat when I was in Africa.
9. Did you ever get used ..... abroad?
10. I'm afraid you'll have to get used ..... it.
11. The old people from abroad will never get used ..... in England.

Task 2

Write a few sentences about what you are used to, what you would like to get used to, and what you will have to get used to as a medical student.

F. SUGGESTED LISTENING

G. PRE-LISTENING

Taking notes.

Discovery activity.

For this activity see: Glendinning E., Holmström B. (1987): *English in medicine.* Cambridge University Press, Unit I, task 2, p. 10

H. LISTENING

For this activity see: Glendinning E., Holmström B. (1987): *English in medicine.* Cambridge University Press, Unit I, task 3, p. 11, task 4, p. 12

I. COMMUNICATION ACTIVITY

Study the following case history and act out the dialogue between the doctor and patient based on the history.

The patient is a 35-year old woman, a secondary grammar school teacher. She complains of a dull stomachache which occured first after spicy food and was accompanied by vomiting. The pain is becoming increasingly frequent and occurs on with an empty stomach as well. Only light meals help to relieve the pain for a while but soon she feels heart burn and a dull pain again. She feels an urge to eat but she can eat only small amount because of pain.

a) What do you suppose is the diagnosis of the patient? Choose the proper one from the following options:

1. hepatitis
2. appendicitis
3. duodenal ulcer
4. gallstones

b) Do you know what can be the causes of the problems this patient complained of?

c) What would you recommend to treat and prevent this disease?

Risk Factors

Unit 13

A. LEAD-IN

Work in pairs and discuss your answers to the following questions:

- How do people take "risks" with their health?
- What is the health condition of the Slovak population?
- What are the health problems and their causes in Slovakia?
- What do you do to keep fit and healthy?

Summarize your answers/opinions and present them to the class. Both partners should share in the presentation.

B. PRE-READING ACTIVITY

Heart diseases belong to the most frequent diseases found in developed countries. Try to predict their causes.

C. WHILE-READING ACTIVITIES

Task 1

Scan the passage on *"Aetiology of coronary atheroma"* to find:

- what risk factors, given in the passage, are quite new for you
- what other expressions denoting "heart diseases" are used in the passage

Compare your findings with those of your neighbour.

Task 2

a) Read the passage carefully and underline all the unknown words.

b) Try to deduce or guess their meanings from the context.

c) Check the meanings with the dictionary to find how successful you were at guessing.

Task 3

Read the passage and complete the table:

Types of risk factors

a) Fixed: .....

.....

.....

b) Potentially changeable with treatment:

(Strong association)	(Weak association)
.....	.....
.....	.....
.....	.....
.....	.....

AETIOLOGY OF CORONARY ATHEROMA

The immediate cause of this condition is not known. However, a number of "risk" factors are known to predispose to coronary atherosclerosis. Some of these, such as age, sex and family history, cannot be modified, whereas other major risk factors, such as serum cholesterol, smoking habits and hypertension, can be changed. There are a number of other factors, such as lack of exercise, personality type and stress, that may be implicated in the causation of atherosclerosis .

Age

Atherosclerosis develops progressively as age advances. It is rarely present in early childhood, except in familial hyperlipidaemia, but it is often detectable in post-mortem specimens of young men between 20 and 30 years. It is almost universal in the elderly in the Western World.

Sex

Men are more affected than pre-menopausal women. However, after the menopause the incidence of atheroma in women becomes similar to that in men. The cause of this difference in incidence is not clearly understood.

Family history

Coronary artery disease is often found in several members of the same family. Because the disease is so prevalent and because other risk factors are familial, it is uncertain whether family history is an independent risk factor.

Hyperlipidaemia

Atherosclerotic plaques contain cholesterol. A high serum cholesterol, especially when associated with low values of high-density lipoproteins, is strongly associated with coronary atheroma. High triglyceride levels are less definitely linked with coronary atheroma.

Familial hypercholesterolaemia, familial combined hyperlipidaemia and remnant hyperlipidaemia are associated with an increased risk of coronary atherosclerosis.

Measurement of total cholesterol, HDL cholesterol with calculation of LDL cholesterol and HDL ratio as well as triglycerides should be performed on all patients. Lowering the serum cholesterol has been shown to decrease the incidence of coronary artery disease and slow the progression of coronary atheroma.

Smoking

In men, the risk of developing coronary artery disease is directly related to the number of cigarettes smoked. This relationship is less certain, but still important, in women and in cigar and pipe smokers. The risk from smoking declines to almost normal after 10 years.

Hypertension

Both systolic and diastolic hypertension are associated with an increased risk of coronary artery disease. The risk is the same for men and women. Reduction of blood pressure with hypotensive therapy reduces the risks of a cerebrovascular accident but does not affect the risk of cardiac events such as myocardial infarction.

Other factors

Lack of exercise increases the risk of coronary artery disease, and regular exercise probably protects against its development. Diabetes mellitus, or even just an abnormal glucose tolerance test, is associated with vascular disease. Obesity is certainly associated with coronary artery disease, but it is not certain whether obesity itself is independently linked with the condition.

A certain kind of personality type known as "type A", which is characterized by unsuccessful aggression, ambition, compulsion and competitiveness, is said to be associated twice as frequently with coronary artery disease than is "type B" (the converse of type A). Gout, oral contraceptives, alcohol and soft water have also been suggested as risk factors for coronary atheroma.

From: Parveen J. Kumar & Michael L. Clark (1990): *Clinical Medicine*. Bailliere Tindall. p. 570.

D. LISTENING

You will listen to the recording, which provides a similar classification of the risk factors you found in the passage you read.

Task 1

Listen to the recording and find the expressions which correspond with those found in this scheme:

fixed: = ...

Risk factors:

changeable: = ...

strongly associated: = ...

weakly associated: = ...

Task 2

Listen and try to make a table/scheme of the risk factors according to the recording. Compare your table with that of your neighbour.

E. WRITING

Write a short summary on the risk factors for coronary diseases using the tables/schemes which you completed.

F. LANGUAGE AWARENESS

Generally, the passage *"Aetiology of Coronary Atheroma"* deals with **causes** (risk factors) and their **effects** (disease/s). This type of relationship requires adequate verbs and syntax in the sentence.The following sentence from the text is provided as an example of this relationship:

> *Obesity is certainly* ***associated with*** *coronary artery disease, but it is not certain whether obesity itself is independently* ***linked with*** *the condition.*

Task 1

Go through the text to find the sentences expressing cause/effect relationship. Note them down into your practice books. Pay special attention to the verbs and their forms.

To express **cause** /C/ and **effect** /E/ relationship other verbs or verbal expressions may be used, e.g.:

C	**causes**	E
E	**is caused by**	C
C	**results in**	E
E	**results from**	C
C	**is responsible for**	E
C	**gives rise to**	E
E	**is due to**	C

For more details see the Unit 17, p. 115.

Task 2

Write sentences of your own using the verb forms found in the passage or stated above to illustrate some typical and obvious cause/effect relations found in everyday life (not necessarily medical ones).

G. COMMUNICATION ACTIVITY

Design a poster/leaflet as a part of campaign *"Save your heart"* (how to face the risks of heart diseases).

Nutrition

Unit 14

A. LEAD-IN

Answer the questions:

1. What are the problems with eating in the student's canteen?
2. How careful are you about eating?
3. What are the basic elements of healthy diet?
4. How does eating contribute to keeping people in shape?
5. What do you think about vegetarianism?

B. PRE-READING

Make a decision whether the following statements are true or false. If false, give a correct version of a sentence concerned.

1. Only about 48 of the thousands of substances involved in human metabolism are essential and must be supplied by the diet.
2. The essential nutrients for people such as fat, protein and carbohydrate are delivered by air, sun and water.
3. Vitamins A, D, E, K are soluble only in water.
4. Well-stored fatty food contains enough vitamins for the organism.
5. Vitamin A is necessary for proper functioning of the nervous system.
6. Vitamin C prevents rickets, it is found in all kinds of cereals.
7. Vitamin D deficiency may cause infertility.
8. Prolonged deficiency of any vitamins results in avitaminosis.
9. Overnutrition prevents the majority of diseases.
10. Starved rats died much earlier in a laboratory experiment than fattened ones.
11. The obese are prone to develop cancer, especially cancer of the breast, uterus and colon.

C. WHILE-READING

Task 1

Skim the text in order to find 8 words which you think are key words. Write them in this box and compare with your partner. Try to explain them in English:

Task 2

Scan the text in order to answer the following questions:

1. How many substances involved in metabolism are essential for the human organism?
2. Why do the requirements for essential nutrients in living organisms vary?
3. Name the essential nutrients for people.
4. What are the consequences of obesity?
5. What was the difference between starved rats and fattened rats in laboratory experiment?

NUTRITION

Nutrition is defined as a function of living plants and animals, consisting in the taking in and assimilation through chemical changes (metabolism) of material whereby tissue is built up and energy liberated, its stages are known as digestion, absorption, assimilation and excretion. In highly organised species digestion is preceded by mastication and deglutition, excretion is affected by expiration, perspiration, urination and defecation. Nutrition is essential for life maintenance of human beings or animals, for their growth, activity, reproduction and lactation. *(Stedman's dictionary.)*

As for human metabolism only about 48 of the thousands of substances involed in it are essential and must be supplied by the diet. All the remaining compounds can be synthesized in the body. Requirements for the essential nutrients vary among and within species, and are influenced by the differing physiologic circumstances such as growth, pregnancy, lactation, and level of physical activity.

The essential nutrients for people that are delivered by the diet are fat, protein, and carbohydrate. These nutrients supply the energy for synthesis of body tissues, physical activity, excretory process and maintenance of thermal balance.

The essential elements such as carbon, hydrogen, nitrogen or sulfur are components of the organic compounds of which the major foodstuff are composed. For human organism special organic substances called vitamins are indispensable, too. They are necessary for the formation of tissue enzymes which influence the transformation of substances in the cell and tissues of the organism. About 20 vitamins are known today. They are marked by letters A, B, C, D, K, P etc. The chemical composition and physiological role of most of the vitamins have already been determined. Some vitamins (B and C) are water soluble, others (A, D, E, K) are soluble only in fat. Fresh, varied food usually contains enough vitamins for the organism.

Vitamin A is found in green plants and is necessary for the proper growth of bones, for the nutrition of the cornea of the eye and for the proper functioning of night vision.

Vitamin B is really a complicated group of vitamins, twelve of which have now been identified. Some of these are necessary for growth, for the proper functioning of the nervous system, for the proper formation of the erythrocytes.

Vitamin C is the vitamin which prevents scurvy and is found in fresh vegetables and in citrus fruits.

Vitamin D prevents rickets, vitamin E deficiency may lead to infertility. Prolonged deficiency of any vitamins results in a disease known as avitaminosis. Most avitaminosis are accompanied by reduced working capacity, rapid fatigue, reduced resistance of the organism to infection, incorrect development and retarded resistance of the organism to infection, incorrect development and retarded growth in children.

Vitamins are widely used for medical purposes, many of them are produced synthetically.

It is necessary for human organism to be provided well-balanced diet. But for affluent societies overnutrition (excessive energy intake) is virtually universal. A consistently high energy intake leads not only to obesity but also to faster growth, earlier puberty, greater fertility and earlier ageing. Overnutrition disturbs metabolism in many ways. Obesity contributes to and aggravates many of major diseases. Most cases of diabetes are related to obesity, as are many cases of gallstones, hypertension and hyperlipidaemia. These diseases are the main reason for the shorter life expectancy of the obese. The obese are also prone to develop cancer, especially cancer of the breast, uterus and colon. There is evidence that less overeating would be helpful. Starved rats outlived their fattened cousins in a laboratoty experiment almost doubling the normal life-span. And they refused to grow malignant tumours, while wellstuffed rats nurtured the transplants and died.

For this reason each of us should make every effort to prevent obesity and to combine the well balanced diet with healthy physical activity.

D. POST-READING

Match the words from column A with correct definition in column B:

A	B
1. digestion	a) An illness caused by deficiency of vitamin C. It causes bleeding into the skin, from the gums and under the periosteum.
2. mastication	b) The period during which milk is secreted.
3. deglutition	c) chewing
4. lactation	d) The process by which food is broken down and changed.
5. foodstuff	e) Material made into or used as food.
6. indispensable	f) rich, prosperous
7. scurvy	g) A childhood disease characterized by defective bone formation. It is due to lack of vitamin D and a deficiency of sunlight.
8. life-expectancy	h) absolutely essential
9. ricket	i) swallowing
10. affluent	j) to make (a disease, a situation, etc.) worse or more serious
11. aggravate	k) number of years that a person is likely to live

E. LANGUAGE AWARENESS

NUTRITION [nju:'trišə n], (n) - výživa

* 1. Process of giving and receiving food,
  e.g. *This food provides all the nutrition your child needs.*
* 2. The study of human diet,
  e.g. *He has a number of books on nutrition.*

NUTRITIONAL [nju:'trišənl], (adj.) - vyživovací

* Nutritional value of food,
  e.g. *The doctors stress the nutritional value of food for adolescent individuals.*

NUTRITIOUS [nju:'trišəs], (adj.) - výživný

* Value of food,
  e.g. *The meals they used to eat in a canteen were not nutritious enough.*

NUTRIENT ['nju:triənt], (n) - živná látka, živina

* An item of food,
  e.g. *Plants draw minerals and other nutrients from the soil.*

NOURISH [nariš], (v) - živiť, vyživovať

* Keep a person, an animal, a plant alive and well with food,
  e.g. *Most plants are nourished by water.*
  This baby has been nourished by his mother's milk for several months.

Using the proper expressions complete the following sentences:

1. The food of the patient suffering from diabetes mellitus should be rich in proteins, vitamins and other important _____.
2. _____ requirements for the food of hard-working people are greater because of the high consumption of energy.
3. Is your food varied and _____?
4. This meal was prepared according to a recipe in the book "Healthy _____".
5. After the operation the patient was _____ through infusions.
6. The _____ value of protein is higher than that of carbohydrates.
7. Insuficient _____ can result in some skeletal disorders.
8. Infants _____ by mother's milk do not suffer from digestive disorders.

F. PRE-LISTENING

Task 1

Predicting.
Look through the sentences below and try to complete them.

1. Obesity is not just a question of aesthetics, it is a real ..... .
2. Obesity is a major problem of ..... .
3. Obesity in excess of 130% of ideal body weight is associated with a ..... .
4. Most adult obesity is characterized by an icrease in ..... .
5. The process of an actual increase in the number of fat cells may begin ..... .
6. Excess calories are stored in fat cells in the form ..... .
7. Individuals who are obese are most often those who ..... .
8. Obesity has a bad effect on several other ..... .
9. Calorie restriction is the primary way of achieving ..... .
10. Exercise program should be used in ..... .

Task 2

Listen to the text again and check the sentences you have completed.

G. POST-LISTENING

Compare the sentences you have completed according to the tape-recorder with those you completed in PRE-LISTENING Task 1.

H. COMMUNICATION ACTIVITY

Task 1

Discuss the following hints for a healthy diet. Add some more from your experience, if you have any.

Hints for a healthy diet:

1. Eat breakfast.
2. Eat a wide variety of foods, including some daily from each of the major food groups: bread and cereal, vegetables, fruits, meat and dairy products.
3. Drink 8 glasses of water each day.
4. Drink alcohol in moderation, if you use it at all. Pregnant women should avoid alcohol altogether.
5. Follow a high-fibre diet.
6. Limit the use of salt in your diet to 5 g/day or less. The body requires a very small amount.
7. Substitute monounsaturated fats (olive oil and peanut oil) or poly-unsatured fats for saturated ones. Limit animal fats (red meats, fatty dairy products) and hydrogenated vegetable oils (coconut, palm and cottonseed).

Task 2

Make up the dialogue between an expert on healthy diet and the teenage girl who asks pills for losing weight.

I. WRITING

In groups, develop a poster /leaflet/ to be placed in a doctor's waiting room giving advice on diet.

Context Clues

1. Saudi Arabian **society** is very different from Japan's. People dress differently in the 2 countries. Religion is very important in Saudi Arabia, but it isn't in Japan. Holidays and homes are different. Most Japanese live in large cities. Most Saudis do not. The languages are different. The lives of women are different.
   a. the way people spend their time
   b. everything about the life in a country
   c. the life of each individual woman

2. The aborigines have been in Australia for 10,000 years. Their **ancestors** probably came from South Asia.
   a. people in the family a long time ago
   b. people in the family in the future
   c. great-grandparents

3. Elaine is an electrician. She **earns** twelve dollars an hour.
   a. works
   b. is paid for working
   c. pays

4. Al has a difficult problem to **solve** for his engineering class.
   a. write b. read c. find the answer to

5. The **couple** next door to us has two children.
   a. two people b. a husband and wife c. a few

2

Changes in the Family

Sociologists study **society** and how it is organized. They study what a society believes and how it is changing. They explain how people behave, but not how they ought to behave.

Almost every society is based on the family. Some societies have **nuclear** families. In the nuclear family, the parents and children live together in one house. Other societies have **extended** families. In this kind of family, there are grandparents, parents, children, uncles, and other **relatives** all living together. In some societies, there are **tribes**. A tribe is a group of extended families that have the same **ancestors**. In North and South America, the **members** of each Indian tribe speak the same language. Each tribe in Africa has its own language too. In Saudi Arabia and the other Gulf countries, the tribes all speak Arabic.

member = one of a group

Sometimes the power of the extended family or the tribe is based on the land that it owns.

Everybody in a family knows how to behave as a family member. Children learn how to act like grownups by watching the adults in their family. They learn how a father or mother should behave. Everyone knows what the correct behavior is, and relatives like to talk about this. "Is

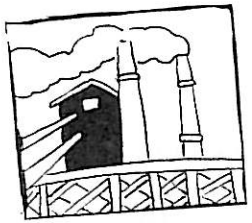
Kumiko acting the way a mother should act?" "Does Abdullah behave in the right way for a husband?"

It is hard to look at research about the family with our minds instead of our feelings. Each person is part of a family and a society and knows what a family should be like. It is hard to realize that one kind of family can fit a society very well, even if it is very different from the family in our society.

Throughout history there have been slow changes in the family and in family life, but today the family is changing quickly. This change causes many problems for the society and the individual.

One of the major reasons for this fast change in the family is the change in how people **earn** their money. Today more and more people work in **factories** that make automobiles, furniture, clothes, and thousands of other products. Fewer people work on farms or make products at home. People work in **industry** instead. This change is called industrialization. The ownership of land in an industrial society is not as important as it was when people lived in villages.

in all parts of



factory

For decades young people have been leaving farms and small towns to go to cities and work in factories. They often find a wife or husband in the city instead of marrying someone from their village. They start their own family away from their old home. These young people often have more money than the old people in their family.

In village life, young people went to the old people with their questions and problems. The old people had lived a long time and had more knowledge. However, as young people moved to cities, got more education, and learned technology, they discovered that the old people in their family did not have all the answers to their questions about life. Their new lives in the city were

too different from village life. Also, in some countries, the government started making laws about things the tribe used to decide.

Life continued to change, and the children of these young people discovered that their city parents didn't always have the answers either. Life was changing too fast.

Since the end of World War II, industrialization has been increasing very fast throughout the world. This is causing family life to change faster too. Societies are losing their extended families. More **married couples** want their own homes where they can live with their children.

couple = wife and husband

The West has had nuclear families instead of extended families at least since the Industrial **Revolution**. The Industrial Revolution started in England around 1760, when people changed from making things by hand to making them in factories.

Western families are changing too. When people get a good education and good jobs, they can improve their lives. They realize that if they have fewer children, they can give the ones they have a better life. Now more women work outside the home, and they delay having children. The size of families gets smaller. In the United States, some of these small nuclear families move several times, each time earning more money and improving their lives. Some young couples don't see their parents very often. They don't think it is necessary to invite their parents to live with them when the parents grow old. Many of the old parents don't want to live with their grown children either.

As Third World countries industrialize, they find they are having the same problems that Western families have. If a country modernizes and industrializes fast, the family changes fast. Many old people want life to continue as it was.

Young people want to move ahead and change. These different ideas can cause problems in the family.

We can learn about these changes in the family from sociologists and understand why problems are developing. It is helpful for us to understand what is happening to our societies, but each individual family must try to **solve** its problems for itself.

A Vocabulary

couple	solve	earn	revolution
throughout	ancestors	industrial	industry
tribes	extended	nuclear	sociologists

1. The _____ family is larger than the _____ family.
2. There have been some civil wars between different African _____ living in the same country.
3. The _____ of everyone in Canada came from other countries. The Indians were the first to arrive.
4. How much money does a secretary _____?
5. Mr. and Mrs. Gorder are a married _____.
6. Japan is an _____ nation. It has heavy and light _____.

B Vocabulary

extend	industrial	learn	solve
member	factory	sociologist	throughout
revolution	societies	tribe	relatives

1. Maria is from Mexico, but she has several _____ in California. Three of her aunts live there with their families.
2. Sam works in an airplane _____.
3. Karl is a _____ of the International Students Organization.
4. A _____ does research about _____ throughout the world.
5. Governments _____ the world are trying to _____ the problems in their country.
6. The Russian _____ was in 1917. There was a complete change in government.

C Vocabulary Review

Match each word with its definition.

1. blizzard _____	a. small horse
2. inland _____	b. buying and selling
3. wool _____	c. worse
4. pony _____	d. stop running or working
5. overeat _____	e. a kind of cloth
6. inferior _____	f. a bad snow and wind storm
7. trade _____	g. missionaries
8. break down _____	h. exercise
9. superior _____	i. anthropology
10. work out _____	j. away from the ocean
	k. eat more than you should
	l. better than

D True/False/Not Enough Information

_____ 1. Sociologists tell us how people should behave so they can improve their society.
_____ 2. Members of a tribe all have the same ancestors.
_____ 3. Each individual learns how to fit into the family and society by copying the people around her or him.
_____ 4. The family is changing fast because of industrialization.
_____ 5. In many countries, the lives of young people are very different from the lives of their grandparents.
_____ 6. The West had extended families until the twentieth century.
_____ 7. When a country modernizes fast, the family changes fast.
_____ 8. The Industrial Revolution was a civil war in England. People fought about the ownership of land.
_____ 9. As countries industrialize, the family size decreases.

E Comprehension Questions

1. What is a nuclear family?
2. What is a tribe?
3. Why can't the old people in a family always help young people solve their problems?
4. When did industrialization start increasing throughout the world?

teachers finally started **permitting** schoolchildren to write with their left hands in the 1930s. In parts of Europe, left-handed children were still forced to write with their right hands in the 1950s. Today in many countries, all children must write with their right hands even though they prefer using their left hands.

Some famous people were left-handed. Julius Caesar, Napoleon, Michelangelo and da Vinci (famous Italian artists), and Albert Einstein were left-handed. Alexander the Great (356–323 B.C.) and Queen Victoria of England also were left-handed. So is Prince Charles.

Paul McCartney of the Beatles plays the guitar the opposite way from other guitarists because he is left-handed. Marilyn Monroe, the famous American movie star, was also left-handed.

Are you left-handed even though you write with your right hand? Take this test to find out. Draw a circle with one hand and then with the other. If you draw them **clockwise** (the direction the hands of a clock go in), you are probably left-handed. If you draw them **counterclockwise** (in the other direction), you are right-handed. The test does not always work, and some people may draw one circle in one direction and the other circle in the other direction. But don't worry if you are left-handed. You are in good company.

A Vocabulary

divide	broader	backward	stutter
senses	responding	force	prefer
kick	tool	system	hired

1. The main streets of a city are _____ than the side streets. Broadway is a common street name.
2. A left-handed person who is forced to write with the right hand may begin to _____.
3. A car can go forward and _____.
4. Players cannot _____ the ball in basketball.
5. Would you _____ coffee or tea?
6. A blind person is lacking one of the _____.
7. Some students are shy about _____ in class.
8. The Phoenicians invented the first _____.

B Vocabulary

divided	tools	force	broad
common	counterclockwise	clockwise	permit

1. A mechanic cannot fix a car without _____.
2. Twenty _____ by four equals five. (20 ÷ 4 = 5)
3. _____ means the way the hands of a clock go. _____ is the opposite.
4. Parents should not _____ their children to swim in the pool without an adult there.
5. Spiders are _____ everywhere except at the North and South Poles.
6. Governments cannot _____ people to limit the size of their family.

C Vocabulary Review

sticks out	male	mates	nests
once in a while	boring	suffer	crash
fear	tunnel	loss	terrified

1. A man is a _____.
2. In spring, animals search for _____.
3. Spiders and birds build _____.

4. A roadrunner's head _____ straight in front when it runs.
5. The Simplon _____ goes under the Alps between Italy and Switzerland.
6. Being afraid to fly is an illogical _____.
7. We heard a loud _____ and knew that there had been an accident.
8. Some people think baseball is _____ because it is so slow.
9. Would you be _____ to meet Frankenstein?
10. Most people only fly _____.

D True/False/Not Enough Information

_____ 1. Some Eskimos are left-handed.
_____ 2. Most right-handers do calculus with the left hemisphere of the brain.
_____ 3. When people look at a beautiful building, most of them use the right hemisphere of the brain.
_____ 4. The right hemisphere controls the right side of the body.
_____ 5. Most people in the world use the left hemisphere for language.
_____ 6. Left-handedness can cause children to see letters backwards.
_____ 7. It is easier to write from left to right.
_____ 8. Left-handed people are more intelligent than right-handers.

E Comprehension Questions

1. What does the right hemisphere of the brain control?
2. Which hemisphere is stronger in left-handed people?
3. Why do lefties prefer to kick with the left foot?
4. What problems do lefties have in using machines?
5. When do some left-handers start to stutter?
6. Why do anthropologists think the earliest people were equally divided between left- and right-handedness?
7. Why did the Greeks start writing from left to right?
8. What does "you are in good company" mean?

9. How can you tell if a 2-year-old child is left-handed?
10. Are you left-handed?

F Main Idea

1. What sentence is the main idea for paragraph 4 (lines 23–28)?
2. Paragraph 6 (lines 32–36)?
3. Write a sentence for the main idea in paragraph 9 (lines 53–62).
4. Write the main idea of the last paragraph.

G Word Forms

	Verb	Noun	Adjective	Adverb
1.	communicate	communi-cation(s)	(un)communi-cative	
2.	exist	existence	(non)existent	
3.	prefer	preference	(un)preferential	
4.	divide	division	(in)divisible	
5.	force	force	forceful	forcefully
6.			(un)common	(un)commonly
7.	respond	response	(un)responsive	
8.	permit	permission permit	(im)permissible	(im)permissibly
9.		reality	(un)real	really

1a. There have been many wonderful developments in the field of _____ in the last twenty years.
1b. I tried to get the information from the president's secretary, but he was very _____.
2. Frank told everyone that he worked for a large company, but the company is _____.
3a. Professors should not give _____ treatment to the students they like.
3b. Short jackets, not long coats, are _____ by skiers.
4. Ten is not evenly _____ by 3.
5a. Ms. Bush is a very _____ person.
5b. John _____ to leave the university because his grades were so bad.
6. It is _____ believed that sons are better than daughters.

L2

7. The injured person _____ to the doctor's treatment. She is well now.

8a. Psychologists say that adults should not accept _____ behavior from their children.

8b. You cannot build a house in this city without a building _____.

8c. Smoking _____ not _____ in this building.

9. It seemed _____ to Abdullah that he had finally finished his doctorate degree and was going home.

H Missing Words

Fill in the missing words.

1. If you are, you are one _____ millions in _____ world _____ prefer _____ use their left hands.
2. _____ understand left-handedness, it is necessary _____ look _____ the brain.
3. The brain _____ divided _____ two hemispheres.
4. Both sides of _____ body receive the same information _____ the brain because both hemispheres _____ connected.
5. There is _____ increasing amount _____ research _____ handedness.
6. But _____ 3500 B.C., the tools, which _____ better designed, were for use _____ only one hand.
7. _____ the centuries passed and education spread _____ more levels _____ society, more and _____ people became _____.
8. But _____ worry _____ you are left-handed. You are _____ good company.

I Connecting Words

Put **after, before, when, since**, or **until** in the blanks.

1. I'll give you the book _____ I see you tomorrow.
2. People who are afraid of flying can control their fear _____ they take a class.
3. The Garbage Project has been in existence _____ 1973.
4. Toronto knew it had done a good job recycling _____ the Garbage Project proved the amount of its garbage had become smaller.
5. Sometimes_____ the roadrunner gets a piece of meat, it takes it back to its nest.
6. There were no skyscrapers _____ 1884.
7. _____ Burke started across Australia, he organized the expedition.
8. Some left-handed European children were forced to write with their right hands _____ the 1950s.

J Finding the Reason

Write the reason for each statement.

Statement	Reason
1. Many left-handers have to use their right hands.	
2. For some people, the center of language is in the right hemisphere.	
3. Both sides of the body receive the same information.	
4. Lefties prefer kicking with the left foot.	
5. King George VI stuttered.	
6. Anthropologists think more than 50 percent of people were right-handed by 3500 B.C.	
7. Paul McCartney plays the guitar differently.	

K Guided Writing

Write one of these two short compositions.

1. Write a short history of left-handedness. Start with the earliest people and continue until today.
2. Your 3-year-old child is left-handed. Your friend thinks you should teach the child to use the right hand instead. What are you going to do and why?

5

Biological Clocks

If you have ever flown across several time zones, you have experienced **jet lag.** You arrived in a new time zone, but your body was still living on the time in the old zone. You were wide awake and ready for dinner in the middle of the night, and you wanted to sleep all day.

People suffer from jet lag because all living things have a biological clock. Plants and animals are all in rhythm with the natural divisions of time—day and night and the seasons.

At sunrise, plants open their leaves and begin producing food. At night, they rest. In the **temperate** zones of the earth, trees lose their leaves in fall as the days grow shorter and there is less sunlight. In the spring, leaves and flowers begin growing again as the days lengthen.

Rain sets the rhythm of desert plants. Plants in the desert may appear dead for months or even years, but when it begins to rain, the plants seem to come to life overnight. The leaves turn green, and flowers appear. The plants produce seeds quickly, before the rain stops. These seeds may lie on the ground for years before the rain starts the cycle of growth again. The plants' biological clock gave the **signal** for these things to happen.

At **dawn** most birds wake up and start singing. When the sun goes down, they go to sleep.

sunrise

When spring arrives, they start looking for a mate. When winter comes, some birds **migrate** to a region with a warmer climate. Their biological clocks tell them it is time to do all of these things.

Animals that live near the sea and depend on both the land and water for their food have their biological clocks set with the **tides**. When the tide goes out, they know it is time to search for the food that the sea left behind it.

Some insects seem to set their **alarm** clocks to wake them up at night. They are out all night looking for food and then sleep during the day. Honeybees have a very strong sense of time. They can tell by the **position** of the sun exactly when their favorite flowers open.

Some French scientists did an **experiment** with honeybees. They put out sugar water every morning at 10:00 and at noon, and the bees came to drink the water at exactly the right time. Then the scientists put the sugar water in a room that was brightly lit twenty-four hours a day. They started putting the sugar water out at 8:00 p.m. It took the bees a week to find it at the different hour, but from then on, they came to eat in the evening instead of in the morning.

Later the scientists took the honeybees to New York. The bees came for the food at the time their bodies told them, only it was 3:00 p.m. New York time. Their bodies were still on Paris time.

Humans, like other animals, have a biological clock that tells us when to sleep and eat. It causes other changes too. Blood **pressure** is lower at night, the **heartbeat** is slower, and the body temperature is a little lower. We even go through several levels of sleep, cycles of deep and light sleep.

Other **events** occur in cycles too. More babies are born between midnight and dawn than at any other time. More natural deaths occur at night, but more heart **attacks** happen early in

anything that happens

the morning. Most deaths from diseases in hospitals occur between midnight and 6:00 a.m. Some police say there are more violent crimes and traffic accidents when there is a full moon.

The honeybees in the experiment reset their biological clock for different feeding hours. Humans do this too. People who work at night learn to sleep during the day and eat at night. Students who fly halfway across the world to study in another country get used to the new time zone after a few days. When they go home, they change back again. Our bodies are controlled by a biological clock, but we can learn to reset it at a different time.

How to Lessen Jet Lag

make less, decrease

1. Try not to become exhausted before you leave. Get plenty of sleep, and leave enough time to get to the airport and check in without having to hurry.

2. Wear **loose** clothing, and take your shoes off while you are in your seat.

loose ≠ tight

3. Walk around the plane and move around in your seat.

4. Figure out breakfast time in the time zone you are flying to. Four days before your flight, start a **feast** (eating a lot) and **fast** (eating nothing or very little) schedule. On the fourth day before you fly, eat three heavy meals. If you drink coffee, tea, or cola drinks that contain **caffeine**, have them only between 3:00 and 5:00 p.m. On the third day before your flight, eat very lightly—salads, light soups, fruits, and juices. Again, have drinks with caffeine only between 3:00 and 5:00 p.m. On the next to the last day before you leave, feast again. On the day before you leave, fast. If you are flying west, drink caffeinated drinks in the morning; if you are going east, drink them between 6:00 and 11:00 p.m.

5. On the day you leave, have your first meal at the time people in the new time zone eat breakfast. If it is a long flight, sleep on the plane until the new breakfast time, and don't drink any alcohol. When you wake up, have a big meal. Stay awake and active, and eat at the new time zone hours.

A Vocabulary

signal	position	pressure	attack
alarm	experiments	event	jet lag
temperate	migrate	heartbeat	fast

1. Countries with _____ climates have four different seasons.
2. A photovoltaic cell has to be in the right _____ for the sunlight to enter.
3. A wedding is an important _____ in anyone's life.
4. Students usually have to do _____ in chemistry class.
5. Some people _____ for religious reasons.
6. When the fire _____ sounded, everyone left the building.
7. Doctors listen to a person's _____ through a stethoscope to see if there are any irregularities.
8. High blood _____ can cause a serious illness.
9. Pilots don't usually suffer from _____ because they never stay in the new time zone very long.

B Vocabulary

rhythm	dawn	temperate	tides
feast	lessens	migrate	signal
pressure	caffeine	loose	experience

1. Chocolate, tea, coffee, and cola drinks contain _____.
2. The police officer gave a _____ for the cars to stop.
3. Some birds _____ to a warmer climate in the winter.
4. The villagers prepared a _____ to entertain the visiting government officials.
5. There are high and low _____ in the ocean twice a day.
6. The sun rises at _____.
7. _____ is the opposite of *tight*.
8. A different diet _____ the effect of jet lag.

C Vocabulary Review

stroke	stood for	tools	senses
units	projects	rolls	waves
guess	valuable	mild	surface

1. U.S.S.R. _____ the Union of Soviet Socialist Republics.
2. A carpenter cannot work without _____.
3. Water, light, and sound travel in _____.
4. You can often use the context to _____ what a word means.
5. Dust on the _____ of a photovoltaic cell makes it work inefficiently.
6. Hearing is one of the five _____.
7. A ball or other round object _____.
8. This textbook has five _____.
9. Biospheres are special _____ at many environmental research laboratories.
10. Diamonds are _____.

D True/False/Not Enough Information

_____ 1. *Jet lag* means your body is in one time zone but your biological clock is in another.
_____ 2. Plants begin producing nutrients when the sun rises.
_____ 3. Plants in Iceland and Greenland can produce nutrients twenty-four hours a day during the summer.
_____ 4. A biological clock gives birds the signal that it is time to migrate.
_____ 5. Animals that live near the sea search for food at night when it is safer.
_____ 6. The honeybees in the experiment reset their biological clocks.
_____ 7. After a few days, the bees probably changed their biological clocks to New York time.
_____ 8. The human biological clock affects many parts of the body.
_____ 9. Humans cannot change their biological clocks once they are set, but bees can.
_____ 10. You can decrease the effects of jet lag.

E Comprehension Questions

1. What makes desert plants produce seeds?
2. Why do birds wake at dawn?
3. How do honeybees know when a flower opens?
4. Why do they want to know when a flower opens?
5. What is the time difference between New York and Paris?
6. Why should you wear loose clothing on a long flight?
7. Why should you have breakfast at breakfast time in the new time zone on the day you leave?

F Main Idea

Copy or write a sentence for the main idea of these paragraphs.

1. Paragraph 4 (lines 17–26).
2. Paragraph 8 (lines 44–53).
3. Paragraph 10 (lines [illegible]).

G Word Forms: Adjectives

Both the **-ing** form of the verb (the present participle) and the **-ed** form (the past participle) are used as adjectives. The **-ed** form often shows that the noun received the action, or it describes how a person feels. The **-ing** form often shows some action that the noun took, or it describes an object or possibly a person. However, there are many exceptions.

David was **bored** because the movie was **boring**.
Tom is **interested** in stamps. He thinks stamps are **interesting**.
Mary is an **interesting** person because she can talk about a lot of different things.

Put the right form of each participle in each sentence.

1. (exhaust) Climbing a mountain is _____ work.
2. (exhaust) Al was _____ after the soccer game.
3. (demand) Mr. Davis is a very _____ teacher. He makes the students work hard and do their best.
4. (alternate) There are two kinds of electric current, direct and _____.
5. (trap) The _____ animal couldn't escape.
6. (damage) A _____ car needs to be fixed.
7. (guess) Children like to play _____ games.
8. (fascinate) Monopoly is a _____ game for some people.
9. (complicate) American football is a _____ game.
10. (terrify) Being in an airplane crash is a _____ experience.

H Word Forms: Semi- and Hemi-

Hemi- is a prefix that means **half**. **Hemisphere** is the most common word with this prefix.
Semi- is a prefix that means **half** or **partly**. These are some common words with this prefix:

semiconductor
semicolon (;)
[illegible] semisolid.)

semifinalist
semitropical (Hawaii is semitropical, but it is not in the tropics.)
semiweekly (twice a week; some meetings are held semiweekly and some magazines are published semiweekly)
semimonthly (twice a month)
semiyearly (twice a year)
semiprivate (a hospital room with two or three patients)
semisweet (Some chocolate is semisweet.)

Use 6 of these words in interesting sentences.

I Prepositions

1. If you have ever flown _____ several time zones, you have experienced jet lag.
2. You arrived _____ a new time zone, but your body was still living _____ the old zone.
3. You were wide awake and ready _____ dinner _____ the middle _____ the night.
4. Plants and animals are all _____ rhythm _____ the natural divisions _____ time.
5. _____ the temperate zones _____ the earth, trees lose their leaves _____ fall as the days grow shorter.
6. Plants _____ the desert may appear dead _____ months or even years.
7. Some animals depend _____ the sea for their food.
8. Some insects wake _____ night.
9. Honeybees can tell _____ the position _____ the sun exactly when their favorite flowers open.
10. They put _____ sugar water every morning _____ 10:00 and noon.

J Connecting Words

Connect a sentence from the first column with one from the second column using **since, when, until**, or **even though**.

1. The bees were ready to eat.	a. It was only 3:00 p.m. in New York.
2. It has been snowing.	b. It kept her awake.
3. Chris stopped drinking coffee in the evening.	c. It becomes dusty.
4. Birds start singing.	d. The sun went down.
5. A photovoltaic cell is efficient.	e. The sun rises.

K Sequence

Put these sentences about the French experiment in the right order.

_____ a. The scientists took the bees to New York.
_____ b. Some French scientists did an experiment.
_____ c. They put the sugar water out at 8:00 p.m.
_____ d. They put the sugar water out at 10:00 a.m. and noon.
_____ e. The bees looked for food at 3:00 p.m. New York time.
_____ f. The bees took a week to find the food at a different time.
_____ g. The bees came every evening at 8:00 p.m.

L Guided Writing

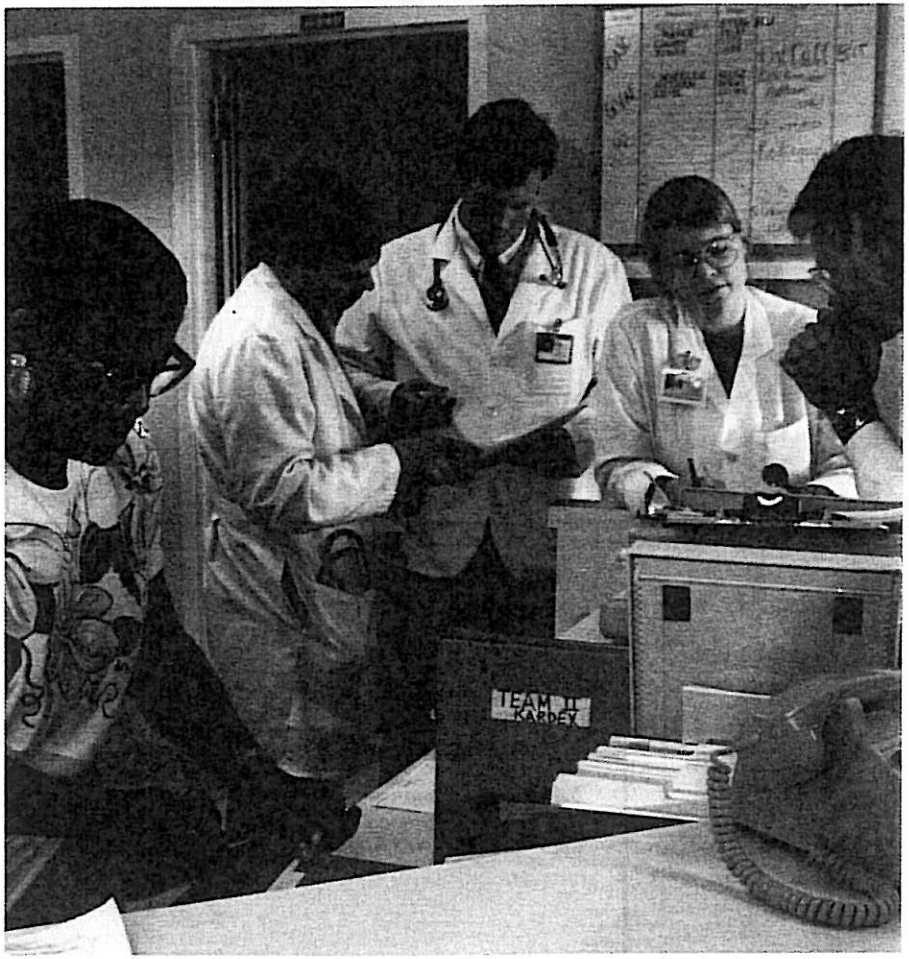
Write one of these two short compositions.

1. What does "biological clock" mean? Give examples.
2. Describe a time when you experienced jet lag.

Unit 5

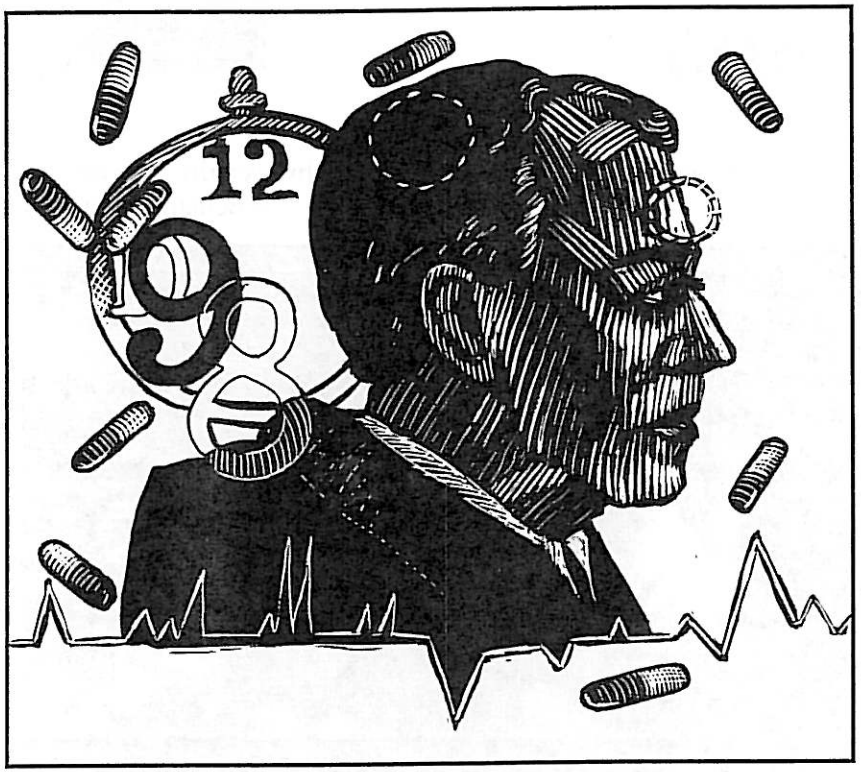
Medicine and Health

Early to bed and early to rise makes a man healthy, wealthy, and wise.
—Benjamin Franklin



A clinic

Headaches



LESSON

1

Pre-reading Questions

1. How often do you have headaches?
2. What causes you to have a headache?
3. How do you treat your headaches?

Context Clues

1. After Isamu got hit in the nose with a baseball, his nose started to **swell**.
   a. get bigger b. smell c. alarm
2. Old Mr. Rossi's **vision** is getting bad, so he wears strong glasses.
   a. health b. ability to see c. blood pressure
3. Doctors do not know how to **cure** some diseases.
   a. make better b. do research on c. protect
4. Maria's hair hangs down into her eyes. She keeps pushing it back off her **forehead**.
   a. the top part of the face
   b. the top of the head
   c. the part of the face under the eyes
5. There are five **patients** waiting to see the doctor.
   a. people who are very calm
   b. people who have a medical problem
   c. people who are studying medicine

1

Headaches

Some little man is inside your head, **pounding** your brain with a **hammer**. Beside him, a rock musician is playing a drum. Your head feels as if it is going to explode. You have a **headache**, and you think it will never go away.

hammer

Doctors say there are several kinds of headaches. Each kind begins in a different place and needs a different treatment.

One kind starts in the **arteries** in the head. The arteries **swell** and send **pain** signals to the brain. Some of these headaches start with a change in **vision.** The person sees wavy lines, black dots, or bright spots in front of the eyes. This is a **warning** that a headache is coming. The headache occurs on only one side of the head. The vision is **blurred**, and the person may **vomit** from the pain. These headaches, which are called **migraine** headaches, are more frequent in women than in men. Sleep is the best **cure** for them.

get larger

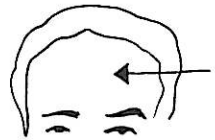
ability to see, sight

Cluster headaches, which also start in the arteries, are called cluster headaches because they come in clusters or groups for 2 or 3 months. Then there are no more for several months or even years. A cluster headache lasts up to 2 hours and then goes away. At the beginning of the headache, the eyes are red and watery. There is a **steady** pain in the head. When the pain finally goes away, the head is **sore**. Men have more cluster headaches than women do.

continuing

painful

The **muscle** headache, which starts in the muscles in the neck or **forehead**, is caused by **tension**. A person works too hard, is **nervous** about something, or has problems at work, at school, or at home. The neck and head muscles become tense, and the headache starts. A muscle headache usually starts in the morning and gets worse as the hours pass. There is a steady pain, pressure, and a bursting feeling. Usually **aspirin** doesn't help a muscle headache very much.



forehead

How do doctors treat headaches? If a person has frequent headaches, the doctor first has to decide what kind they are. Medicine can help, but there are other ways to treat them.

The doctor asks the patient to analyze his or her daily living patterns. A change in diet or an increase in exercise might stop the headaches. If the patient realizes that difficulties at home, at work, or at school are causing the tension, it might be possible to make changes and decrease these problems. Psychological problems and even medicine for another **physical** problem can cause headaches. The doctor has to discuss and analyze all these patterns of the **patient's** life. A headache can also be a signal of a more serious problem.

of the body

Everyone has headaches from time to time. In the United States alone, up to 50 million persons each year go to the doctor because of headaches. If you have a headache, and it continues over several days, or keeps **recurring**, it is time to talk to a doctor. There is no magic cure for headaches, but doctors can control most of them because of recent research.

occurring again

A Vocabulary

pounded	swells	blur	migraine
clusters	sore	forehead	aspirin
recur	drums	pain	hammer
artery	nervous	vomit	cures

1. _____ means to *happen again*.
2. If your arm is _____, it hurts. You have a _____ in your arm.
3. The _____ is the top part of the face.
4. _____ helps some kinds of headaches.
5. When we went to our friend's apartment, we knocked and then _____ on the door, but no one answered.
6. One kind of headache is called a _____.
7. A _____ is one kind of tool.
8. When you put air in a bicycle tire, the tire _____ until it fits the wheel exactly.
9. After the TOEFL test, the students gathered in small _____ to talk about it.
10. Do you feel _____ when you have to take a test?

B Vocabulary

ache	warned	blurred	arteries
vomit	cures	physical	swell
steady	patients	muscles	tense
vision	hammer	drum	forehead

1. When you are sick and in pain, your stomach may protest and make you _____.
2. The teacher _____ the children that they had to behave or there would be no party.
3. People in the hospital are called _____.
4. While Pat was swimming, she got water in her eye. Everything looked _____.
5. Students feel _____ before an important exam.
6. Tension in the _____ of the neck can cause a headache.
7. The farmers were happy when a _____ rain continued all night.

8. _____ carry blood from the heart to the rest of the body.
9. Today there are _____ for many diseases that used to kill people.
10. People with poor _____ wear glasses or contact lenses.
11. You may get a *stomach* _____ if you eat too much.
12. A complete _____ examination is necessary for anyone entering the army.

C Vocabulary Review: Antonyms

Match the opposites.

1. fiction _____	a. point
2. scatter _____	b. import
3. active _____	c. nonfiction
4. fact _____	d. unclear
5. obvious _____	e. microscope
6. last _____	f. run out
7. export _____	g. gather
8. loose _____	h. increase
9. fast _____	i. inactive
10. lessen _____	j. theory
	k. feast first
	l. tight

D Multiple Choice

1. When someone sees black dots or wavy lines, this is a change in _____.
   a. blurring b. clusters c. vision
2. A migraine headache causes _____.
   a. blurred vision
   b. red and watery eyes
   c. a bursting feeling

3. _____ is the best cure for migraines.
   a. Sleep b. Aspirin c. Arteries
4. _____ have more headaches that leave the head sore.
   a. Women b. Men c. Older people
5. A _____ headache starts in the morning and gets worse.
   a. migraine b. cluster c. muscle
6. Tension causes a _____ headache.
   a. migraine b. cluster c. muscle
7. The _____ headache is the most common.
   a. migraine b. cluster c. muscle
8. Medicine is _____ headaches.
   a. the best treatment for
   b. not usually helpful for
   c. one way to treat
9. A change in a patient's life patterns can _____.
   a. help cure headaches b. cause headaches c. both a and b

E Comprehension Questions

1. Describe a migraine headache.
2. Describe a cluster headache.
3. Describe a muscle headache.
4. Which kind of headache affects more women than men?
5. What are some things that can cause a muscle headache?
6. If you have a headache, will aspirin help?
7. Why does a doctor analyze the life patterns of a headache patient?
8. How many people each year in the United States go to a doctor for headaches?

F Main Idea

Write the main idea of these paragraphs.

1. Paragraph 2 (lines 6–8).
2. Paragraph 3 (lines 9–20).
3. Paragraph 8 (lines 48–59).

G Word Forms

	Verb	Noun	Adjective	Adverb
1.	press	pressure		
2.	experiment	experiment	experimental	experimentally
3.	migrate	migration		
4.	lessen	least	less	
5.	warn	warning		
6.	pain	pain	painful painless	painfully painlessly
7.	swell	swelling	swollen	
8.	recur	recurrence		
9.	tense	tension	tense	tensely
10.	prove	proof	proven	

1. Mr. Johnson has high blood _____. He has to take medicine every day.
2. Physics teachers do _____ in class.
3. Scientists study the _____ of birds.
4. The pain of some headaches is _____ by aspirin.
5a. A fire alarm is a _____ to leave the building.
5b. A _____ light tells people there is danger.
6. A broken arm is _____.
7. Dan hurt his hand and now it is _____.
8. After the fifth _____ of a bad headache, Mark went to a doctor.
9. _____ causes muscle headaches.
10. Scientists have _____ that photovoltaic cells convert sunlight directly into energy. This was _____ some years ago.

H Scanning

Scan the text to put these sentences in the right column. Write both the letter of the sentence below and the number of the line in the text where you find the idea.

Migraine Cluster Muscle

a. They come in groups.
b. It starts in the neck or forehead.
c. It is caused by tension.
d. There is a change in vision.
e. There may not be any for several years.
f. Aspirin doesn't help.
g. Sleep helps.
h. It occurs on only one side of the head.
i. It lasts for 2 hours or less.
j. Problems at work can cause it.

I Noun Substitutes

What do these words stand for?

1. page 234 line 2 him _____
2. line 4 it _____
3. line 14 this _____
4. line 20 them _____
5. line 21 which _____
6. page 235 line 31 which _____
7. line 48 his or her _____
8. line 66 them _____

J Articles

1. Beside him, _____ rock musician is playing _____ drum.
2. Each kind begins in _____ different place and needs _____ different treatment.
3. One kind starts in _____ arteries in _____ head.

4. _____ arteries swell and send _____ pain signals to _____ head.
5. Some of these headaches start with a change in _____ vision.
6. _____ person sees _____ wavy lines, _____ black dots, or _____ bright spots in front of _____ eyes.
7. This is a warning that _____ headache is coming.
8. _____ headache occurs on only one side of _____ head.
9. _____ vision is blurred and _____ person may vomit from _____ pain.
10. _____ sleep is _____ best cure for them.

K Verb + Adjective

These verbs are usually followed by an adjective: **be, feel, become, seem, act, appear, look, smell, taste**.

She is sick.	He appears tired.
She feels sick.	He looks tired.
She became sick a week ago.	It smells good.
He seems tired.	It tastes good.
He acts tired.	

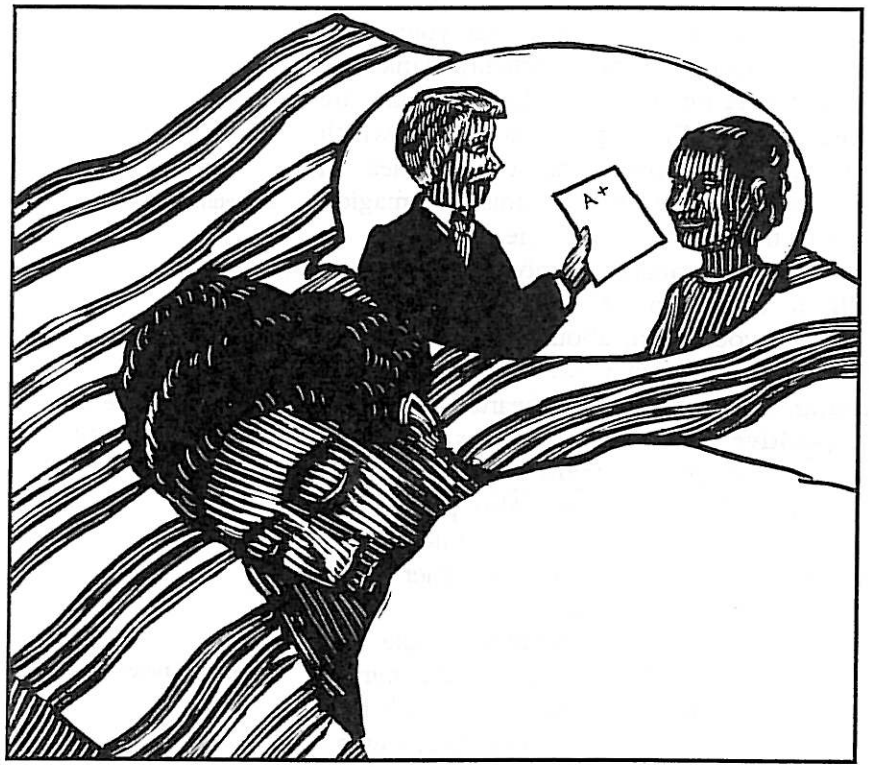
Use each verb in an interesting sentence.

L Guided Writing

Write one of these two short compositions.

1. Describe the different kinds of headaches.
2. Discuss ways to treat and cure headaches.

Sleep and Dreams



LESSON

2

Pre-reading Questions

1. What is the girl dreaming about?
2. Think about your dreams. How often do you dream? Do you dream in color or in black and white? What language do you dream in?
3. Do you think dreams come true?

Context Clues

1. Saudi Arabia has **a great deal of** petroleum.
   a. some b. a lot of c. too much
2. **At times** you can feel a rock musician pounding a drum in your head.
   a. sometimes b. at a certain hour c. always
3. Tom always **confuses** Nissan cars with Hondas.
   a. signals b. mixes up c. introduces
4. Billy is 5 years old. Sometimes he wakes up in the middle of the night and cries. He has **nightmares**.
   a. bad dreams b. drums c. alarm clocks
5. Love, hate, and anger are **intense** feelings.
   a. strong b. opposite c. mild
6. Children from ages thirteen to nineteen are **adolescents**.
   a. young b. teenagers c. grownups
7. Mary has a bad **habit** of playing with her hair all the time.
   a. something that bothers her
   b. morning activity
   c. something she does often

29 ✓

2

Sleep and Dreams

"Oh sleep! it is a gentle thing,
Beloved from pole to pole."

Samuel Taylor Coleridge, a famous British poet, wrote these words over 100 years ago. Most people would agree with him. Sleep is very important to humans; the average person spends 220,000 hours of a lifetime sleeping. Until about thirty years ago, no one knew much about sleep. Then doctors and scientists began doing research in sleep laboratories. They have learned **a great deal** by studying people as they sleep, but there is still much that they don't understand.

a lot

Scientists study the body characteristics that change during sleep, such as body temperature, brain waves, blood pressure, **breathing**, and heartbeat. They also study rapid eye movement (REM). These scientists have learned that there is a kind of sleep with REM and another kind with no rapid eye movement (NREM).

taking air in and out of the body

NREM is divided into three **stages**. In stage one, when you start to go to sleep, you have a pleasant floating feeling. A sudden noise can wake you up. In stage two, you sleep more deeply, and a noise will probably not wake you. In stage three, which you reach in less than thirty minutes, the brain waves are less active and stretched out. Then, within another half hour, you reach REM sleep. This stage might last an hour and a

half and is the time when you dream. For the rest of the night, REM and NREM alternate.

Body movement during sleep occurs just before the REM stage. The average person moves about thirty times during sleep each night.

Sleep is a biological need, but your brain never really sleeps. It is never actually blank. The things that were on your mind during the day are still there at night. They appear as dreams, which people have been discussing for centuries. At times people believed that dreams had magical powers or that they could tell the future.

sometimes

Sometimes dreams are terrifying, but they are usually a collection of scattered, **confused** thoughts. If you dream about something that is worrying you, you may wake up exhausted, **sweating**, and with a rapid heartbeat. Dreams have **positive** effects on our lives. During a dream, the brain may **concentrate** on a problem and look for different solutions. Also, people who dream during a good night's sleep are more likely to remember newly learned skills. In other words, you learn better if you dream.

mixed up

with water on the skin

opposite of *negative*

Researchers say that **normal** people may have four or five REM **periods** of dreaming a night. The first one may begin only a half hour after falling asleep. Each period of dreaming is a little longer, the last one lasting up to an hour. Dreams also become more **intense** as the night continues. **Nightmares** usually occur toward dawn.

lengths of time

bad dreams

People dream in color, but many don't remember the colors. Certain people can control some of their dreams. They make sure they have a happy ending. Some people get relief from bad dreams by writing them down and then changing the negative stories or thoughts into positive ones on the written paper. Then they study the paper before they go to sleep again.

Many people talk in their sleep, but it is usually just confused half sentences. They might feel **embarrassed** when someone tells them they were talking in their sleep, but they probably didn't tell any secrets.

Sleepwalking is most common among children. They usually grow out of it it by the time they become **adolescents**. Children don't remember that they were walking in their sleep, and they don't usually wake up if the parent leads them back to bed.

teenagers

Some people have the **habit** of **grinding** their teeth while they sleep. They wake up with a sore **jaw** or a headache, and they can also damage their teeth. Researchers don't know why people talk, walk, or grind their teeth while they are asleep.

There are lots of jokes about snoring, but it isn't really funny. People **snore** because they have trouble breathing while they are asleep. Some snorers have a condition called sleep **apnea**. They stop breathing up to thirty or forty times an hour because the throat muscles relax too much and **block** the airway. Then they breathe in some air and start snoring. This is a dangerous condition because, if the brain is without oxygen for 4 minutes, there will be **permanent** brain damage. Sleep apnea can also cause irregular heartbeats, a general lack of energy, and high blood pressure.

always, forever

Most people need from 7½ to 8½ hours of sleep a night, but this varies with individuals. Babies sleep eighteen hours, and old people need less sleep than younger people. If someone continually sleeps longer than normal for no **apparent** reason, there may be something physically or psychologically wrong.

obvious, adjective for *appear*

You cannot save hours of sleep the way you save money in the bank. If you have only 5 hours of sleep for three nights, you don't need to sleep an extra 9 hours on the weekend. And it doesn't do any good to sleep extra hours ahead of time when you know you will have to stay up late.

What should you do if you have trouble sleeping? Lots of people take sleeping pills, but these are dangerous because they are habit-forming. If you take them for several weeks, it is hard to stop taking them.

Doctors say the best thing is to try to relax and to avoid bad habits. If you always go to bed and get up at about the same time, this sets a good and healthy rhythm in your life. Caffeine keeps people awake, so don't drink caffeine drinks in the evening. Smoking and alcohol can also keep you awake. You may have trouble sleeping if you have a heavy meal just before you go to bed. Eat earlier in the evening.

You may also have trouble sleeping if you have a problem or something else on your mind. This is when you need to relax. As you lie in bed, tense the muscles in your feet and then relax them. Continue up the body, tensing and relaxing the muscles until you reach the head. Start with the feet again if you are still tense. Then remember some pleasant experience you had and relive it. If you are thinking about a problem or about something exciting that is going to happen the next day, get up and write about it. That will help take it off your mind. You can also get up and read or watch television. Be sure to choose a book or show that is not too exciting, or you may get so interested that you won't want to go to sleep even when you feel sleepy.

Sleep is important to humans. We spend a third of our lives sleeping, so we need to understand everything we can about sleep.

Sleep well! Sweet dreams!

80

A Vocabulary

stage	periods	normal	habit
oxygen	embarrassed	confused	positive
a great deal	at times	sweat	concentrate
nightmare	grinds	snore	block

1. It is hard to _____ on your homework if your roommate is playing loud music.
2. It is not _____ to have a headache for a week. You should go to a doctor.
3. In the first _____ of a volcanic eruption, the volcano sends out smoke.
4. A _____ is a bad dream.
5. _____, a headache begins without warning.
6. The school day is divided into several _____, one for each class.
7. Marcel _____ coffee with a coffee grinder.
8. Sylvia has a _____ of having a cup of coffee as soon as she gets home from work.
9. Hard exercise makes you _____.
10. A Mercedes-Benz car costs _____ of money.
11. Do you _____ when you sleep?
12. There is no reason to feel _____ when you make a mistake in class.

B Vocabulary

confused	positive	intense	adolescents
jaws	apnea	apparently	sweat
habit	block	permanently	breathe

1. Fish can _____ underwater; people cannot.
2. The _____ summer heat of the Arabian Desert can be very dangerous if you're not careful.
3. *Negative* is the opposite of _____.
4. David was _____ about the date, so he missed the meeting.
5. Someone with sleep _____ stops breathing many times during the night.

6. An immigrant plans to stay in a new country _____.
7. The professor seems to be very busy. _____, he has a lot of work to do.
8. _____ are not children, but they are not grown up either.
9. The teeth are in the upper and lower _____.
10. A car accident can _____ a highway.

C Vocabulary Review

Match the words with the definitions.

1. melt _____	a. middle
2. mid- _____	b. distance across a circle
3. strip _____	c. fingerprint
4. crops _____	d. reasonable
5. diameter _____	e. no moving parts
6. inexhaustible _____	f. change from a solid to a liquid
7. solid-state _____	g. can be seen through
8. source _____	h. because
9. transparent _____	i. long, thin piece
10. boundary _____	j. place
11. since _____	k. happening
12. position _____	l. can't be used up
13. event _____	m. place something comes from
	n. border
	o. any plants a farmer grows

D True/False/Not Enough Information

_____ 1. We spend about a third of our lives sleeping.
_____ 2. Researchers now understand nearly everything about sleep.
_____ 3. NREM sleep comes before the REM stage.
_____ 4. After the three stages of NREM, REM lasts the rest of the night.
_____ 5. Dreams occur during the REM stage, but the brain is normally blank the rest of the time.

_____ 6. A dream about an unhappy event can change your heartbeat.
_____ 7. Nightmares occur early when dreams are short.
_____ 8. People dream in color.
_____ 9. Sleep apnea is the cause of some snoring.
_____ 10. It is a good idea to sleep a few extra hours on the weekend if you know you have a lot of work to do the next week.
_____ 11. Five or 6 hours of sleep is enough for some people.
_____ 12. The best thing to do when you have trouble sleeping is to take sleeping pills.

E Comprehension Questions

1. How have researchers learned about sleep?
2. What does REM mean?
3. At what stage of sleep do people move around?
4. How do dreams change as the sleep period continues?
5. Why do people feel embarrassed if they talk in their sleep?
6. Can sleepwalking be dangerous? Give a reason for your answer.
7. Why do some people grind their teeth while they sleep?
8. How can sleep apnea cause brain damage?
9. Name three things that can keep you awake.
10. How does a problem keep you from sleeping?

F Main Idea

Find or write a sentence for the main idea of these paragraphs.

1. Paragraph 3 (lines 20–30).
2. Paragraph 5 (lines 34–40).
3. Paragraph 7 (lines 52–59).
4. Paragraph 13 (lines 97–103).

G Scanning

Write short answers and the line numbers for these questions.

1. In what stage of NREM can a sudden noise wake you up?
2. Why do people snore?
3. Why is it a bad idea to take sleeping pills?

4. How many REM periods of dreaming do normal people have?
5. What did some people use to believe about dreams?
6. What should you do if you can't sleep because you are thinking about an exciting event the next day?
7. Is it possible to control dreams?
8. Can you save up on sleep ahead of time?
9. How many times a night does an average person move?
10. How many hours a day do babies sleep?

H Connecting Words

Connect a sentence from the first column with one in the second using these words: **before, after, although,** and **since**.

1. People move in their sleep.	a. You go to bed.
2. Scientists don't know everything about sleep.	b. It isn't really funny.
3. We shouldn't laugh about snoring.	c. The REM stage begins.
4. Don't eat a heavy meal.	d. This sets a rhythm in your life.
5. Go to bed and get up at about the same time.	e. They have learned a lot in the last thirty years.
6. The REM stage begins.	f. The NREM stage begins.

I Missing Words

Write any word that is correct for the blanks.

1. Sleep is very important _____ humans; _____ average person spends 220,000 hours of _____ lifetime sleeping.
2. Then doctors _____ scientists began doing research _____ sleep laboratories.
3. They have learned _____ great deal _____ studying people as they slept.
4. Scientists study _____ body characteristics that change _____ sleep.
5. NREM _____ divided _____ three stages.
6. You reach stage three _____ less _____ thirty minutes.
7. Sleep is _____ biological need, _____ your brain never really sleeps.

8. _____ things that were _____ your mind during _____ day are still there _____ night.
9. _____ times people believed _____ dreams had magical powers _____ that they could tell _____ future.
10. _____ is possible _____ dreams have _____ positive effect _____ our lives.

J Word Forms

	Verb	Noun	Adjective	Adverb
1.		(ab)normality normalcy	(ab)normal	(ab)normally
2.		habit	habitual	habitually
3.	concentrate	concentration		
4.	confuse	confusion	confused	
5.		intensity	intense	intensely
6.		adolescence	adolescent	
7.	breathe	breath breathing	breathless	breathlessly
8.		permanence	permanent	permanently
9.	loosen	looseness	loose	loosely
10.	(dis)appear	(dis)appearance	apparent	apparently

1a. _____, classes begin at 8:00, but there is a special meeting today.
1b. Sleep apnea is an _____.
2. The present tense is used for _____ actions.
3a. Great _____ is necessary for the game of chess.
3b. Most of Australia's population is _____ on the east coast.
4. There was a lot of _____ about the new class schedule, but now it is all cleared up and things are going smoothly. At first, the students were _____.
5. Susan feels everything very _____.
6. _____ is a difficult time for young Americans and their parents.
7. Tom spoke _____ because he was so excited.
8. Nora married a German and is going to live _____ in Germany.
9. Carol _____ her belt because it was too tight.

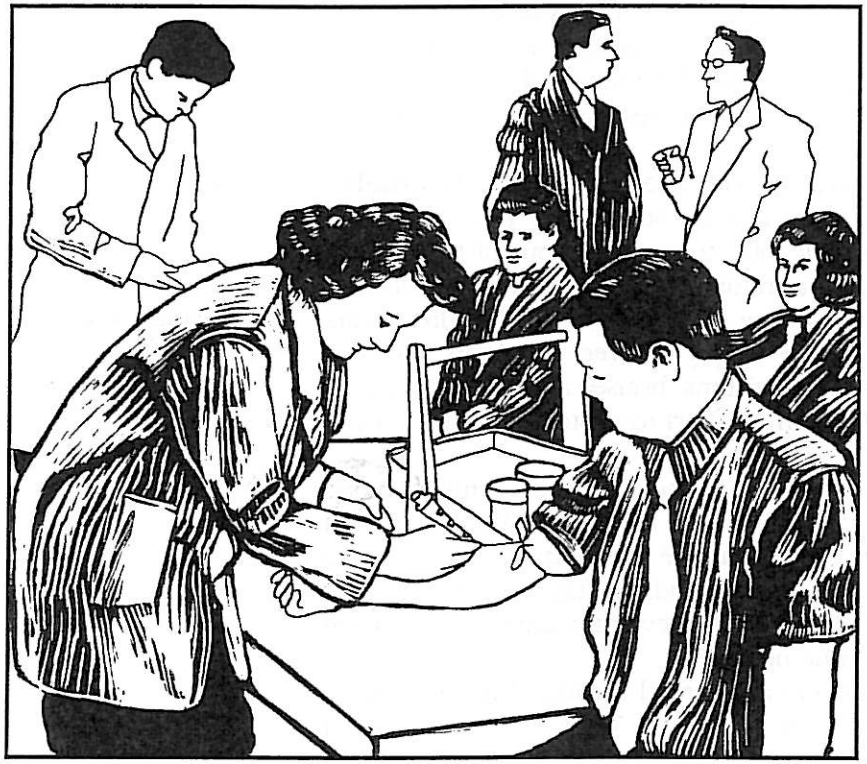
10. The plane got in an hour ago, but Mohammed hasn't called. _____ he wasn't on it.

K Guided Writing

Write one of these two short compositions. Paraphrase the information as much as possible.

1. When and why do we dream?
2. If a person has trouble sleeping, what can he or she do about it?

Health Care and Epidemics



LESSON

3

Pre-reading Questions

1. When you are sick, do you take medicine? Why? How can people prevent disease?
2. Have you ever been in a place that was having an epidemic? What did the people do about it?

Context Clues

1. When you are sick, you feel **miserable**.
   a. very bad b. very reasonable c. very steady
2. Today there are **remedies** for diseases that people used to die from.
   a. medicines b. cures c. aspirin
3. The teacher was busy, so Katsuko **volunteered** to help the new student with her schedule.
   a. did it without being asked
   b. waited for the teacher to choose someone
   c. avoided
4. What is the **worth** of learning Japanese if you are never going to Japan?
   a. occurrence b. value c. pain
5. Mr. Thomas sat reading the paper. **Meanwhile**, his 2 children were doing their homework.
   a. unpleasant b. although c. at the same time

3

Health Care and Epidemics

Everyone suffers from disease at some time or another. However, millions of people around the world do not have good health care. Sometimes they have no money to pay for medical treatment. Sometimes they have money, but there is no doctor. Sometimes the doctor does not know how to treat the disease, and sometimes there is no treatment. Some people are afraid of doctors. When these conditions are present in large population centers, **epidemics** can start.

Epidemics can change history. Explorations and wars cause different groups of people to come into **contact** with each other. They carry strange diseases to each other. For example, when the Europeans first came to North and South America, they brought diseases with them that killed about 95 percent of the Native American population.

People are very afraid of unknown things, especially diseases. People have all kinds of ideas about how to prevent and treat diseases. Some people think that if you eat lots of onions or garlic, you won't get sick. Others say you should take huge amounts of vitamins. Scientific experiments have not proved most of these theories.

touch

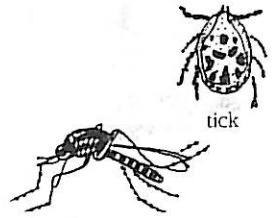
However, people still spend millions of dollars on vitamins and other probably useless treatments or preventatives. Some people want **antibiotics** whenever they get sick. Some antibiotics are very expensive. Much of this money is wasted because some diseases are caused by a **virus**. Viruses are even smaller than bacteria, and they cause different kinds of diseases. Antibiotics are useless against viruses.

Because of their fear, people can be **cruel** to victims of disease. Sometimes they fire them from their jobs, throw them out of their apartments, and refuse them transportation services. In the **plague** epidemics a few hundred years ago, people simply covered the doors and windows of the victims' houses and left them to die inside, all in an effort to protect themselves from getting sick.

a very serious disease carried by insects

Doctors know how most epidemic diseases spread. Some, like **tuberculosis**, are spread when people **sneeze** and **cough**. The explosive cough or sneeze sends the bacteria shooting out into the air. Then they enter the mouth or nose of anyone nearby.

Others are spread through human contact, such as on the hands. When you are sick and blow your nose, you get viruses or bacteria on your hands. Then you touch another person's hand, and when that person touches his or her mouth, nose, or eyes, the disease enters the body. Some diseases spread when people touch the same dishes, towels, and furniture. You can even pick up a disease when you touch things in public buildings.



tick

mosquito

Other diseases are spread through insects, such as flies, **mosquitoes**, and **ticks**.

One disease that causes frequent, worldwide epidemics is **influenza**, or flu for short. The symptoms of influenza include headache and

sometimes a runny nose. Some victims get sick to their stomachs. These **symptoms** are similar to symptoms of other, milder diseases. Influenza can be a much more serious disease, especially for **pregnant** women, people over sixty-five, and people already suffering from another disease, such as heart problems. About half of all flu patients have a high body temperature, called a **fever**. Flu is very **contagious**. One person catches the flu from another person; it doesn't begin inside the body as heart disease does.

pregnant

goes easily from a sick person to a healthy person

Sometimes medicine can **relieve** the symptoms. That is, it can make a person cough less, make headaches less intense, and stop noses from running for a while. However, medicine can't always cure the disease. So far, there is no cure for many diseases and no medicine to prevent them. People have to try to prevent them in other ways.

make better

Some diseases can be prevented by **vaccination**. A liquid vaccine is **injected** into the arm or taken by mouth and the person is safe from catching that disease. Other diseases can be prevented by good health habits, such as drinking only clean water, boiling water that might carry disease, and washing the hands often.

injected

Epidemics usually start in areas of large population. Poor people in big cities who live crowded together in **miserable** conditions have the most health problems. They often have the least education about disease prevention. If they know what to do, they often do not have the money to do it. For example, it is difficult for a person who has no electricity to refrigerate food or boil drinking water. With no money, the person can't even buy soap to wash his or her hands.

very bad, inferior

Disease prevention costs much less than disease treatment. It seems completely illogical, but some countries like the United States spend much more health-care money on treatment for diseases than on programs to prevent disease in the first place. Most doctors and other hospital workers stay in their **institutions**. Only a few doctors go out into the streets of the poor areas to educate the people. Only a few doctors and some nurses vaccinate people and supervise them to make sure they take their medicine. Most people who help the poor people with their health problems are **volunteers**.

How can you use all this information for your own good health? When someone you know becomes ill, try to avoid physical contact with that person. If you get sick yourself, keep your towel and dishes separate from everyone else's. Try not to touch things that belong to others. Don't touch other people, and don't shake hands. Explain why, however; you don't want people to think you are impolite. Wash your hands often if you are ill or if anyone around you is ill.

Researchers continue searching for a way to cure or prevent epidemic diseases. **Meanwhile**, it is **worth** the money for governments to provide preventive health care for all of their people. Preventing epidemics is much cheaper than stopping them after they have started and thousands of people are ill.

A Vocabulary

cough	epidemics	cruel	institutions
meanwhile	contagious	sneeze	miserable
plague	antibiotics	vaccinations	influenza

1. _____ is also called the flu.
2. Some diseases are spread when people _____ and _____
3. When you have a headache, you probably feel _____.
4. Babies should receive _____ to prevent common childhood diseases. Then they won't catch these _____ diseases.
5. Governments should provide health care. _____, they should give money for new research into the causes of disease.
6. _____ kill thousands, even millions, of people worldwide.
7. Hospitals and universities are examples of _____.
8. It is very _____ to put a sick person out of his or her house into the street to live.
9. The _____ epidemics killed half the population of Europe before _____ were discovered.

B Vocabulary

fever	contact	tuberculosis	symptoms
relieve	volunteer	viruses	injected
pregnant	worth	mosquitoes	ticks

1. When your temperature is above normal, you have a _____.
2. There is no physical _____ in tennis. The players don't touch each other while they play.
3. Ms. Davis is _____. She is going to have a baby in May.
4. How much is gold _____ today?
5. Diseases caused by _____ cannot be cured with antibiotics.
6. Some vaccines are _____ into the arm; others are taken by mouth.

7. Aspirin can _____ some headaches.
8. What are the _____ of a cold? How do you know you have one?
9. Thousands of people _____ to work for the Red Cross without pay.
10. Diseases carried by _____ and _____ enter the victim's blood through the bites of these insects.
11. _____ enters the body when the victim breathes the air coughed out by a sick person.

C Vocabulary Review

raw materials	attacked	dawn	tide
hammer	drummer	record	pounded
swell	arteries	forehead	recurring

1. Blood is carried from the heart through the _____.
2. If you hit your thumb with a _____, the thumb will probably _____ up.
3. Sometimes the sky is beautiful at _____.
4. Tom got hit in the _____ with the ball.
5. The army _____ at dawn to surprise the enemy.
6. Rita has a _____ pain in the stomach. It comes and goes.
7. The waves move higher up on the beach as the _____ comes in.
8. Iron and cotton are _____.
9. Dan _____ on the table to get everyone's attention.
10. Every rock music band has a _____.
11. The government keeps a _____ of the birth of every child.

D Multiple Choice

1. Coughing is a _____ of tuberculosis.
   a. miserable b. epidemic c. symptom
2. Medicine _____ a disease.
   a. can cure
   b. can relieve the symptoms of
   c. can prevent

3. Without the Europeans, North and South America _____
   a. would probably have more Native Americans
   b. would probably have no diseases
   c. would probably have no wars
4. Which one of these sentences is not true?
   a. Antibiotics can be expensive.
   b. Antibiotics have saved the lives of many sick people.
   c. Antibiotics will help cure viruses.
5. _____ prevent some diseases.
   a. There is no vaccine to
   b. You can have a vaccine injected into your arm to
   c. Both a and b
6. Tuberculosis spreads _____.
   a. by hand contact
   b. when people cough and sneeze
   c. when people don't eat garlic
7. The best way to avoid epidemics is to _____.
   a. lock sick people up inside their houses
   b. take lots of vitamins
   c. provide health care for people crowded in cities

E Comprehension Questions

1. Name the symptoms of influenza.
2. What does medicine do for diseases?
3. Is it worth the expense to take extra vitamins?
4. How do epidemics spread?
5. How can epidemics change history?
6. Do you think you should or should not shake hands with someone who is ill? Why?
7. Why do poor people have the most health problems?
8. Why do people who live in the city have more health problems than people who live in the country (outside of cities)?
9. How can humans prevent diseases from becoming epidemics?

F Main Idea

What is the main idea of these paragraphs?

1. Paragraph 2 (lines 12–19).
2. Paragraph 4 (lines 36–44).
3. Paragraph 6 (lines 51–60).
4. Paragraph 10 (lines 85–91).

G Cause and Effect

Write the effect for each of these causes.

Cause	Effect
1. A virus enters the body.	
2. People take medicine.	
3. A person with tuberculosis coughs.	
4. A vaccine is injected into the body.	
5. A student drinks from a sick roommate's glass.	

H Word Forms

	Verb	Noun	Adjective	Adverb
1.		(im)politeness	(im)polite	(im)politely
2.		cruelty	cruel	cruelly
3.	relieve	relief		
4.	volunteer	volunteer	(in)voluntary	(in)voluntarily
5.	inject	injection		
6.		pregnancy	pregnant	
7.		contagion	contagious	contagiously
8.	lengthen	length	long	
9.	reason	reason	(un)reasonable	(un)reasonably

1. The idea of _____ is different from one country to another.

2a The government was known for its _____ to prisoners.

2b. It is _____ to hit a very old or sick person.

3. Mary felt _____ when she found out her daughter had arrived safely at her grandparents' home.
4. Mark did not go into the army _____. He went because it is the law that all young men must serve in the army.

5. Children don't like to have _____.
6. A human _____ lasts 9 months.
7. Heart trouble is not _____.
8. In the spring, the days start to _____.
9. Mehdi was very angry. We tried to _____ with him, but he was completely _____ and wouldn't listen at all.

I Two-Word Verbs

Learn these two-word verbs and then fill in the blanks with the right words. Use the correct verb form.

grow out of —A child stops doing or feeling something as she or he grows older.
get out of —avoid doing
show up —appear, arrive
put off —delay
read up on —get facts and information on a subject by reading

1. Hiroko always tries to _____ talking in front of the class because she doesn't like to do it.
2. Tom had planned to go to the shopping center today, but he _____ it _____ until the weekend because he's so busy.
3. Children _____ sleepwalking when they become adolescents.
4. Marge is going to _____ photovoltaic cells because she wants to know more about them.
5. Bob didn't _____ for the party until almost midnight.

J Articles

Write an article in each blank if one is needed.

1. However, millions of _____ people around _____ world do not have _____ good health care.
2. Sometimes _____ doctor does not know how to treat _____ disease, and sometimes there is no _____ treatment.

3. _____ people have all kinds of _____ ideas about how to prevent and treat _____ diseases.
4. _____ explosive cough or sneeze sends _____ bacteria shooting out into _____ air.
5. Then they enter _____ mouth or nose of _____ anyone nearby.
6. Some diseases spread when _____ people touch _____ same _____ dishes, _____ towels, and _____ furniture.
7. Some countries like _____ United States spend much more health-care money on _____ treatment for diseases than on programs to prevent _____ disease in _____ first place.

K Summarizing

Summarize paragraph 3, lines 20–35. Use your own words to tell the main idea in no more than 3 or 4 sentences.

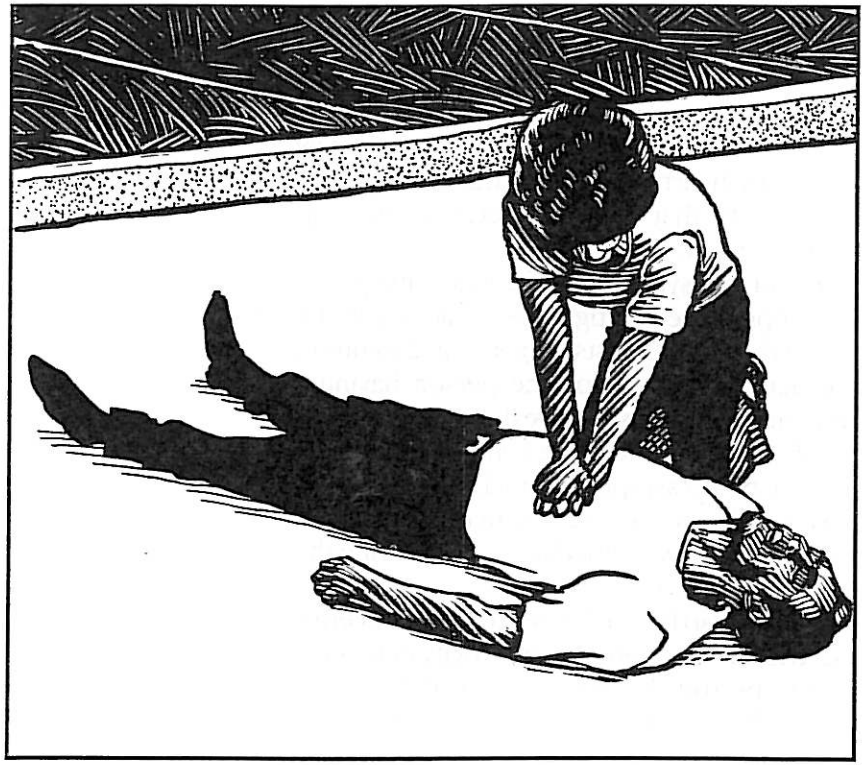
L Guided Writing

Write one of these two short compositions.

1. You are a health-care worker who is going into a poor area of a big city. You have seen several cases of tuberculosis and influenza this month. You are going to try to prevent an epidemic among the people in this area. What will you say to the people?

2. A government official in your country has asked you for your suggestions about improving health care. What will you say to the official?

CPR



LESSON 4

Pre-reading Questions

1. What is happening in the picture?
2. Do you think the woman is a doctor, or could she be a person without medical training?
3. Do you know how to do CPR? If not, would you like to learn?

Context Clues

1. Adults should never **strike** children, even when the children misbehave.
   a. hit b. help c. block
2. Alice couldn't swim very well, but she swam way out into the middle of a lake. She was too tired to swim back to shore, and her head kept going under the water. Finally, she **drowned**.
   a. rested b. died in the water c. concentrated
3. How do you think your parents will **react** when you tell them you are going to marry someone from another country?
   a. act in response to a situation
   b. start doing some activity
   c. act again
4. Paul has a new car and **so do I**.
   a. I am too. b. I do too. c. I think it is true.
5. A photovoltaic cell cannot **function** efficiently if it has dust on it.
   a. breathe b. confuse c. work
6. Take this umbrella with you **in case** you need it.
   a. if maybe b. such as c. at times

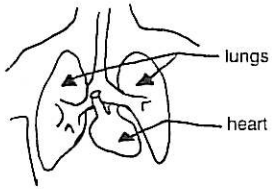
4

CPR

CPR stands for cardiopulmonary **resuscitation**. *Cardio* is a medical word for *heart*. *Pulmonary* is a medical word for **lungs**. *Resuscitate* means to *bring back to life*. CPR starts someone's lungs and heart **functioning** again after they have stopped.

working

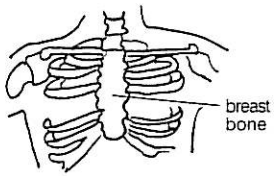
It is an amazing idea that there is a cure for sudden death. It is equally amazing that this magic is not done by today's high technology. Any ordinary person can do it. You use your own lungs to breathe into the patient's mouth and start his or her lungs working. You push on the heart with your hands to make it start beating again. It is as easy as that.



heart, lungs

The heart is a large muscle that **pumps** blood through the arteries. It is **located** in the center of the **chest** behind the **breastbone**. The lungs are at either side of the heart. Air enters the nose and mouth and moves through the airway to the lungs, bringing oxygen into the body. As the blood moves through the lungs, it picks up the oxygen and carries it to the cells throughout the body. At the same time that the blood picks up the oxygen, it leaves carbon dioxide as a waste material, and the lungs breathe it out through the airway.

found



chest

When the heart stops beating, or a person stops breathing, this whole **process** stops. No

oxygen is taken into the body, and the blood doesn't move through the arteries. CPR can start the process moving again.

There are several situations when CPR is needed. It can be used when a person has a heart attack and the heart stops. A heart attack occurs when the heart cannot get enough oxygen. This usually happens because one of the two arteries to the heart has become narrow or completely blocked. The heart muscle cells that are supplied with oxygen by that artery die because they stop receiving oxygen.

One of the symptoms of a heart attack is a feeling of pressure and tightness or aching in the center of the chest. It lasts longer than 2 minutes, and it may come and go. The person having a heart attack may also start sweating, feel weak, be short of breath, and feel like vomiting. However, there may be no symptoms at all; the heart may stop suddenly, and the person may stop breathing. If CPR is started immediately, it may bring the person back to life.

CPR can also be used when a person receives an electric **shock**. If enough electricity enters the body, the person dies immediately. CPR can resuscitate the person. An electric shock usually happens to someone who has been working carelessly with electricity. It can also happen if lightning **strikes** a person.

hits

A third situation is **drowning**, or dying in water, which happens most often in the summer when many people go swimming. Children can also drown when they are left alone near a swimming pool. A person trained in CPR can help a person start to breathe after clearing the water out of the airway.

These are the three most common causes of sudden death when CPR can be used. There are others less common. Someone in a burning

building may breathe in too much smoke and not get any oxygen into the lungs. Some people have an intense **reaction** to certain drugs or to the **sting** of a bee or some other insect, and the heart and lungs stop functioning.

CPR is an example of **first aid**. An ordinary person can take a first aid class and learn what to do until the patient receives professional help. This might mean helping someone until an **ambulance** comes. Then professionals can use their equipment to **take charge** of the patient. Or it might mean giving first aid and then taking the patient to a doctor. CPR can keep a person alive until he or she reaches a hospital.

help

ambulance

When you give CPR, you breathe directly into the patient's mouth. Then you press on the heart in the center of the chest. You continue alternating these two actions.

CPR is easy to learn, but you shouldn't learn it from a book. You should receive instruction in a class where you can practice in front of the instructor until you do it correctly. As you know, if the brain is without oxygen for 4 minutes, there will be permanent brain damage. It is necessary to start CPR immediately when a person stops breathing, or as soon as possible. You have to know how to do it quickly and well.

If someone in your family has heart trouble, if you go swimming a lot, or if you plan to work with electricity, you should learn CPR. In fact, everyone should learn it, **in case** they ever need it.

Where can you learn it? The Red Cross has CPR classes, many hospitals teach it, and so do some university student health centers. If there are no classes where you live, ask the Red Cross or a nearby hospital to organize a class.

CPR is worth learning. It can give you the chance to save someone's life.

A Vocabulary

resuscitation	located	pump	strike
sting	first aid	react	lung
breastbone	process	drown	function

1. The heart is directly behind the _____.
2. Village people often have to _____ water by hand.
3. Volcanoes are _____ in clusters.
4. Hail and snow are formed by a similar _____.
5. A bee _____ is painful.
6. The _____ of the heart is to pump blood through the arteries.
7. Children should wear a life preserver when they are around water so they can't _____.
8. Anyone can learn to give _____. You don't have to be a doctor or nurse.
9. The *R* in CPR stands for _____.

B Vocabulary

chest	so	in case	shock
lungs	breastbone	process	ambulance
take charge	strike	reaction	drown

1. The _____ are in the chest and _____ is the heart.
2. In baseball, if a player tries to hit the ball and misses it, it is called a _____ even though he didn't hit the ball.
3. An electric _____ can kill a person.
4. An _____ is used to take patients to a hospital.
5. A strong _____ to a drug can kill a person.
6. Edward volunteered to _____ of arranging food for the party.
7. The natural _____ that makes garbage disappear is slowed at landfills because the garbage gets no air or water.
8. You cannot save up sleep ahead of time _____ you need it later.

C Vocabulary Review: Synonyms

Match the words that mean the same.

1. worth _____
2. miserable _____
3. contagious _____
4. a great deal _____
5. at times _____
6. nightmare _____
7. confused _____
8. adolescent _____
9. permanently _____
10. sore _____
11. dawn _____
12. position _____

a. a lot
b. blur
c. teenager
d. catching
e. vision
f. forever
g. value
h. location
i. painful
j. unhappy
k. sometimes
l. sunrise
m. mixed up
n. bad dream

D True/False/No Information

_____ 1. *Resuscitation* is a medical word.
_____ 2. Sudden death can be cured only by using today's technology.
_____ 3. The arteries take carbon dioxide out of the lungs.
_____ 4. Carbon dioxide enters the lungs through the airways.
_____ 5. CPR can be used in cases of drowning.
_____ 6. CPR can help a person with sleep apnea.
_____ 7. A common situation when CPR is needed is with a reaction to an insect sting.
_____ 8. First aid is an example of CPR.
_____ 9. Everyone should get a book about CPR and learn how to do it.
_____ 10. You should call an ambulance before you start CPR.

E Comprehension Questions

1. What is the function of the lungs?
2. What are the symptoms of a heart attack?
3. What are the three most common situations when CPR is needed?

4. What is first aid?
5. How can CPR prevent brain damage?
6. What professionals work with patients?

F Main Idea

What is the main idea of these paragraphs?

1. Paragraph 2 (lines 7–14).
2. Paragraph 11 (lines 82–85).
3. Paragraph 13 (lines 95–98).

G Prepositions and Two-Word Verbs

1. Some children are afraid of the dark, but they grow _____ _____ it.
2. CPR stands _____ cardiopulmonary resuscitation.
3. CPR is a method _____ starting someone's lungs and heart again _____ they have stopped.
4. It is an amazing idea that there is a cure _____ sudden death.
5. You should take a class _____ CPR. Don't put it _____.
6. No oxygen is taken _____ the body, and the blood doesn't move _____ the arteries.
7. One _____ the symptoms _____ a heart attack is a feeling _____ pressure and tightness or aching _____ the center _____ the chest.
8. CPR may bring the person back _____ life.
9. Then professionals can take charge _____ the patient.
10. Some people have an intense reaction _____ the sting _____ a bee.

H Compound Words and Two-Word Verbs

Make a compound word by joining a word from the first column with one from the second column. More than one answer is correct for several of the words. Some of these are also written separately as two-word verbs.

1. break	a. in	_____
2. stand	b. down	_____
3. work	c. work	_____

4. check	d. mate	_____
5. sun	e. rise	_____
6. home	f. night	_____
7. sleep	g. by	_____
8. out	h. grow	_____
9. life	i. walk	_____
10. over	j. way	_____
11. air	k. time	_____
12. room	l. out	_____

I Word Forms

Verb	Noun	Adjective	Adverb
1. resuscitate	resuscitation		
2. locate	location		
3. react	reaction		
4. drown	drowning		
5.	similarity	(dis)similar	(dis)similarly
6. relate	relation(ship)	relative	relatively
	relative	(un)related	
7. medicate	medicine	medical	medically
8. die	death	dead	
9. light	lightning	light	
lighten			
10. tighten	tightness	tight	tightly

1. With CPR, you may be able to _____ someone.
2a. The newspaper gave the time and _____ of the university entrance exam.
2b. The Chemistry Building is _____ next to the Physics Building.
3a. How would you _____ if you saw someone drowning?
3b. There are machines to test your _____ time when you are driving.
4. There were two cases of _____ at the beach near our home last year.
5. What is the _____ between snow and hail?
6a. What is the _____ between changes in the family and population growth?

6b. Population growth in industrial countries is _____ slow.
6c. Munir is _____ to the Minister of Education.
7. Jane wants to go to _____ college and become a doctor.
8. A heart attack doesn't always cause _____.
9. Before it started to rain, there was a lot of thunder and _____.
10. The little boy held _____ to his father's hand.

J Summarizing

Write a summary of the text for this lesson. Write only the important information using 3 to 5 sentences.

K Guided Writing

Write one of these two short compositions.

1. What happens during CPR and how does it work?
2. What are some situations in which CPR is useful?

Cholesterol and Heart Disease

LESSON

5

Pre-reading Questions

1. **Which of the three dinners is best for you? Why?**
2. **Which of the three dinners would you rather eat? Why?**
3. **Is it difficult or easy to change what you eat? Why?**

Context Clues

Circle the letter of the best meaning of the **bold** word.

1. A student with short purple hair walked into the classroom. Everyone **stared** at him.
   a. talked b. swelled c. looked intensely
2. I like your new shirt. It's very **attractive**.
   a. pretty b. large c. permanent
3. That young man looks **familiar**. I think he attended my high school.
   a. like a member of a family
   b. like someone I know
   c. like a relative of mine
4. Paulo was **confident** that he could save someone's life after he took a CPR class.
   a. sure b. process c. volunteer
5. I ate a big dinner, but I feel a little hungry. Before I go to bed, I think I'll have a **snack**.
   a. big meal b. pizza c. small amount of food
6. Sharon said her new car was worth $30,000, but it only cost $20,000. She **exaggerated.**
   a. said it cost more than it did
   b. paid $30,000 for it
   c. didn't like her old car

5

Cholesterol and Heart Disease

Do you know your **cholesterol** level? Many people don't. A high level of cholesterol in the blood is an important **risk factor** for heart disease.

Some people say that the danger of heart disease is **exaggerated**. However, heart disease is a main cause of death in developed countries. Every year more than one million Americans have heart attacks, and half of them die. People with heart disease suffer chest pains that make simple activities, such as walking, shaving, or taking a shower, difficult.

Research has proven that cholesterol levels are connected with heart disease. One project in Massachusetts has studied the same group of men and women since 1948. The researchers have found that the people who have high levels of cholesterol have more heart attacks.

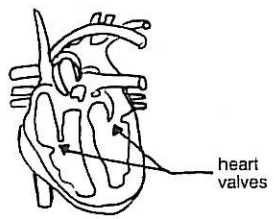
A natural substance in the blood, cholesterol comes from the liver. The amount of cholesterol is affected by diet and by physical qualities we **inherit** from our parents. One kind of cholesterol sticks fat to the walls of arteries, making them smaller and finally blocking them. It produces a condition called "hardening of the arteries," which causes heart attacks. With tiny cameras,

said it is more than it is

get

doctors can see blood circulating through the heart **valves**. **Angiograms** are x-rays of the heart arteries. They show fat deposits and blockages caused by high cholesterol.

Heart disease begins in children as young as 3 years old. It occurs earlier in boys than in girls. Nearly half of teenagers have some fat deposits on their artery walls. Heart disease develops faster if we have high cholesterol levels and also smoke.



heart valve

What is a safe level of cholesterol? Adults have a high risk of heart attack if their cholesterol level is above 240 milligrams per deciliter of blood. Below 200 is better. In the Massachusetts study, no one with a cholesterol level below 150 has ever had a heart attack. However, about half of American adults have cholesterol levels above 200.

To lower our cholesterol level, we must change our eating habits. Anything that comes from an animal is high in fat and high in cholesterol. The American Heart Association National Cholesterol Education Program says that fat should be no more than 30 percent of our diet. Blood cholesterol levels start to fall after 2 to 3 weeks of following a low-cholesterol, low-fat diet. Dietary changes alone can result in a 10 percent **reduction** of the average person's cholesterol level. **Aerobic** exercise helps, too. Artery blockage can be reduced by as much as 40 percent through changes in diet and amount of exercise.

making smaller

for example, walking running, swimming

We must educate everyone, including children in elementary schools. We must teach them responsibility for their health through classes in nutrition and aerobic exercise. For example, the smart **snack** is fruit. Children must be served fruit in the school cafeteria, along with low-fat meals. Schools must send **recipes** home with the children. Parents must include children in planning and preparing meals and shopping for food.

something small and fast to eat

instructions for cooking

Adults, including persons over the age of sixty-five, can lower their cholesterol by 30 or 40 percent. It is never too late to change. One man began his health program when he was seventy-three. By the time he was seventy-seven, he had lowered his arterial blockage from 50 percent to 13 percent and his cholesterol from 320 to 145 without drugs. He went on a vegetarian diet with only 10 percent fat, plus programs to reduce **stress** and get more exercise.

A low-cholesterol diet that cuts out most animal products and high-fat vegetables may be **unfamiliar** to people. The Heart Association says to use no added fat of any kind. Don't fry food in oil. Cook it in water, vinegar, or vegetable water. Learn about grains and vegetables. Avoid egg yolks (the yellow part of the egg). Eat potatoes, beans, low-fat vegetables, and fruit. People often **complain** about low-fat diets before they have had time to get used to them. Food can taste good without cream, butter, and salt. You can use olive oil, mustard, fresh **herbs**, or yogurt instead.

strange, unknown

say you don't like something

A new diet can cause general **anxiety**, when people feel worried and nervous about what is going to happen. They must learn to **deal with** the changes in their lives. Sometimes major changes in diet or lifestyle are easier than minor ones because the results are bigger and faster. Fast results **encourage** us.

cope with

give hope

How can you control the amount of fat in your diet if you eat in restaurants? Restaurants must provide healthy meals that are low in fat, salt, and cholesterol. A diet is a **personal** thing. Restaurant owners should not make customers feel embarrassed because they want to follow a diet that is good for them. Restaurant owners must learn to give equal **service** to customers on a healthy diet. Some restaurants have items on the menu marked with a heart to show that they

private, about oneself

are low in fat, cholesterol, salt, or sugar. A few restaurants serve only these recipes.

Heart disease causes one out of every four deaths in East Harlem in New York City. The East Harlem Healthy Heart Program is an educational program. It has 2 goals: to get people to change their diets and to find volunteers to help run educational activities. One way it educates is by street shows. Actors wear costumes and carry big pieces of plastic fat. They entertain so people will listen. Groups of children perform songs and dances that educate people about heart disease and diet. Volunteers lead walking and exercise groups to show people how to begin exercising.

Volunteers also stand in supermarkets to **suggest** healthy food choices to shoppers. The volunteers have shoppers taste two kinds of milk to see which tastes better. Most people are surprised that the low-fat milk tastes better than the whole milk. Shoppers are encouraged to buy low-fat milk instead of whole milk.

give ideas about

Education costs money, but it also brings results. In 1983, only 35 percent of the American public knew their cholesterol levels. By 1990, 65 percent of the people had had theirs checked.

People feel better if they lower their cholesterol through diet. Healthy people are more **confident**. They are more **attractive** to themselves, as well as to others. Their friends **stare** at them because they look so healthy.

pretty, handsome

look intensely

We can prevent heart disease by living a healthful lifestyle and eating the right kind of diet. If people don't do this, two out of three men and women in America will eventually get heart disease.

A Vocabulary

confidence	anxiety	stare	herbs
aerobic	risk	encouraged	valve
unfamiliar	inherited	personal	snack

1. John's parents _____ him to stay in school even though his grades were not very good.
2. _____ exercise is good for the heart.
3. Is it impolite to ask someone _____ questions?
4. Students often suffer from _____ before an exam.
5. _____ improve the taste of food.
6. Some people are _____ with a low-fat diet.
7. Mark _____ red hair from his mother.
8. It is impolite to _____ at people.
9. If you drive carelessly, you take a _____.
10. I'm hungry now, but it's 2 hours until dinner. I think I'll have a _____.
11. Open the _____ so the water will flow freely through the pipes.
12. If you are sure of yourself, you have _____ in yourself.

B Vocabulary

factor	suggestion	deal with	complains
attractive	reduction	service	angiogram
exaggerated	cholesterol	recipe	stress

1. Most television stars are _____.
2. _____ occurs naturally in the blood.
3. A _____ in how much fat you eat might make you healthier.
4. Please give me a copy of that delicious _____.
5. One of the students made a good _____ for what we could do in the International Day program.
6. It is difficult to _____ a child who doesn't behave well.
7. Smoking is a _____ in many diseases of the heart and lungs.
8. Tom said he earned $1000 a week, but he is really paid only $800. He _____.

9. The doctor wants my mother to have an _____ to see if her arteries are blocked.
10. Ali always _____ that he has too much homework.
11. This restaurant has good food, but the _____ is slow.
12. The _____ of running away from the dog was too much for the old man, and he had a heart attack.

C Vocabulary Review

Match the words with the definitions.

1. nervous _____
2. period _____
3. habit _____
4. meanwhile _____
5. fever _____
6. pregnant _____
7. location _____
8. strike _____
9. react _____
10. drown _____
11. solar _____
12. observe _____

a. length of time
b. at the same time
c. stage
d. act in response to something
e. grind
f. hit
g. watch
h. die in water
i. anxious
j. usual action
k. high body temperature
l. of the sun
m. place
n. going to become a mother

D True/False/Not Enough Information

_____ 1. Around 500,000 Americans die each year from heart disease.
_____ 2. More than twice as many people had their blood cholesterol levels checked in 1990 as in 1983.
_____ 3. Smoking can be a risk factor for heart disease.
_____ 4. No direct relationship has been proven between high cholesterol levels and heart attacks.
_____ 5. Girls have no risk of heart disease.
_____ 6. Low-fat diets always taste bad.
_____ 7. Children should learn more responsibility for eating healthful food.

_____ 8. People usually feel good about going on a new diet.
_____ 9. It can be easier to change our diet a lot than to change it a little.
_____ 10. Old people shouldn't bother to change their eating habits because it's too late for it to do them any good.
_____ 11. Most people think that whole milk tastes better than low-fat milk.

E Comprehension Questions

1. What are some symptoms of heart disease?
2. What is "hardening of the arteries"? How is it connected with high cholesterol?
3. Why are angiograms useful?
4. At what age does heart disease start?
5. What level of cholesterol is believed to be safe?
6. How long does it take for cholesterol levels to start to drop?
7. How can schools help teach children healthy eating habits?
8. How can parents help teach children healthy eating habits?
9. What are some ways to reduce fat in your diet?
10. Describe the East Harlem Healthy Heart Program.

F Main Idea

What is the main idea of these paragraphs?

1. Paragraph 4 (lines 18–29).
2. Paragraph 6 (lines 36–42).
3. Paragraph 9 (lines 65–74).
4. Paragraph 12 (lines 94–105).

G Word Forms

	Verb	Noun	Adjective	Adverb
1.		anxiety	anxious	anxiously
2.	encourage	encouragement	encouraged	
3.	discourage	discouragement	discouraged	
4.		stress	stressful	stressfully
5.	personalize	person	personal	personally
6.		stupidity	stupid	stupidly
7.	attract	attraction	(un)attractive	(un)attractively

	Verb	Noun	Adjective	Adverb
8.	inherit	inheritance		
9.	familiarize	familiarity	(un)familiar	familiarly
10.	suggest	suggestion		
11.	complain	complaint		complainingly
12.	exaggerate	exaggeration		
13.	serve	service		

1. The students waited _____ to hear the results of the test.
2a. A shy child needs a lot of _____ to build self-confidence.
2b. Marie was _____ by the results of her physical exam after a long illness.
3. Michael felt _____ when he wasn't accepted at the university that was his first choice.
4. Joan felt a lot of _____ when she stood before the class and began her speech.
5a. If you tell the salesperson your initials, the store will _____ your new suitcase at no extra charge.
5b. _____, I like my initials on my luggage.
6. Marie felt _____ because she did the exercise without reading the directions and did it all wrong.
7. Honey _____ flies and ants. Flies and ants _____ by honey.
8. Tom _____ a small business and some money from his father when his father died. His friend received a large _____ from his favorite uncle.
9. If you _____ yourself with the language center before the first day of classes, you will not get confused about where you should go.
10. I _____ that we take a CPR class this month. That's a good _____.
11. If you have any _____ about the television set you bought, take it back to the store.
12. To say that you couldn't go to sleep at all last night is an _____. You are _____.
13. A waiter _____ food in a restaurant.

H Irregular Verbs

Learn these verbs. Then put the right verb forms in the blanks, using the first verb in the first sentence, and so on.

Simple	Past	Past Participle
1. tear	tore	torn
2. light	lit or lighted	lit or lighted
3. lie	lay	lain
4. swell	swelled	swollen
5. grind	ground	ground
6. strike	struck	struck
7. sting	stung	stung
8. stick	stuck	stuck
9. deal	dealt	dealt

1. Alice _____ her new blouse.
2. Dan _____ a fire in the living room fireplace.
3. In some countries, it is the custom to _____ down for a rest in the middle of the day.
4. Ms. Baxter's hand is _____ because she shut it in the car door.
5. Mr. Thomas _____ some fresh coffee beans and made coffee.
6. When the clock _____ 12, the people in the street knew it was noon.
7. Bob got _____ by a bee.
8. The roadrunner _____ out its head in front when it runs.
9. Mr. Nevins is a car dealer. He _____ in new and used cars.

I Two-Word Verbs: Review

1. Sixteen people showed _____ for volleyball practice.
2. Never put _____ until tomorrow what you can do today.
3. What time does your plane get _____?
4. Were you brought _____ in the city or country?
5. The teacher left _____ one student on the class list.
6. Do you dress _____ for dinner at an expensive restaurant?
7. Look _____! There's a hole in the sidewalk.

8. I have to read _____ _____ a subject for my speech.
9. Kim had _____ a warm jacket so I knew it was cold outside.
10. The Bakers have to buy new shoes for their daughter. She grew _____ _____ her old ones.
11. We tried to get _____ _____ helping out our cousin, but we had to do it.

J Context Clues

These words have more than one meaning. Circle the letter of the best meaning of the **bold** word. Choose the meanings of the words as they are used in these sentences.

1. Mr. Becker has worked in the **field** of computer science for 10 years.
   a. an area of specialization
   b. a place where animals or plants are raised
   c. the place where baseball is played
2. Carolyn is often late for class because she has to walk **so far** from her apartment.
   a. until now b. such a long distance c. far enough
3. There are 2.2 **pounds** in a kilo.
   a. the unit of English money
   b. hits or strikes
   c. a unit of weight
4. Trappers sometimes **cure** the skins of the animals they catch before they sell them.
   a. dry and prepare for use
   b. make better
   c. a kind of medicine
5. The **current** value of gold is $321.
   a. the movement of electricity
   b. at this time
   c. the movement of a stream of water in the ocean

6. I know that it isn't **so**.
   a. very
   b. too
   c. true
7. Ali and Muhammed live in a large apartment **complex** near the university.
   a. related group of buildings
   b. complicated
   c. anxiety

K Summarizing

Write a summary of the text for this lesson. Write only the important information using 3 to 5 sentences.

L Guided Writing

Write one of these two short compositions.

1. You are going to start an educational program about heart disease in your area. How will you do this?
2. Your doctor told you that you have to lower your cholesterol. Give a detailed plan of how you will follow the doctor's suggestion.

Vocabulary

A
aborigine 3
accept 46
ache 234
actually 178
addition 156
adolescent 246
adopt 13
advantage 155
adventure 12
aerobic 279
affect 85
agriculture 84
ahead 4
aid 270
alarm 223
alarm clock 223
alternating 203
although 61
amazing 45
ambulance 270
analyze 142
ancestor 73
ancient 12
angiogram 279
ant 94
anthropology 45
antibiotics 257
anxiety 280
apnea 246
apparent 246
archaeology 106
architect 155
area 13
artery 234
article 12
as long as 144
as well as 84
ashore 24
aspirin 235
at times 35
atmosphere 202
attack 223
attitude 48
attractive 281
available 61
average 61
avoid 132

B
backwards 167
bacteria 179
balance 178
base 4
battery 108
beak 121
bee 94
beggar 13
be supposed to 85
behave 45
blind 35
blizzard 34
block 246
blur 234
board 131
bomb 157
border 12
boring 131
bother 132
boundary 211
branch 94
break down 34
breastbone 268
breathe 244
bring up 217
broad 166
burst 191
bury 24
bush 94
butterfly 94

C
caffeine 224
call on 8
calm 145
carbon dioxide 180
case, in 270
cattle 95
cave 13
cell 211
century 3
character 145
charge 108, 270
check in 113
chemical 108
chest 268
childlike 47
cholesterol 278
choose 3
civil war 13
clean up 151
clear up 68
climate 23
clockwise 168
cluster 234
colony 45
common 167
communicate 157
compare 155
complain 280
complete 23
complex 178
complicated 107
concentrate 245
conductor 212
confidence 281
confuse 245
connect 156
consider 178
contact 256
contagious 258
continent 3
control 61
convert 212
cope 191
cough 257
counterclockwise 168
couple 75
crash 131
create 180
crew 132
crop 204
cruel 257
crush 191
cure 234
current 212
custom 23
cut down 68
cycle 96
cymbal 143

D
damage 189
dawn 222
deal with 280
deal, a great 244
debris 192
decade 24
decision 4
decrease 61
delay 24
demand 211
depends on 107
design 156
destroy 95
destruction 95
detail 13
diameter 203
diary 35
diet 120
direct 107
disaster 60

NOISE POLLUTION

Noise pollution (or **environmental noise**) is displeasing human, animal or machine-created sound that disrupts the activity or balance of human or animal life. The word *noise* comes from the Latin word *nausea* meaning seasickness.

The source of most outdoor noise worldwide is transportation systems, including motor vehicle noise, aircraft noise and rail noise.[1][2] Poor urban planning may give rise to noise pollution, since side-by-side industrial and residential buildings can result in noise pollution in the residential area.

Other sources of indoor and outdoor noise pollution are car alarms, emergency service sirens, office equipment, factory machinery, construction work, groundskeeping equipment, barking dogs, appliances, power tools, lighting hum, audio entertainment systems, loudspeakers, and noisy people.

Noise health effects are both health and behavioural in nature. The unwanted sound is called noise. This unwanted sound can damage physiological and psychological health. Noise pollution can cause annoyance and aggression, hypertension, high stress levels, tinnitus, hearing loss, sleep disturbances, and other harmful effects. Furthermore, stress and hypertension are the leading causes to health problems, whereas tinnitus can lead to forgetfulness, severe depression and at times panic attacks.

Chronic exposure to noise may cause noise-induced hearing loss. Older males exposed to significant occupational noise demonstrate significantly reduced hearing sensitivity than their non-exposed peers, though differences in hearing sensitivity decrease with time and the two groups are indistinguishable by age 79. A comparison of Maaban tribesmen, who were insignificantly exposed to transportation or industrial noise, to a typical U.S. population showed that chronic exposure to moderately high levels of environmental noise contributes to hearing loss.

High noise levels can contribute to cardiovascular effects and exposure to moderately high levels during a single eight hour period causes a statistical rise in blood pressure of five to ten points and an increase in stress[3] and vasoconstriction leading to the increased blood pressure noted above as well as to increased incidence of coronary artery disease.

Noise pollution is also a cause of annoyance. A 2005 study by Spanish researchers found that in urban areas households are willing to pay approximately four Euros per decibel per year for noise reduction.

Environmental effects

Noise can have a detrimental effect on animals by causing stress, increasing risk of death by changing the delicate balance in predator/prey detection and avoidance, and by interfering with their use of sounds in communication especially in relation to reproduction and in navigation. Acoustic overexposure can lead to temporary or permanent loss of hearing.

An impact of noise on animal life is the reduction of usable habitat that noisy areas may cause, which in the case of endangered species may be part of the path to extinction. Noise pollution has caused the death of certain species of whales that beached themselves after being exposed to the loud sound of military sonar.

Technology to mitigate or remove noise can be applied as follows:

There are a variety of strategies for mitigating roadway noise including: use of noise barriers, limitation of vehicle speeds, alteration of roadway surface texture, limitation of heavy vehicles, use of traffic controls that smooth vehicle flow to reduce braking and acceleration, and tire design. An important factor in applying these strategies is a computer model for roadway noise, that is capable of addressing local topography, meteorology, traffic operations and hypothetical mitigation. Costs of building-in mitigation can be modest, provided these solutions are sought in the planning stage of a roadway project.

Governments up until the 1970s viewed noise as a "nuisance" rather than an environmental problem. In the United States there are federal standards for highway and aircraft noise; states and local governments typically have very specific statutes on building codes, urban planning and roadway development. In Canada and the EU there are few national, provincial, or state laws that protect against noise.

Noise laws and ordinances vary widely among municipalities and indeed do not even exist in some cities. An ordinance may contain a general prohibition against making noise that is a nuisance, or it may set out specific

guidelines for the level of noise allowable at certain times of the day and for certain activities.

Dr. Paul Herman wrote the first comprehensive noise codes in 1975 for Portland, Oregon with funding from the EPA (Environmental Protection Agency) and HUD (Housing and Urban Development). The Portland Noise Code became the basis for most other ordinances for major U.S. and Canadian metropolitan regions.

Most city ordinances prohibit sound above a threshold intensity from trespassing over property line at night, typically between 10 p.m. and 6 a.m., and during the day restricts it to a higher sound level; however, enforcement is uneven. Many municipalities do not follow up on complaints. Even where a municipality has an enforcement office, it may only be willing to issue warnings, since taking offenders to court is expensive.

The notable exception to this rule is the City of Portland Oregon which has instituted an aggressive protection for its citizens with fines reaching as high at $5000 per infraction, with the ability to cite a responsible noise violator multiple times in a single day.

Many conflicts over noise pollution are handled by negotiation between the emitter and the receiver. Escalation procedures vary by country, and may include action in conjunction with local authorities, in particular the police. Noise pollution often persists because only five to ten percent of people affected by noise will lodge a formal complaint. Many people are not aware of their legal right to quiet and do not know how to register a complaint.