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Medical English Textbook
(building up vocabulary competence)

Learning materials for medical students

LEARNER'S GUIDE

for the discipline
“ENGLISH FOR PROFESSIONAL PURPOSES”
for International English-Speaking Students
of Medical Specialties
at Higher Educational Establishments

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Навчальний посібник з дисципліни «Англійська мова за професійним спрямуванням» розрахований на професійне вивчення медичної англійської мови іноземними студентами. Мета посібника – подати головні медичні теми з англійської мови на лексико-граматичному рівнях та формувати практичні навички їх використання у різних видах професійної мовленнєвої діяльності.

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Foreword

The purpose of the discipline “English language (for professional purposes)” follows from the goals of the educational and professional program of training graduates of a higher medical school and is determined by the content of knowledge and skills that a specialist should acquire. The knowledge that the students receive from the discipline is basic for a block of disciplines providing theoretical-scientific and vocational-practical training.

Studying the subject “English language (for professional purposes)” forms the students a holistic view of the lexico-grammar and communicative features of a foreign language, which is studied in the projection of a specific specialization of students and scientific and technical and cultural cooperation with other countries, as well as everyday and business contacts, communication in oral and written forms.

As a result of studying the discipline “English language (for professional purposes),” the student must know:

- a) the basic modern foreign language professional vocabulary and vocabulary of disciplines of the medical cycle;
- b) the basic grammatical and lexical peculiarities of the translation;
- c) the basic rules of working with foreign scientific literature;
- d) the main grammatical phenomena, their use and conformity with grammatical phenomena of the native language;

As a result of studying the discipline “English language (for professional purposes),” the student must be able to:

- a) differentiate and analyze terms and terms of Greek-Latin origin;
- b) identify and interpret grammatical structures in their interrelation with the semantic features of the text;
- c) use general and scientific vocabulary when performing cognitive tasks;
- d) apply the knowledge gained in classes on anatomy and Latin in the process of studying English medical terminology;
- e) conduct oral communication (in monologic and dialogical forms) on situationally-determined subjects;
- f) include learned lexical-grammar material in active communication.

This «Medical English textbook» includes all texts and active vocabulary which will be used during practical classes and help students to enrich their vocabulary on medical themes.

List of abbreviations

n. – noun

s. n. – singular noun

pl. n. – plural noun

v. – verb

adj. - adjective

phr. v. – phrasal verb

Recommended literature

Main literature:

1. Avrakhova L. Y. English for Medical Students / L. Y. Avrakhova. – Kyiv: BCB «Medicine», 2017. – 448 p. – (5).
2. Eric H. Glendinning, Professional English in Use. Medicine – 4-th – Cambridge University Press – 167 p.
3. McCarter S. Oxford English for Careers: Medicine 2. Student's Book / Sam McCarter. – Oxford University Press, 2010. – 144 p.
4. McCarter S. Oxford English for Careers: Medicine 2. Teacher's Resource Book / Sam McCarter. – Oxford University Press, 2010. – 101 p.
5. Vainagii T. English for Medical Purposes: structure and main systems of the human body (Learning materials and active vocabulary) / Tetiana Vainagii. – Uzhhorod : "Lira", 2020. – 154 p.
6. Штолцел Ю. Англійська мова за професійним спрямуванням: навчально-методичні матеріали для студентів II курсу / Уклад.: Ю.Ю.Штолцел, А.К. Даньків. – Ужгород : ДВНЗ «УжНУ», 2022. – 70 с.

Internet resources:

1. Cancer. What is Cancer? [Електронний ресурс] – Режим доступу до ресурсу: <http://www.cancer.ca/en/cancer-information/cancer-101/what-is-cancer/types-of-tumours/?region=on#ixzz5E1YNhulc>
2. Cleveland Clinic. How does blood travel through your body [Електронний ресурс] – Режим доступу до ресурсу: <https://my.clevelandclinic.org/health/articles/17059-heart--blood-vessels-how-does-blood-travel-through-your-body>
3. Des Moines University Medicine and Health Sciences. Digestive system Diseases [Електронний ресурс] – Режим доступу до ресурсу: <https://www.dmu.edu/medterms/digestive-system/digestive-system-diseases/>
4. English for Excellent Communication. ESL Travel Reading [Електронний ресурс] – Режим доступу до ресурсу: <https://www.excellentesl4u.com/esl-travel-reading.html>
5. Google images [Електронний ресурс] – Режим доступу до ресурсу: https://www.google.com.ua/search?q=doctors+resume+examples&source=lnms&tbm=isch&sa=X&ved=0ahUKewicpPj43aPaAhXIhSwKHbiJBW AQ_AUICigB&biw=1440&bih=777#imgrc=E3w2zDL0CaQf4M
6. Health Grades. Urinary Disorders [Електронний ресурс] – Режим доступу до ресурсу: <https://www.healthgrades.com/right-care/kidneys-and-the-urinary-system/urinary-disorders>

7. Innerbody Research. Cardiovascular System [Электронный ресурс] – Режим доступа до ресурсу: <http://www.innerbody.com/image/cardov.html>

8. Johns Hopkins Medicine. Anatomy of the Urinary System [Электронный ресурс] – Режим доступа до ресурсу: <https://www.hopkinsmedicine.org/health/wellness-and-prevention/anatomy-of-the-urinary-system>

9. Mayo Clinic. Infectious Diseases [Электронный ресурс] – Режим доступа до ресурсу: <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

10. University of Rochester Medical Center. Health Encyclopedia. Overview of the Nervous System Disorders [Электронный ресурс] – Режим доступа до ресурсу: <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=85&contentid=p00799>

11. Web MD. Respiratory System [Электронный ресурс] – Режим доступа до ресурсу: <https://www.webmd.com/lung/how-we-breathe>

13. Web MD. The Endocrine System and Glands of the Human Body [Электронный ресурс] – Режим доступа до ресурсу: <https://www.webmd.com/diabetes/endocrine-system-facts>

14. World Health Organization. Cardiovascular Diseases [Электронный ресурс] – Режим доступа до ресурсу: http://www.who.int/cardiovascular_diseases/guidelines/Full%20text.pdf

15. Your Article Library. 7 Major Elements of Communication process [Электронный ресурс] – Режим доступа до ресурсу: <http://www.yourarticlelibrary.com/business-communication/7-major-elements-of-communication-process/25815>

Dictionaries

1. Cambridge Online Dictionary [Электронный ресурс] – Режим доступа до ресурсу: <https://dictionary.cambridge.org/>

2. Collins English Dictionary [Электронный ресурс] – Режим доступа до ресурсу: <https://www.collinsdictionary.com/dictionary/english>

3. Macmillan Dictionary [Электронный ресурс] – Режим доступа до ресурсу: <https://www.macmillandictionary.com/>

4. Merriam-Webster Medical Dictionary [Электронный ресурс] – Режим доступа до ресурсу: <https://www.merriam-webster.com/medical>

5. The Free Medical Dictionary by Farlex [Электронный ресурс] – Режим доступа до ресурсу: <https://medical-dictionary.thefreedictionary.com/>

Chapter 1. History of Medicine

1.1 Ancient Medicine

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	curative (adj.)	/'kʃʊə.rə.tɪv/	able to cure or cause to get better
2.	trephine (n.), trephining	/trɪ'fɪɪn/	a surgical instrument for cutting out circular sections (as of bone or corneal tissue)
3.	caesarian section	/sɪ'zeə.ri.ən/	a surgical procedure involving incision of the walls of the abdomen and uterus for delivery of offspring
4.	acupuncture (n.)	/'æk.jə.pʌŋk.tʃər/	a treatment for pain or illness in which thin needles are positioned just under the surface of the skin at special points around the body.

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

Medical care is one of the oldest professions in the history of mankind. In ancient times people believed that diseases were caused by evil spirits or due to the anger of the gods. So the earliest «cures» were prayers and the use of magic. In ancient civilizations, medical advice came not only from healers but from the folk wisdom of many generations. Folk medicine prescribed a dirty sock around the neck if you wanted to cure a common cold or a pair of shoes placed upside down under the bed to relieve leg cramps. Tobacco juice was supposed to heal an earache and black pepper to cure asthma. Folklore was also full of warnings. Amulets were trusted medical devices. However, it is surprising that many medical ideas, techniques and medications which are still used today originated in civilizations hundreds and thousands of years old. Some medical discoveries of **curative** value were made by prehis-

toric and ancient people. As far back as 10,000 years ago, prehistoric healers performed **trephining**, in which a hole was cut in the patient's skull to relieve pressure on the brain. Fragments of pre-Christian Egyptian writing describe a routine scheme from the patient's symptoms to physical examination and then to suggested therapy and prognosis. The Babylonian Code of Hammurabi, dated 2040 B.C., contains statements about the proper conduct of physicians and prescribes punishments for malpractice. In India, early medical people discovered the relationship between malaria and mosquitoes, discovery of more than 700 medicinal plants and the invention of more than 100 surgical instruments was done in ancient times.

In the fifth century A.D., great Indian physician Susruta was treating fractures, removing tumors, and delivering babies by **Caesarian section**.

In China, **acupuncture** has been a part of Chinese medicine since ancient times. Originally it was used to treat diseases; nowadays acupuncture's effectiveness in controlling chronic pain has become more widely used. Scientists believe that the needles may stimulate the brain to produce morphine-like painkillers called endorphins and enkephalins.

Hippocrates, the ancient physician commonly considered the father of medicine, was born in Greece in 460 B.C. He supposed that disease had only natural causes. Though its authorship is unknown, the famous Hippocratic Oath is named for him. His medical observations became well-known in the Western world and physicians are still required to take the Hippocratic Oath. They promise to maintain the utmost respect for human life and to respect the confidentiality of the doctor-patient relationship. Hippocrates was the first to separate the art and science of medicine from the practice of religion. In the second century A.D., Greek physician Galen insisted that the study of anatomy is a basis for medical facts.

1.2 Florence Nightingale

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	trailblazing (adj.)	/ˈtreɪlˌbleɪ.zɪŋ/	being the first to do or use something, in a way that is an example for other people
2.	revere (v.)	/rɪˈvɪər/	to greatly respect and admire someone or something
3.	menial (adj.)	/ˈmiː.ni.əl/	(of work) needing little skill or education
4.	brooch (n.)	/brəʊtʃ/	a small piece of jewellery with a pin at the back that is fastened to a woman's clothes:
5.	frown on/upon something (phr. v.)	/fraʊn/	to disapprove of something
6.	statistician (n.)	/ˌstæt.ɪˈstɪʃ.ən/	a person who studies or works with statistics

***Read the text. Guess the meaning of the highlighted words and phrases.**

Florence Nightingale was a **trailblazing** figure in nursing who greatly affected 19th- and 20th-century policies around proper care. She was known for her night rounds to aid the wounded, establishing her image as the ‘Lady with the Lamp.’

Who Was Florence Nightingale?

Florence Nightingale was born in Florence, Italy, on May 12, 1820. Part of a wealthy family, Nightingale defied the expectations of the time and pursued what she saw as her God-given calling of nursing. During the Crimean War, she and a team of nurses improved the unsanitary conditions at a British base hospital, greatly reducing the death count. Her writings sparked worldwide health care reform, and in 1860 she established St. Thomas' Hospital and the Nightingale Training School for Nurses. A **revered** hero of her time, she died on August 13, 1910, in London.

Background and Early Life

Florence Nightingale was born on May 12, 1820, in Florence, Italy, the city which inspired her name. The younger of two daughters, Nightingale was part of an affluent British clan that belonged to elite social circles. Her mother, Frances Nightingale, hailed from a family of merchants and took pride in socializing with people of prominent standing. Despite her mother's interests, Florence herself was reportedly awkward in social situations and preferred to avoid being the center of attention whenever possible. Strong-willed, she often butted heads with her mother, whom she viewed as overly controlling.

Florence's father was William Edward Nightingale (having changed his original surname, «Shore»), a wealthy landowner who would be associated with two estates—one at Lea Hurst, Derbyshire, and the other at Embly, Hampshire. Florence was provided with a classical education, including studies in mathematics along with German, French and Italian.

From a young age, Nightingale was active in philanthropy, ministering to the ill and poor people in the village neighboring her family's estate. Nightingale eventually came to the conclusion that nursing was her calling; she believed the vocation to be her divine purpose.

When Nightingale approached her parents and told them about her ambitions to become a nurse, they were not pleased and forbade her to pursue appropriate training. During the Victorian Era, where English women had almost no property rights, a young lady of Nightingale's social stature was expected to marry a man of means to ensure her class standing—not take up a job that was viewed by the upper social classes as lowly **menial** labor.

Recognition and Appreciation

Nightingale remained at Scutari for a year and a half. She left in the summer of 1856, once the Crimean conflict was resolved, and returned to her childhood home at Lea Hurst. To her surprise, she was met with a hero's welcome, which the humble nurse did her best to avoid. The previous year, Queen Victoria had rewarded Nightingale's work by presenting her with an engraved **brooch** that came to be known as the “Nightingale Jewel” and by granting her a prize of \$250,000 from the British government.

Nightingale decided to use the money to further her cause. In 1860, she funded the establishment of St. Thomas' Hospital, and within it, the Nightingale Training School for Nurses. Nightingale became a figure of public admiration. Poems, songs and plays were written and dedicated in the heroine's honor. Young women aspired to be like her. Eager to follow her example, even women from the wealthy upper classes started enrolling at the training school. Thanks to Nightingale, nursing was no longer **frowned upon** by the upper classes; it had come to be viewed as an honorable vocation.

Based on her observations during the Crimea War, Nightingale wrote *Notes on Matters Affecting the Health, Efficiency and Hospital Administration of the British Army*, a massive report published in 1858 analyzing her experience and proposing reforms for other military hospitals. Her research would spark a total restructuring of the War Office's administrative department, including the establishment of a Royal Commission for the Health of the Army in 1857. Nightingale was also noted for her **statistician** skills, creating coxcomb pie charts on patient mortality in Scutari that would influence the direction of medical epidemiology.

Death and Legacy

In August 1910, Florence Nightingale fell ill but seemed to recover and was reportedly in good spirits. A week later, on the evening of Friday, August 12, 1910, she developed an array of troubling symptoms. She died unexpectedly at around 2 p.m. the following day, Saturday, August 13, at her home in London.

Characteristically, she had expressed the desire that her funeral was a quiet and modest affair, despite the public's desire to honor Nightingale—who tirelessly devoted her life to preventing disease and ensuring safe and compassionate treatment for the poor and the suffering. Respecting her last wishes, her relatives turned down a national funeral. The «Lady with the Lamp» was laid to rest in her family's plot at St. Margaret's Church, East Wellow, in Hampshire, England.

Chapter 2. Medicine in Ukraine

2.1 Medical Education in Ukraine

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	admission (to) (n.)	/əd'mɪʃ.ən/	permission to enter a place
2.	admit (to) (v.)	/əd'mɪt/	to allow someone to enter a place
3.	ward (n.)	/wɔ:d/	a large room in a hospital where a number of patients often requiring similar treatment are accommodated

***Read the text. Guess the meaning of the highlighted words.**

Citizens of Ukraine have equal, merit-based access to higher education institutions. School graduates who have completed general secondary education may enter higher educational institutions to receive undergraduate training. All Ukrainians are guaranteed competitive merit-based access to free (budget-financed) education in state-owned institutions. A definite number of students may be admitted beyond the number of available state-funded places and in this case, tuition fees are applied. The Diploma usually serves as both an educational certificate and a professional license confirming the joint acquisition of educational and professional training.

To enter a higher medical education establishment one should pass external **admission** testing and only those who achieve good results are **admitted**. External admission testing which has been recently introduced in Ukraine presents some benefits for applicants. They may not only demonstrate high efficiency in some subjects but also present results of admission tests to a couple of universities, which gives applicants a possibility to make a better choice. As future medical students, they should have high academic achievements in such subjects as biology, physics, and the Ukrainian language. During the first two years at a medical university, students learn

Anatomy, Histology, Physics, Chemistry, Pathology, Microbiology, Foreign Languages and some social subjects. An academic year consists of two terms, and according to the module system of training each subject consists of some modules —each subject has a different number of modules. Due to this system of training at the end of each module students take credit tests and in some subjects — exams. Besides, at the end of the third and the sixth-course medical students pass the State Licensing Integrated Examinations. Passing the -Step I examination, students should demonstrate profound knowledge in the following subjects: medical biology, anatomy (normal and pathological), histology, physiology (normal and pathological), biochemistry, microbiology and pharmacology. Clinical subjects are taught starting from the fourth year. With the knowledge acquired senior students begin to develop their professional skills in different hospital **wards** where they are taught to take anamnesis and make physical examinations on their own. After the fourth year, students must undertake a practical course during which they work as doctor's assistants and have a possibility to learn the importance of a good doctor-patient relationship. Passing the “Step 2” examination students demonstrate their professional knowledge in such clinical subjects as therapy, surgery, gynecology and obstetrics, infectious diseases, ENT diseases, ophthalmology, etc. The period of training at most Ukrainian higher medical schools is 5 years to become a Pharmacist or a dentist and 6 years to become a specialist in a great variety of medical specialties.

After graduating from a higher medical school, undergraduates get diplomas and are supposed to work as interns for a year or more depending on the chosen medical career. From that time they are no more medical students but life-time students of medicine.

2.2 Medical Profession

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	ascribed something to someone (phr. v.)	/ə'skraɪb/	to believe or claim that something was said, written, or created by a particular person
2.	layman (n.)	/'leɪ.mən/	a person who is not trained in or does not have a detailed knowledge of a particular subject
3.	pertain to something (phr. v.)	/pɜː'teɪn/	to relate to or have a connection with something
4.	terminally ill	/'tɜː.mi.nəl.i/	if someone is terminally ill, they have a serious illness and will die soon

***Read the text. Guess the meaning of the highlighted words and phrases.**

The term «ethics» is derived from the Greek ethos, which means «character» in a broad sense. Ethics in medical practice is the science of what can acceptably be done. Codes of behavior are considered essential to any profession, and throughout history have been designed to increase respect and prestige. This was certainly the case in the period of the Golden Age of Greece, during which the oath **ascribed to** Hippocrates was written. According to the Hippocratic ethical heritage, the medical profession was struggling to maintain a profile of respectability, confidentiality and responsibility. Hippocratic medicine was completely individualized and expressed the absolute, without exceptions, maintenance of confidentiality by the physician.

Not all medicine, however, was practiced in this way. In Italy, trained **laymen** continued to practice medicine from classical times. Salerno had long been a health resort, and by the 9th century was a flourishing medical center. By the 11th century, the Salerno School of Medicine had developed into one of the earliest and most important foundations of scientific and technical knowledge of the Middle Ages in Europe.

There, 3 years of study in the liberal arts were followed by 4 years of medical study before a student could qualify as a physician. If the student intended to practice surgery, an additional 1 year of anatomy was compulsory. One of the most widely used Salernitan rules for health remains applicable today: “Use three physicians still — first Dr. Quiet next Dr. Merryman and third Dr. Diet.”

A vivid picture of the 11th-century doctor can be gained from reading the Instructions for the Physician Himself from Salerno: “If not able to make a positive diagnosis after examining the patient pulse and urine, he will at least excite astonishment for the accurate knowledge of the symptoms of the disease, and so win the confidence. The finger should also be kept on the pulse, until at least the hundredth beat, to judge its character”.

The Instructions advised that the physician should have well-shaped nails and that his hands should be «cleansed from all blackness and filth». The doctor was further advised to learn proverbs **pertaining to** his craft for comforting patients, for if a doctor could tell good tales which made his patient laugh, he would: “... induce a hope to the sick man”. These insights speak of the importance of medical history and of having a “good manner”.

Until the last 2 decades of the 20th century, the Hippocratic Oath was the reference point for all international medical declarations concerning medical ethics: the Declaration of Geneva (1949), the Nuremberg Charter (1967) and the Declaration of Helsinki (1975). It was, and it still is, a monumental code of ethics and an ethical guide for the practice of medicine, a 1-page text about which hundreds of thousands of pages have been written down the ages and throughout the world. In the Western world, the medical profession is identified with the Hippocratic Oath. Nevertheless, in recent years the profound changes in social patterns, revised health policies and modern medical technology have given rise to many questions and some criticism of certain points of the Hippocratic Oath.

Today, a practicing physician confronts many ethical and moral dilemmas concerning professional confidentiality, treatment of **terminally ill** patients, etc.

2.3 Health Care System in Ukraine

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	referral to (v.)	/rɪ'fɜ:.rəl/	the act of directing someone to a different place or person for information, help, or action, often to a person or group with more knowledge or power / arrange for a patient to see a particular specialist
2.	outpatient (n.)	/'aʊt.peɪ.ʃənt/	a patient who is not hospitalized overnight but who visits a hospital, clinic, or associated facility for diagnosis or treatment
3.	tertiary (adj.)	/'tɜ:.ʃər.i/	relating to a third level or stage
4.	dispensary (n.)	/dɪ'spen.sər.i/	a place where medicine or medical or dental treatment is dispensed
5.	feldsher (n.)	/'fel.ʃər/	a medical or surgical practitioner without full professional qualifications or status in some east European countries and especially Russia
6.	phthisiatrician (n.)	/'tɪziə'trɪʃ.ən/	a specialist in phthisiology, the care, treatment, and study of tuberculosis of the lungs
7.	blood transfusion	/træns'fju:.ʒən/	the process of transfusing fluid (blood) into a vein or artery
8.	personnel (n.)	/.pɜ:.sən'el/	the people who are employed in a company, organization, or one of the armed forces
9.	inpatient (n.)	/'ɪn.peɪ.ʃənt/	a hospital patient who receives lodging and food as well as treatment

***Read the text. Look at the highlighted words and phrases in the text and guess their meaning.**

Ensuring health care for the population is one of the key functions of the state set out in the 1996 Ukrainian Constitution, with Article 49 stating that «the state creates conditions for effective medical services accessible to all citizens».

Core components of the health care system in Ukraine include the Ministry of Public Health of Ukraine, responsible for setting national health policies, and certain specialized health care institutions directly managed and funded by it. The Ministry of Public Health is responsible for establishing the framework for the mandatory accreditation of public and private health facilities as well as licensing of health professionals and pharmaceutical manufacturers and distributors. Today, the healthcare system is a complex multilayered system where responsibilities in the healthcare sector are distributed among the central government, 27 regional administrations, and numerous municipal and district, township and village levels. Primary health care facilities in Ukraine comprise more than 6500 facilities providing ambulatory patient care. The organization of primary care delivery is based on the territorial-district principle. There is no strict distinction between primary and secondary care in Ukraine by may seek care from a specialist directly without formal **referral** by their district physician and this opportunity is widely used.

The organization of secondary **outpatient** care is based on the territorial principle, with each polyclinic being assigned a defined area. Area residents are entitled to full diagnostics, examination and appropriate treatment and may be referred to the **tertiary** level when necessary.

Tertiary care is provided mainly in regional hospitals and **dispensaries**. Larger multi-specialty hospitals are usually located in larger cities and may offer a fuller range of services. Treatment may be provided by physicians from both is provided by mobile teams outpatient and **inpatient** of health facilities.

Accident and emergency care is provided by mobile teams of physicians or **feldshers**. At present, ambulance stations face a number of problems due to insufficiently or poorly maintained vehicles, and insufficient funds to provide teams with necessary medicine and equipment for emergency care.

The Ministry of Public Health developed a strategy for a gradual transition to basing primary health care on family medicine. Converting

all existing primary health care units according to the family medicine principle and setting up a network of general/family practices as proposed by the government program «Health of the Nation» will require substantial efforts.

Ukraine has one of the fastest-growing HIV/AIDS epidemics in the world. About 1.63 percent of Ukrainian adults, or about 756,300 citizens, were estimated to be living with HIV/AIDS in 2007 but the statistics only reflected official cases. Another great challenge for the country is the continuing increase in tuberculosis rates. Every day in Ukraine specialists in tuberculosis (phthisiatricians) register about 100 new cases. One more serious problem is diabetes — about 1 million people in Ukraine suffer from this disease. Ukraine is considered to be in a demographic crisis due to its high death rate and low birth rate. A factor contributing to the relatively high death is a high mortality rate among working-age males from preventable causes such as alcohol poisoning and smoking. The leading causes of death are cardiovascular and respiratory diseases, cancer, traumas, and accidents.

The majority of health care services are provided by publicly owned health facilities. Ukraine has more than 24,000 such institutions, including the national Sanitary and Epidemiological Service, spas and health resorts, health centers, orphanages, **blood transfusion** stations, centers for medical statistics, institutions for the training of health **personnel** and postgraduate training of physicians, research institutes, the institutions for professional training of middle-level health staff. The network of private health facilities is being developed as well.

In general, the system of health care delivery in Ukraine faces contradictions. It maintains financial and economic mechanisms to stimulate the further expansion of the health facilities network and an increase in capacity, while at the same time experiencing a sharp reduction in budgetary financing. The state in theory provides free healthcare for its citizens and long-term residents with residents who become ill, however, this is a serious problem for many parts of the country. Doctors' wages are extremely low and often ask for a fee. This makes healthcare difficult as many citizens are on a low income, thus aggravating the problem of health care and accessibility and affordability.

Chapter 3. Talking about medical treatment

3.1 Taking a History

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	palpitation (n.)	/ˌpæl.pɪˈteɪ.ʃən/	an abnormally rapid or irregular beating of the heart (such as that caused by panic, arrhythmia, or strenuous physical exercise)
2.	fatigue (n.)	/fəˈtiːɡ/	extreme tiredness
3.	anorexia (n.)	/æn.əˌrek.si.ə/	loss of appetite especially when prolonged
4.	sputum (n.)	/ˈspjuː.təm/	matter expectorated from the respiratory system and especially the lungs that is composed of mucus but may contain pus, blood, fibrin, or microorganisms (such as bacteria) in diseased states
5.	wheeze (v.)	/wiːz/	to breathe with difficulty usually with a whistling sound
6.	haemoptysis (n.)	/hiːˈmɒptɪsɪs/	expectoration of blood from some part of the respiratory tract
7.	heartburn (n.)	/ˈhɑːt.bɜːn/	a burning discomfort behind the lower part of the sternum due especially to spasmodic reflux of acid from the stomach into the esophagus
8.	incontinence (n.)	/ɪnˈkɒn.tɪ.nəns/	inability to control the excretion of urine or the contents of the bowels
9.	predisposition (to) (n.)	/ˌpriː.dɪs.pəˈzɪʃ.ən/	the state of being likely to behave in a particular way or to suffer from a particular disease

***Read the text. Look at the highlighted words. With a partner, guess their meaning.**

Taking a patient's history is the initial part of clinical examination and its main aim is to find out the patient's present problem and how it affects the quality of their life.

The history is a review of the patient's current state of health and past medical condition. When taken carefully, it may give valuable information about the nature of the patient's problem and provide the necessary clues to help the doctor establish a preliminary or differential diagnosis.

The history-taking process is a well-established and commonly used sequence.

1. History of presenting complaint (HPC). The main symptoms should be clearly defined as soon as possible, to find out the cause of admission or seeking medical advice. The onset, severity, progression, and associated features or symptoms are all important. A special focus is also made on pains associated or not with specific organs.

2. History of present illness (HPI). The patient is requested to give an account of recent events in their own words which in this way may be recorded in the history sheet.

3. Systemic enquiry (SE) also known as the review of systems (RoS). The history is taken of the main symptoms of the major bodily systems: General: mood, **fatigue**, **anorexia**, fever, night sweats, rashes, heat/ cold intolerance. Cardiovascular system (CVS): chest pain, **palpitations**. Respiratory system (RS): shortness of breath, cough, **sputum**, **wheeze**, **haemoptysis**. Gastrointestinal system (GS): nausea, vomiting, indigestion, abdominal pain, **heartburn**, change in bowel habit. Genitourinary system (GUS): nocturia, frequency, **incontinence**, change in color/smell of urine, menstrual difficulties. Central nervous system (CNS): headaches, weakness, dizziness, fits, faints, vertigo.

4. Past medical history (PMH). Patients are asked about their previous medical/surgical diseases.

5. Drug history (DH) and allergies (ALL). Information is obtained on any medication prescribed or self-administered drugs.

6. Family history (FH) provides information about any **predisposition** to disease and relevant information on relatives.

7. Social history (SH). Information is collected about the patient's occupational, social, and personal factors, such as habits, employment, housing, interests, sports, hobbies, physical exercise, and the use of alcohol, tobacco, and recreational drugs.

To accomplish the purpose, a set of the following practical tips has been developed.

- Show the patient your attention.
- Start by eliciting the presenting complaint.
- Let the patient tell the story in their own words.
- Try not to interrupt.
- Use the language which the patient understands.
- Summarize the story for the patient to check, correct and add more relevant details.
- Obtain the patient's history also from other sources of information.

Having completed history taking, the doctor will perform the next stage of clinical examination, which is a physical examination. The diagnostic process will proceed, but the first clues have already been obtained to formulate a preliminary diagnosis, which will help the doctor to develop their own approach to the patient's problem during physical examination.

3.2 Anaesthesia

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	analgesia (n.)	/,æ̃n(ə)l'dʒi:ziə/	insensibility to pain without loss of consciousness
2.	plexus (n.)	/'plek.səs/	an area where a network of nerves, blood, or lymph vessels comes together
3.	indwelling (adj.)	/'m.dwel.ɪŋ/	relating to a device that is left inside the body, for example a catheter
4.	intermittent (adj.)	/,ɪ̃n.tə'mɪt.ənt/	not happening regularly or continuously; stopping and starting repeatedly or with long periods in between
5.	subarachnoid (adj.)	/,sʌb.ə'ræk.nɔɪd/	used to refer to the layer of tissue under the arachnoid membrane that covers the brain and spinal cord
6.	dermatome (n.)	/'dɜ:m.ə.teʊm/	an area of the skin supplied by a single spinal nerve

7.	epidural (adj.)	/,ep.i'dʒʊə.rəl/	situated upon or administered or placed outside the dura mater
8.	haemorrhoids (pl. n.)	/'hem.ə,rɔɪdz/	an abnormal mass of dilated and engorged blood vessels in swollen tissue that occurs internally in the anal canal or externally around the anus, that may be marked by bleeding, pain, or itching, and that when occurring internally often protrude through the outer sphincter of the anus
9.	catheterization (n.)	/'kæθ.ə.tə.raɪ'zeɪ.ʃən/	the process of putting a tube into the body to allow fluids to pass or to make a passage wider
10.	numb (adj.)	/nʌm/	unable to feel anything in a particular part of your body especially as a result of cold or anaesthesia
11.	cystoscopy (n.)	/'sɪstə,skəʊpi/	examination of the urinary bladder or tract with the aid of a cystoscope
12.	mishap (n.)	/'mɪs.hæp/	bad luck, or an unlucky event or accident
13.	adverse (adj.)	/'ædvɜ:s/	harmful or likely to cause problems
14.	convulsion (n.)	/kən'vʌl.ʃən/	an abnormal violent and involuntary contraction or series of contractions of the muscles; caused by illness or drugs

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

Anaesthesia is the loss of feeling or sensation. It may be accomplished without the loss of consciousness, or with partial or total loss of consciousness.

Anaesthesiology is a branch of medical science that relates to anaesthesia and anaesthetics. The anaesthetist is a specialized physician in charge of supervising and administering anaesthesia in the course of surgical operation. Depending on the type of operation and procedures used, there are two types of anaesthesia: general

anaesthesia which causes a loss of consciousness, and local anaesthesia, where anaesthetic «freezes» the nerves in the area covered by the operation. In local anaesthesia, the patient may be conscious during the operation or given a sedative, a drug that induces sleep.

General: anaesthesia resulting in amnesia, with a loss of protective airway reflexes. While usually administered with inhalational agents, general anaesthesia can be achieved with intravenous agents, such as propofol. Amnesia is the main characteristic, while **analgesia** and muscle relaxation may be present, to varying degrees.

Regional: loss of pain sensation, with varying degrees of muscle relaxation, in certain regions of the body. It is administered with local anaesthesia to peripheral nerve bundles, such as the brachial **plexus** in the neck. Examples include the interscalene block for shoulder surgery, axillary block for wrist surgery, and femoral nerve block for leg surgery. While traditionally administered as a single injection, newer techniques involve the placement of **indwelling** catheters for continuous or **intermittent** administration of local anaesthetics.

Spinal: also known as **subarachnoid** block. It refers to a regional block resulting from a small volume of local anaesthetics being injected into the spinal canal. The spinal canal is covered by the dura mater, through which the spinal needle enters. The spinal canal contains cerebrospinal fluid and the spinal cord. The subarachnoid block is usually injected between the 4th and 5th lumbar vertebrae, because the spinal cord usually stops at the 1st lumbar vertebra, while the canal continues to the sacral vertebrae. It results in a loss of pain sensation and muscle strength, usually up to the level of the chest (nipple line or 4. thoracic dermatome).

Epidural: it is a regional block resulting from an injection of a large volume of local anaesthetic into the **epidural** space. The epidural space is a potential space that lies underneath the ligamenta flava, and outside the dura mater. This is basically an injection around the spinal canal.

Local anaesthesia is similar to regional anaesthesia, but exerts its effect on a smaller area of the body.

Not all surgical procedures require anaesthetic. Sometimes no anaesthetic is required, and conscious sedation is used, which does not result in loss of consciousness or significant analgesia, but frequently

produces a degree of amnesia, and relaxes the patient. Local anesthetics block pain in regions of the body without affecting other functions of the body or overall consciousness. They are used for medical examinations, diagnoses, minor surgical and dental procedures, and for relieving symptoms of minor distress, such as itching, toothaches, and **haemorrhoids**. They can be taken as creams, ointments, sprays, gels, or liquid; or they can be given by injection and in eye drops.

Some local anesthetics are benzocaine, bupivacaine, cocaine, lidocaine, procaine, and tetracaine. Some act rapidly and have a short duration of effect, while others may have a slow action and a long duration. Sprays can be used on the throat and related areas for a bronchoscopy, and gels can be used for the urethra to **numb** the area for **catheterization** or **cystoscopy**.

Spinal anaesthesia is used for surgery of the abdomen, lower back and legs. Spinal or epidural anaesthesia is also used for surgery on the prostate gland and hip. A fine needle is inserted between two vertebrae in the lumbar (lower part) of the spine and the anaesthetic flows into the fluid surrounding the spinal cord. The nerves absorb the anaesthetic as they emerge from the spinal fluid. The area anaesthetized is controlled by the location of the injection and the amount of absorption of the anaesthetic by the spinal fluid.

There are a number of possible complications that can occur under general anaesthesia. They include loss of blood pressure, irregular heartbeat, heart attack, vomiting and then inhaling the vomit into the lungs, coma, and death. Although **mishaps** do occur, the chance of a serious complication is extremely low. Avoidance of complications depends on recognition of the condition of the patient before the operation, the choice of the appropriate anaesthetic procedure, and the nature of the surgery itself. It is possible to have **adverse** reactions to local anaesthetics, such as dizziness, hypotension (low blood pressure), **convulsions**, and even death. These effects are rare but can occur if the dose is too high or if the drug has been absorbed too rapidly. A small percentage of patients (1-5 %) may develop headaches with spinal anaesthesia.

3.3 Surgery

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	amputation (n.)	/,æm.pjə'teɪ.ʃən/	the cutting off of a part of the body
2.	excision (n.)	/ek'sɪʒ.ən/	the act of removing tissue, organs, or tumours in an operation
3.	incision (n.)	/ɪn'sɪʒ.ən/	a wound or scar made by a surgical cut
4.	resection (n.)	/rɪ'sek.ʃən/	the surgical removal of part of an organ or structure
5.	congenital (adj.)	/kən'dʒen.i.təl/	a congenital disease or condition exists at or from birth
6.	hernia (n.)	/'hɜː.ni.ə/	a medical condition in which an organ pushes through the muscle which surrounds it
7.	abscess (n.)	/'æb.ses/	a painful swollen area on or in the body that contains pus
8.	cleft palate (n.)	/'kleft 'pæl.ət/	an opening in the top of the mouth caused when a baby does not develop normally before it is born
9.	morbid (adj.)	/'mɔː.bɪd/	relating to or caused by disease; or characteristic of disease
10.	asepsis (n.)	/'ə'sepsɪs/	the condition of being aseptic; preventing infection
11.	enema (n.) enemas/ enemata (pl.)	/'en.ə.mə/	the injection of liquid into the rectum and colon by way of the anus; a treatment for cleaning the bowels
12.	gauze (n.)	/gɔːz/	a very thin, light cloth, used to make clothing, to cover cuts and to separate solids from liquids
13.	forceps (pl. n.)	/'fɔː.seps/	a metal instrument with two handles used in medical operations for picking up, pulling, and holding things
14.	retractor	/'rɪ:'træk.tər/	a surgical instrument for holding open the edges of a wound

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

Surgery is one of the most important fields of health service. Traditionally, it has been described as a branch of medicine that treats diseases, injuries, deformities, malformations and other pathological conditions by methods which involve opening, manipulating and repairing a part of the body. Surgical diseases are those for the treatment of which different manual interventions such as **amputation, excision, incision, stretching, resection** and others are applied. The problems that can be corrected by bloody and bloodless operations may include **congenital** and acquired pathologies, such as appendicitis, tumours, **hernias**, fractures, **abscesses, cleft palates**, inborn defects and others.

The development of natural sciences and achievements in such fields of medicine as anatomy, **morbid** anatomy, physiology, pharmacology, microbiology and others contribute much to surgery perfection. But despite great progress and improvements, surgery is still dangerous. The decision to make an operation must be carefully thought out. First, a surgeon should approve the diagnosis by a comprehensive examination of a patient using all available laboratory and technical facilities. In every operation the variable human factor is present. Therefore, accurate diagnosis and the ability to estimate the risks of different types of operation in relation to the individual belong to the general principles of operative treatment. The doctor must also choose the proper time for surgical operation because a patient should be in as good physical and psychological state as possible in order to reduce the risk of post-operative complications. So, surgeons put themselves many questions before they make their decision to perform an operation. Among them, for example: "Is the patient fit for the operation? What sort of recovery will the patient make? Do the final results justify such a method of operation or treatment?"

The main controlling factors in surgery are anaesthesia and **asepsis**. Anaesthesia is used to avoid shock in a patient and to make him insensitive to pain. It is produced by anaesthetic drugs which are administered either locally to reduce feeling in the area of the operation or to put a patient to sleep. The anaesthetist gives a patient narcosis and keeps careful watch of the patient's vital signs (blood pressure, pulse, respiration rate and temperature).

Asepsis is a complex of measures used to prevent the introduction of microorganisms into the wound from without. It means that everything which comes into contact with the wound (instruments, dressings, suture materials, rubber gloves) must be absolutely germ-free, i.e. sterile. That is why, in all operations, the surgeon and his assistants wear sterile gowns, caps, masks and overshoes, and they protect their thoroughly cleansed, rinsed in the solution of ammonium chloride and sponged with alcohol hands with sterile rubber gloves. Also, nurses prepare surgical instruments by sterilizing them in specially constructed machines — sterilizers and autoclaves. The methods of sterilization include boiling, low (or high) pressure steam sterilization and cold sterilization by strong antiseptics (applied to edged instruments that would be blunted by boiling).

It is also necessary to prepare the patient for the operation. So he/she shouldn't eat or drink anything for twelve hours before the operation to avoid complications with anaesthesia. A patient is often given an **enema** before the operation to empty the colon from wastes. The area to be operated is thoroughly cleaned, shaved and painted with the solution of iodine. The patient is put on an operation table, covered with a sterilized cloth and administered narcosis. When the operation is coming to the end, the surgical instruments and dressing materials are counted. The doctor closes the wound with sutures and dresses it in sterile **gauze**. Afterward, the patient is under special care attention; his wound is frequently carefully bandaged. The surgeon prescribes the patient proper post-operative treatment. When the stiches are due for removal - this is usually done a week after the post-operative treatment. When the stiches are due for removal — operation — the patient is discharged.

The surgical nurse should prepare the necessary set of surgical instruments, prepare the apparatuses for blood transfusion, and check up on the presence and state of blood substituting solutions and preserved blood. Surgery requires a large variety of specialized equipment. In addition to the special operating table, there are high-intensity lights and the anesthesia machine. There are vacuum machines to suck out the excessive blood and other fluids from the part of the body which is being operated on. The main instrument table is covered with a large collection of scalpels, **forceps**, suture needles, **retractors**, and other instruments.

Chapter 4. Human body

4.1 Human Body

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	trachea (s. n.) tracheae or tracheas (pl. n.)	/trə'ki:.ə/	windpipe
2.	oesophagus (s. n.) oesophagi (pl. n.)	/ɪ'sɒf.ə.gəs/ /ɪ'sɒf.ə.gɑɪ/	the tube in the body that takes food from the mouth to the stomach
3.	thoracic (adj.)	/θə'ræs.ɪk/	in humans and animals, relating to chest
4.	intestines (pl. n.)	/ɪn'tes.tənz/	a long tube through which food travels while it is being digested after leaving the stomach (also “bowels”)

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

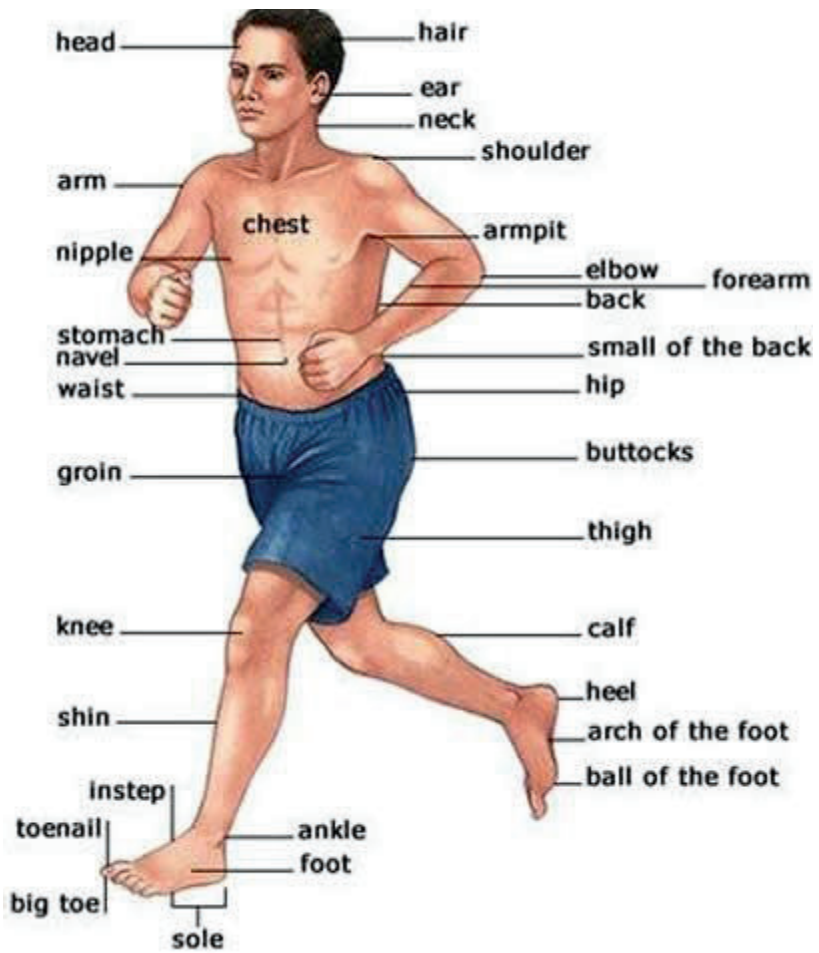
The head is connected with the trunk by the neck. The windpipe (**trachea**) and gullet (**esophagus**) pass through the neck. The bony framework of the head, enclosing the brain, is the skull. The front pan of the head is the face. Its upper part is composed of the forehead and the temples. The two sides of the lower face are called the cheeks. The two jaws (upper and lower) form the framework of the mouth. The lower jaw also gives shape to the chin. The oral cavity contains the tongue and the teeth, the necks of which are enveloped in the gums. The two margins of the mouth are the lips. The organs of the special senses in the face are the eyes and the nose. The eye is set in a bony socket called the orbit. The eyes are protected by the eyelashes and the eyebrows. The ear includes three principal parts: the external ear, the middle ear and the internal ear. The nose which we use for smelling, breathing and sneezing has

two openings called nostrils. The top and the back part of the head are covered with hair.

The trunk consists of the chest, the abdomen and the back. The upper cavity, the chest (thorax), contains the heart and lungs. In the lower cavity, the abdomen, there are the kidneys, the stomach, the liver, the gall bladder, the spleen, the urinary bladder and the intestine or bowel.

The lungs belong to the respiratory system. The lungs are the essential organs of breathing. They are two spongy organs, situated on either side of the **thoracic** cavity. In adults, they are usually blue in color, but in infants, they are quite pink. The kidneys and the bladder are parts of the urinary system. They excrete waste products. The heart, the arteries, the capillaries and the veins constitute the cardiovascular system. The mouth, the gullet, the stomach and the **intestines** form the alimentary canal. The juices of many glands further the process of the digestion of our food.

We have four limbs: two arms and two legs. The arms are the upper extremities and the legs form the lower extremities. The upper extremity is divided into the shoulder, the upper arm, the forearm and the hand. Between the upper arm and the forearm, there is an elbow. The joint between the forearm and the hand is called the wrist. Each hand has four fingers and one thumb. At the tips of the fingers, there are the fingernails. The parts of the lower extremity are the thigh, the lower leg and the foot. The back of the lower leg is called the calf. Between the thigh and the lower leg, there is the knee joint. The joints between the lower legs and the feet are the ankles. The foot consists of the heel, the sole and the toes. The body is covered with the skin.



4.2 Cavities, Systems and Organs

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	corpuscle (n.)	/ˈkɔː.pʌs.əl/	any of the red or white cells in the blood
2.	nucleus (n.) nuclei, nucleuses (pl. n.)	/ˈnjuː.kli.əs/	the part of a cell that controls its growth
3.	abdominopelvic cavity	/æbˈdɒm.i.nəˈpel. vɪkˈkæv.ə.ti/	relating to or being the abdominal and pelvic cavities of the body

***Read the text. Look at the highlighted words. With a partner, guess their meaning.**

Histology is the study of cells and tissues. It deals with the structure and work of the cells, **corpuscles** and other very small but vitally important structures. The cell is composed of protoplasm — a jelly-like substance that is neither a solid nor a liquid. It is usually colorless or slightly yellow. It is in the protoplasm that all the functions occur, and for this reason, it is called the physical basis of life. The protoplasm is made up of two parts: the cytoplasm which is surrounded by the cell wall and contains the **nucleus**. The nucleus usually contains one or more separate bodies called nucleoli. All the tissues and organs of the body are made up of cells. A tissue is defined as a group of similar cells that do similar work. In the body there are four main types of tissue: 1) epithelium, 2) connective tissue, 3) muscular tissue, 4) nervous tissue. Cells combine to form tissues, tissues to form organs, organs to form systems and systems to form the complete body. These are the successive steps in the hierarchy of bodily structure and functions. The organs and structures forming the various systems are found in the cavities of the body. There are three main cavities: the cranial cavity, the thoracic cavity and the **abdominopelvic cavity**. The cranial cavity is situated in the head and contains the brain. The thoracic cavity lies in the upper part of the trunk and contains the air passages, the lungs, the heart, and some of the large blood vessels leading to and from it, and the esophagus. The thorax is separated from the abdomen by a dome-shaped sheet of muscle known as the diaphragm.

The abdominal cavity lies in the lower part of the trunk directly under the diaphragm, which forms its roof. Its walls are made mainly of muscles. The organs found in the abdominal cavity form the alimentary or digestive system. The pelvic cavity is the lowest part of the abdominal cavity. It lies under the abdominal cavity and is continuous with it. The organs contained in the pelvis are the bladder, the female reproductive organs and the lower part of the intestine.

4.3 Tumours

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	cancerous (adj.)	/ˈkæ.n.sə.rəs/	involving cancer
2.	malignant (adj.)	/məˈlɪŋ.nənt/	a malignant disease or growth is cancer or is related to cancer, and is likely to be harmful
3.	benign (adj.)	/bɪˈnaɪn/	a benign growth is not cancer and is not likely to be harmful
4.	precancerous (adj.)	/ˌpriːˈkæ.n.sər.əs/	showing signs of developing into a cancer
5.	lump (n.)	/lʌmp/	a hard swelling found in or on the body, especially because of illness or injury, an abnormal swelling
6.	node (n.)	/nəʊd/	a very small mass of tissue in the body
7.	metastatic (adj.)	/ˌmet.əˈstæt.ɪk/	relating to metastasis (the spread of a disease, especially cancer, from the place where it started in the body)
8.	hyperplasia (n.)	/ˌhaɪ.pəˈpleɪ.ʒə/	an abnormal increase in the number of cells in a body tissue or organ
9.	metaplasia (n.)	/met.əˈpleɪ.ʒə/	abnormal replacement of cells of one type by cells of another
10	dysplasia (n.)	/dɪsˈpleɪ.zi.ə/	development of cells, tissues, or organs that is not normal
11.	carcinoma (n.)	/kɑː.sɪˈnəʊ.mə/	a cancerous growth that forms on or inside the body

***Read the text. Guess the meaning of the highlighted words and phrases.**

Types of tumours

Tumours are groups of abnormal cells that form lumps or growths. They can start in any one of the trillions of cells in our bodies. Tumours grow and behave differently, depending on whether they are **cancerous (malignant)**, non-cancerous (**benign**) or **precancerous**.

Cancerous tumours

Cancer can start in any part of the body. When cancer cells form a **lump** or growth, it is called a cancerous tumour. A tumour is cancerous when it:

- grows into nearby tissues
- has cells that can break away and travel through the blood or lymphatic system and spread to lymph **nodes** and distant parts of the body

Cancer that spreads from the first place it started (called the primary tumour) to a new part of the body is called **metastatic** cancer. When cancer cells spread and develop into new tumours, the new tumours are called metastases.

Non-cancerous tumours

Tumours that aren't cancerous are called non-cancerous tumours. Non-cancerous tumours:

- stay in one place and don't spread to other parts of the body
- don't usually come back after they are removed
- tend to have a regular and smooth shape and have a covering called a capsule
- may be moved easily in the tissue

Precancerous conditions

Precancerous cells are abnormal cells that may develop into cancer if they aren't treated. Some of these cells have mild changes that may disappear without any treatment. But some precancerous cells pass on genetic changes and gradually become more and more abnormal as they divide until they turn into cancer. It can take a long time for a precancerous condition to develop into cancer.

Precancerous changes can be mild to severe. There are different ways of describing precancerous changes based on how mild or severe the changes are.

Hyperplasia means that abnormal cells are dividing and increasing in number faster than normal. The cells look normal under the micro-

scope but there are more cells than normal. Some types of hyperplasia are precancerous but most aren't.

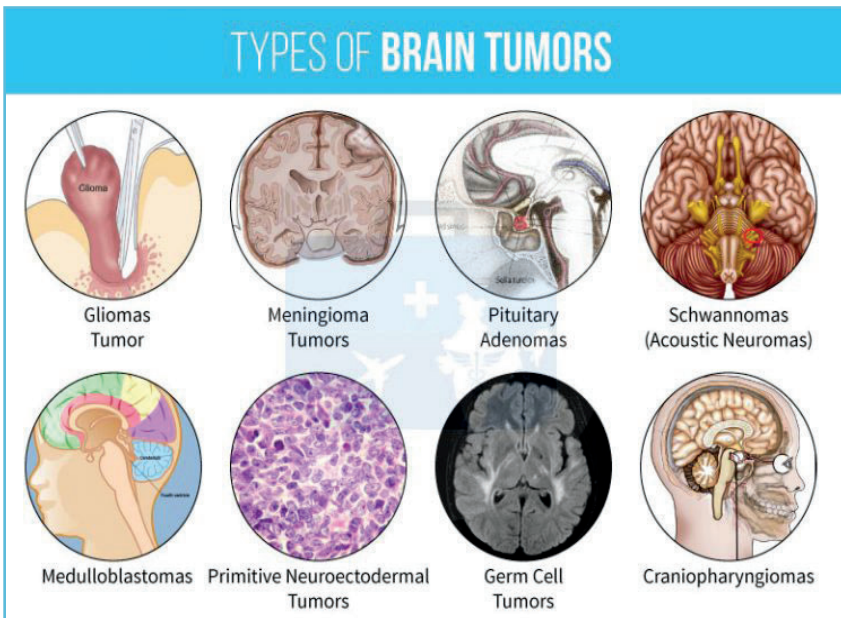
Atypia means that cells are slightly abnormal (atypical). Sometimes atypia may be caused by healing and inflammation but some types of atypia are precancerous.

Metaplasia means that there has been a change in the types of cells that are normally found in this area of the body. The cells look normal but they aren't the type of cells that are normally found in that tissue or area. Most types of metaplasia aren't precancerous but some are.

Dysplasia means that cells are abnormal, there are more cells than normal, the cells are growing faster than normal and they aren't arranged like normal cells. Dysplasia is a precancerous condition.

Carcinoma in situ is the most severe type of precancerous change. The cells are very abnormal but have not grown into nearby tissue. Carcinoma in situ is usually treated because it has a high risk of developing into cancer.

People with precancerous conditions are usually checked regularly, so they can be treated quickly if cell changes become more severe or turn into cancer.



4.4 Skin and Its Injuries

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	abrasion (n.)	/ə'breɪ.ʒən/	a place where the surface of something, such as skin, has been rubbed away
2.	friction (n.)	/'frɪk.ʃən/	the force that makes it difficult for things to move freely when they are touching each other
3.	contusion (n.)	/kən'tʃu:ʒən/	a bruise
4.	laceration (n.)	/,ləs.ər'eɪ.ʃən/	a cut
5.	incise (v.)	/,ləs.ər'eɪ.ʃən/	to cut the surface of something carefully with a sharp tool

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

Mechanical injuries to the skin are divided into those caused by a blunt force, such as a punch from a fist, and those caused by a sharp force, such as a knife.

Injuries from blunt forces

• **An abrasion** (also called a graze or a scratch) is a superficial (surface) injury involving only the epidermis, which has been removed by **friction**. A scratch is linear, as in fingernail scratches, whereas a graze involves a wider area, as in abrasions caused by dragging part of the body over a rough surface.

• **A contusion** (also called a bruise) is an injury that occurs when blood vessels in the skin are damaged.

• **A laceration** (also called a tear) is a wound involving both the dermis and epidermis. It is usually distinguished from penetrating or incised wounds by its irregular edges and relative lack of bleeding.

Injuries from sharp forces

• **An incised wound** (also called a cut) is a break in the skin where the length of the wound on the surface is greater than the depth of the wound - for example, a wound caused by a razor blade

- The depth of a penetrating wound is greater than the superficial length of the wound - for example, a stab wound caused by a knife.

The Skin I

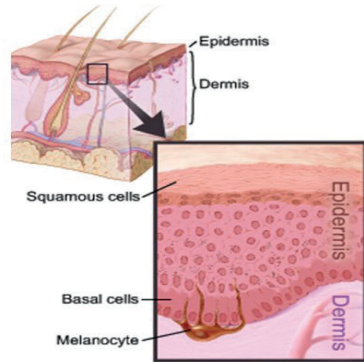
Two distinct regions

1. Epidermis

- outermost protective shield
- composed of epithelial cells
- avascularized, obtains nutrients by diffusing through tissue fluid from blood vessels in the dermis

2. Dermis

- makes up bulk of skin
- tough, leathery layer; fibrous connective tissue
- vascularized



4.5 Skin and its Derivatives

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	subcutaneous (adj.)	/,sʌb.kju'teɪ.ni.əs/	existing under the skin
2.	adipose (adj.)	/'æd.i.pəʊs/ / /'æd.i.pəʊz/	relating to animal fat
3.	bundle (n.)	/'bʌn.dəl/	a number of things that have been fastened or area held together

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

The body is covered by the skin. This tissue is built of an outer layer of epithelial tissue and an inner one of connective tissue. In the connective tissue are found the blood vessels and nerves which supply the skin.

Just beneath the skin is a layer composed of connective tissue. In some places, this binds the skin directly to the bones, and in others, it separates the skin from the muscles. The **subcutaneous** fat is found in this layer and is called **adipose** tissue. The subcutaneous tissue is called fascia. The skin and the superficial fascia form a protective covering for the muscles, bones and internal organs. The muscles are formed by a mass of muscle cells. The muscle **bundles** are held together by connective tissue, in which are found the blood vessels and the nerves which supply the muscles.

4.6 Skeleton

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	suture (n.)	/'su:.tʃər/	a stitch used to sew up a cut in a person's body
2.	fuse (v.)	/fju:z/	to joint or become combined, or to cause things to join
3.	appendicular skeleton	/,æp.ən'dɪk.jə.lər/	relating to the arms or legs or a part of the body that is joined to another part, such as the appendix

***Read the text. Guess the meaning of the highlighted words and phrases.**

The skeleton is the bony framework of the body supporting the soft tissues and protecting the vital organs within the skull, rib cage and pelvis. The 206 bones that comprise the adult human skeleton are usually divided for the purpose of study into two parts: the central axial skeleton, consisting of the bones of the skull, rib cage and vertebral column, and the appendicular skeleton, consisting of the bones of the shoulders, arms, hips and legs. The axial skeleton is designed primarily the support and protection and therefore is quite rigid although the flexibility of the vertebral column allows it a certain degree of movement.

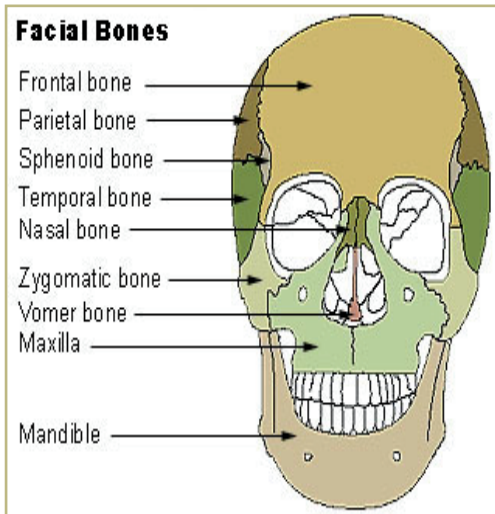
The skull is made up of the bones of the cranium and the bones of the facial skeleton. The cranium, containing and protecting the brain, consists of 8 bones united by immovable joints called **sutures**. The

bones of the face include 14 bones of which only the mandible is an independent and mobile one.

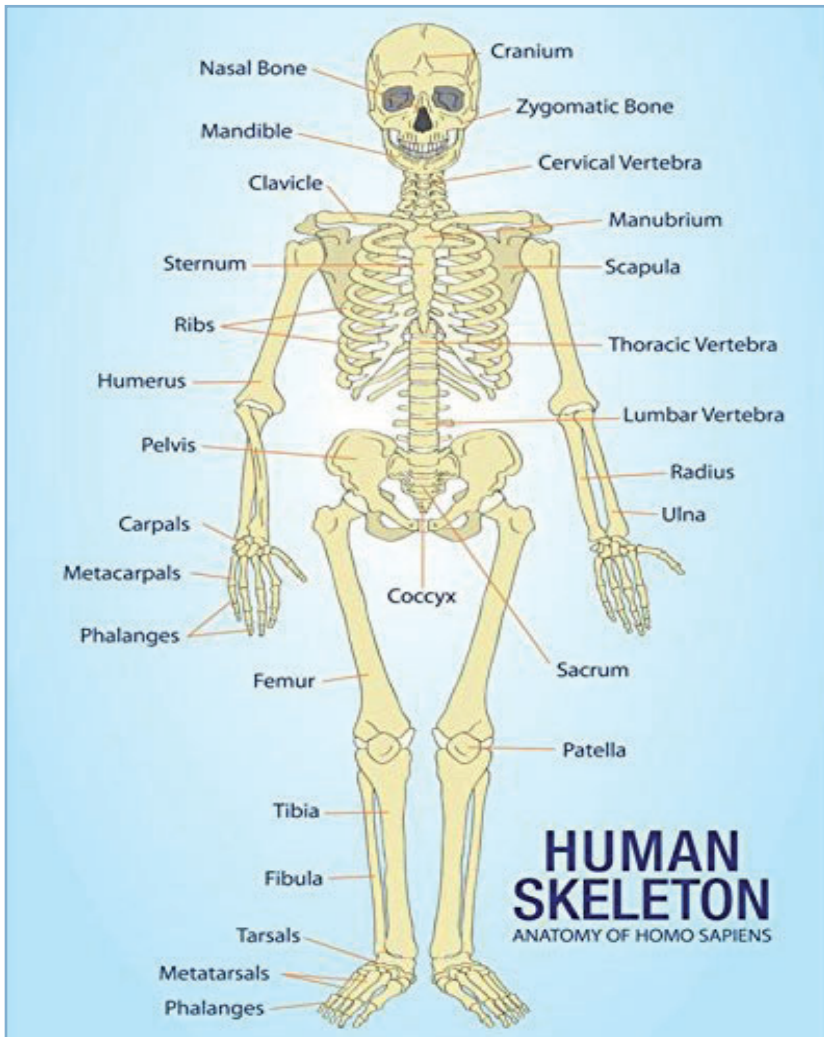
The trunk contains 12 pairs of ribs. The first seven pairs extend from the vertebral column to the breastbone. The next 3 pairs are attached with cartilage to the sternum and the two pairs of floating ribs are unattached in front. Together the ribs form the rib cage.

The vertebral column serving as the main supporting structure is composed of a number of separate bones, the vertebrae. The 33 vertebrae can be divided into 5 regions according to where they are found: the 7 cervical vertebrae located in the neck, 12 thoracic vertebrae contained at the back of the chest, 5 lumbar in the small of the back, and 5 sacral and 4 coccygeal **fused** together to form the sacrum and the coccyx, respectively. The first two vertebrae are known as the atlas and the axis.

The **appendicular skeleton** consists of the bones of the extremities, as well as the bones of the shoulder and hips which attach the bones of the extremities to the axial skeleton. The shoulder is composed of the clavicle and the scapula. The clavicle, or the collarbone, is a thin bone forming the front of the shoulder. It is attached medially to the sternum and laterally to the scapula. The scapula, or shoulder blade, is a large flat bone located in the upper part of the back. The arm contains only one large bone — the humerus. The forearm is composed of two bones, the radius and the ulna. Proximally, the radius articulates with the humerus and distally — with two of the carpal bones of the wrist and the ulna. The wrist consists of eight carpal bones articulating with the metacarpals of the hand. The finger bones are known as phalanges. The pelvic girdle is composed of two large hip bones forming the sides



and front, and the sacral and coccygeal vertebrae that form the back. Analogically to the arm, the thigh also contains one bone. Posed of two bones, the tibia and one of the body. It is the femur, the longest and the heaviest bone of the body. The leg is composed of two bones, the tibia and fibula. The bones of the ankle are known as tarsals. Five smaller tarsal bones and five metatarsals from the remainder of the foot. The toes, like the fingers, are composed of 14 bones referred to as phalanges.



Chapter 5. Systems of the human body and their diseases

5.1 The Circulatory System

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	arteriole (n.)	/ɑ:ˈtɪə.rɪ.əʊl/	a very small artery that often joins onto a capillary
2.	corpuscle (n.)	/ˈkɔ:ˌpʌs.əl/	any of the red or white cells in the blood
3.	hemoglobin (n.)	/ˌhi:məˈgləʊ.bɪn/	a red substance in the red blood cells that contains iron and carries oxygen around the body
4.	leukocyte (n.)	/ˈlu:kə.sɪt/	a white blood cell
5.	agglutinate (n.)	/əˈglu:tɪˌneɪt/	a clump of agglutinated material (such as blood cells or mineral particles in soil)
6.	agglutinin (n.)	/əˈglu:tə-nə-dʒən/	an antigen whose presence results in the formation of an agglutinin
7.	clot (n.)	/klɒt/	an almost solid piece of something
8.	recipient (n.)	/rɪˈsɪp.i.ənt/	a person who receives something
9.	excrete (v.)	/ɪkˈskri:t/	to get rid of material such as solid waste or urine from the body

***Read the text. Look at the highlighted words in the text and guess their meaning.**

The circulatory system, the chief transport system of the body consists of three essential parts: the blood, the heart and blood vessels. The human heart consists of four chambers, two atria and two ventricles, each made of several layers of cardiac muscle arranged in circles and spirals. During the contraction phase, called the systole, blood is pumped out of

the left ventricle into the aorta and then the arteries which carry blood to all parts of the body, and out of the right ventricle into the pulmonary artery and then the lungs. Used blood carrying carbon dioxide returns to the right atrium through veins to the vena cava during the diastole or relaxation period and newly oxygenated blood returns from the lungs to the left atrium. Valves control the flow of blood from one part of the heart to another.

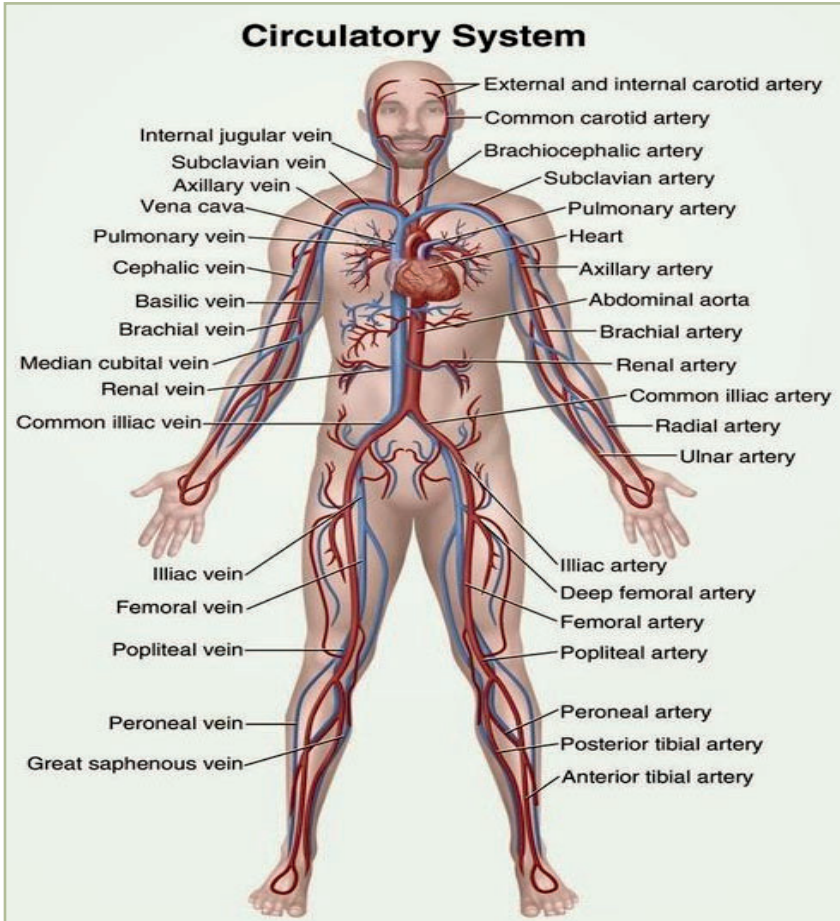
Arterioles are small arteries and **venules** are small veins. These two systems are joined by **capillaries**, the smallest blood vessels. In total there are 70,000 miles of blood vessels in the circulatory system.

The blood which runs through the circulatory is made up of two parts, plasma and blood cells. Plasma is composed of water and waste substances.

The **corpuses** are cells and are divided into red corpuses and white corpuses.

The red corpuses are minute, disc-shaped bodies. In one cubic millimeter of blood, there are about 5,000,000 red corpuses. **Hemoglobin** is the coloured pigment in the red corpuses. It possesses the power of combining with oxygen throughout the body to the tissues. The red corpuses are, therefore, the oxygen carriers of the body. The white corpuses or **leukocytes** are larger than the red cells but less numerous; only 6,000-8,000 in each cubic millimeter of blood. Each person has a particular blood type, depending on the detailed composition of the blood. There are four main types, labeled A, B, or AB and more than 200 minor types known. Forty-six percent of people are in blood group 0, 42 percent group A, 9 percent group B and 3 percent group AB. The definition of these groups is based on the presence or absence of two chemicals, or **agglutinates**, A and B. Blood group 0 contains neither agglutinin. Blood in group A contains antibodies or agglutinates, which, if mixed, will reach the **agglutinogens** of blood group B. The mixture will then **clot**. As a result, group A blood clots if given in transfusion to a group B recipient and vice versa. Blood group 0 is known as the “universal donor blood” because it can be given in limited quantities to any **recipient**; blood group AB is called the “universal recipient” because it can accept limited blood transfusions from any other group. The function of the circulatory system is to deliver energy and food substances to

each cell and to remove waste products of cell metabolism and carbon dioxide. If such products were not taken away they would interfere with the normal activities of the cell and ultimately result in their death. But due to the circulation, they are eliminated from where they are produced and carried to excretory organs i.e. the lungs, the kidneys, and the liver, where they are eventually **excreted** or converted into less toxic substances.



5.2 Nature of Heartbeat

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	jerky (adj.)	/ˈdʒɜː.ki/	quick and sudden
2.	refractory period	/rɪˈfræk.tər.i/	the brief period immediately following the response especially of a muscle or nerve before it recovers the capacity to make a second response
3.	stimulus (s. n.) (to) stimuli (pl.n.)	/ˈstɪm.jə.ləs/ /ˈstɪm.jʊ.laɪ/	something that causes growth or activity
4.	sympathetic nerve (n.)	/ˌsɪm.pəˈθet.ɪk/	a nerve of the sympathetic nervous system (the part of the autonomic nervous system that contains chiefly adrenergic fibers and tends to depress secretion, decrease the tone and contractility of smooth muscle, and increase heart rate)
5.	venous return (n.)	/ˈviː.nəs/	the flow of blood from the venous system into the right atrium of the heart
6.	ventricle (n.)	/ˈven.trɪ.kəl/	either of two small, hollow spaces, one in each side of the heart, that force blood into the tubes leading from the heart to the other parts of the body

***Read the text. With a partner, guess the meaning of the highlighted words and phrases.**

The fact that the heart, completely removed from the body, will go on beating for a time shows that its beat is «automatic», i.e. does not require nerve impulses.

The beat is rhythmic: it is not **jerky**; the ventricles relax fully before the next contraction. This is explained by a special property of the cardiac muscle tissue. The period of time during which the muscle is

not responsive to a stimulus is called the refractory period. It is characteristic of the heart muscle to have a long **refractory period**. When the heart muscle is stimulated, it will contract but will not respond again to that **stimulus** (though it may respond to a stronger one) until it has relaxed. This rest period is occupied by the heart filling with blood, in preparation for the next beat. Even the heart forced to beat rapidly by stimulating its **sympathetic nerve** supply maintains a perfectly rhythmic beat; although the beats come closer together, there is always that little rest period in between. The heart is a pump, but a double pump, the volume expelled by the right ventricle being the same as that expelled by the left. When exercise is suddenly undertaken, the “**venous return**”, i.e. the blood returned to the heart through the veins, is suddenly increased. For a few beats the right **ventricle** does put out more blood than the left, but soon the additional blood has passed through the lungs and is entering the left ventricle. From then on, both put out the same amount.

5.3 The Heart and Circulation

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	dyspnoea (n.)	/disp'ni:.ə/	difficulty in breathing and the feeling of not getting enough air
2.	orthopnoea (n.)	/ɔ:'θɒp n.əl/	difficulty in breathing that occurs when lying down and is relieved upon changing to an upright position (as in congestive heart failure)
3.	exertion (n.)	/ɪg'zɜ:.ʃən/	the use of a lot of mental or physical effort
4.	arrhythmia (n.)	/ə'rið.mi.ə/	a mental condition in which the heart does not beat with a regular rhythm, or at the normal rate
5.	fibrillation (n.)	/fib.rɪ'leɪ.ʃən/	irregular, rapid contractions of muscles, especially the heart
6.	palpitations (n.)	/.pæl.prɪ'teɪ.ʃəns/	the feeling that your heart is beating too quickly or not regularly

7.	oedema (n.)	/ɪ'di:mə/	an unhealthy condition in which liquid collects in the body tissues between the cells
8.	peripheral oedema (n.)	/pə'rɪf.ər.əl/	a swelling, beginning in the feet and ankles
9.	pitting oedema (n.)	/pɪt ɪŋ/	when a finger is pushed into the swelling, it causes a small depression or pit.

***Read the text. Look at the highlighted words. With a partner, guess their meaning.**

Shortness of breath

Shortness of breath, or breathlessness, is **dyspnoea**. At first, this is caused by exertion – physical activity such as climbing stairs – but in severe cases, it may be present even at rest. A patient who is breathless when lying flat (**orthopnoea**), for example in bed, will tend to sleep raised up on two or more pillows. The abbreviation SOBOE stands for shortness of breath on exercise (or on **exertion**, or on effort).

A patient says: “I get terribly short of breath climbing stairs.”

The doctor can ask: “How many pillows do you sleep on?”

Heart rhythm

The normal resting heart rate is 65-75 beats per minute. In athletes, it may be as low as 40 beats per minute. In extreme athletic activity, the heart rate can go as high as 200/min. The heart rhythm may be regular or irregular. In an irregular rhythm (**arrhythmia**), there may be early beats which interrupt the regular rhythm (premature beats); or the rhythm may vary with respiration; or it may be completely irregular, as in **fibrillation**. When patients are aware of irregularity, they describe the symptom as **palpitations**.

Heart failure

Heart failure occurs when the heart is unable to maintain sufficient cardiac output – the amount of blood pumped by the heart each minute – for the body’s needs. It may involve the left side of the heart, the right side, or both. In left heart failure, the main symptom is breathlessness. The symptoms of right heart failure include **peripheral oedema** (swelling), begin-

ning in the feet and ankles. This is known as **pitting oedema** if, when a finger is pushed into the swelling, it causes a small depression or pit.

5.4 Alimentary (Digestive) System

Blocking/Active Vocabulary

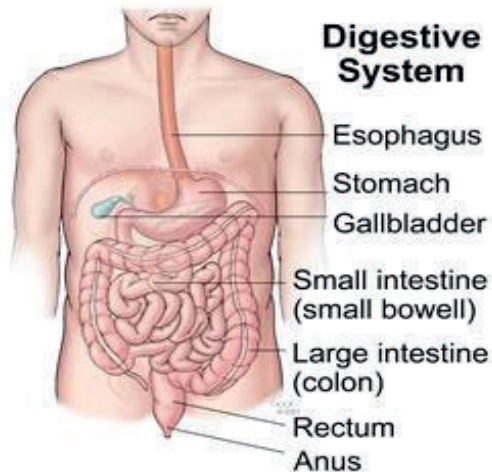
	Term/Word/ Phrase	Transcription	Definition
1.	saliva (n.)	/sə'laɪ.və/	the liquid produced in your mouth to keep the mouth wet and to help to prepare food to be digested
2.	starchy (adj.)	/'stɑ:.tʃɪ/	containing a lot of starch (a white substance that exists in large amounts in potatoes and particular grains such as rice)
3.	bolus (n.)	/'bɒʊ.ləs/	a small round lump of a substance, especially partly digested food
4.	seize (v.)	/si:z/	to take something quickly and keep or hold it
5.	bile (n.)	/baɪl/	the bitter, yellow liquid produced by the liver that helps to digest fat
6.	dissolve (v.)	/dɪ'zɒlv/	to be absorbed or to cause a solid to be absorbed by a liquid, or of a liquid to absorb a solid
7.	nourishment (n.)	/'nʌr.ɪʃ.mənt/	food that you need to grow and stay healthy
8.	undigested (adj.)	/ʌndaɪ'dʒestɪd/	not digested, do not change food in your stomach into substances that your body can use

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

The alimentary canal begins at the mouth and ends at the anus. It consists of the oral cavity, the gullet or esophagus, the stomach, and the intestines. The glands which pour juices of secretion into the alimentary canal are the salivary glands secreting **saliva** into the mouth where the digestion of the **starchy** parts of the food begins; the gastric glands in the stomach secreting gastric juice which is acid and acts on meats; the

liver which excretes about two pints of bile a day which helps in the breaking up of fats; the pancreas secreting pancreatic juice which acts on all classes of food continuing the action of the saliva and gastric juice; the glands of the small intestine secreting intestinal juice which completes the digestion of the meat foods in the intestine.

In the oral cavity, the food by the movements of the tongue and cheeks is turned about and chewed or crushed between the teeth, while at the same time saliva flows into the mouth and is thoroughly mixed with the food to form a **bolus** which can be swallowed. This is done by the tongue pushing it into the upper part of the throat (pharynx) whose muscles **seize** it and pass it quickly over the top of the larynx and down through the gullet into the stomach. In the stomach, much of the process of digestion occurs by means of gastric juices. From the stomach, the food is passed into the upper end of the small intestine. A short distance down the duodenum, ducts open into it carrying **bile** produced in the liver and digestive juice secreted by the pancreas. While the food is passing down the small intestine, the **dissolved** nutritious part is absorbed into the blood through the capillaries on the inside of the bowels and passed into the veins, through the liver, and into the general circulation for the **nourishment** of the body. The process of digestion is completed in the large intestine by the absorption of water. The **undigested** parts of the food mixed with the useless remains of the digesting fluids and some substances excreted from the system are passed out of the body. The whole mass is colored by the bile.



5.5 Digestive System. Disorder and the Diseases of the Digestive System

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	pancreas (n.)	/ˈpæŋ.kri.əs/	an organ in the body that produces insulin and substances that help to digest food so that it can be used by the body
2.	esophagus (s. n.) oesophagi (pl. n.)	/ɪˈsɒf.ə.gəs/ /ɪˈsɒf.ə.gɑɪ/	the tube in the body that takes food from the mouth to the stomach
3.	duodenum (s. n.) duodenums or duodena (pl. n.)	/ˌdʒuː.əˈdiː.nəm/ /ˌdʒuː.əˈdiː.nə/	the first part of the bowels just below the stomach
4.	jejunum (n.)	/dʒɪˈdʒuː.nəm/	the middle part of the bowels, between the duodenum and the ileum
5.	ileum (s. n.) ilea (pl. n.)	/ɪˈl.i.əm/ /ɪˈl.i.ə/	the last and narrowest part of the small intestine (part of bowels after the stomach), where substances from food are absorbed
6.	cecum (s. n.) ceca (pl. n.)	/ˈsiː.kəm/ /ˈsiː.kə/	the bag-shaped part at the beginning of the large intestine (lower part of the bowels) where it joins onto the ileum
7.	valve (n.)	/vælv/	a device that opens and closes to control the flow of liquids or gases, or a similar structure in the heart and the veins that controls the flow of blood
8.	reflux (n.)	/ˈriː.flʌks/	a condition in which liquid from the stomach moves upwards into the oesophagus (the tube that takes food from the mouth to the stomach)

9.	regurgitation (n.)	/rɪˌɡɜːdʒɪ'teɪ.jən/	the act of bringing swallowed food back into the mouth
10.	ischemia (n.)	/ɪ'skiː.mi.ə/	a medical problem in which there is not enough blood flowing to a part of the body, usually because the arteries have become too narrow. It can lead to very serious health conditions.
11.	diverticulum (s. n.) diverticula (pl. n.)	ˌdaɪ.və'tɪk.jə.ləm/ /ˌdaɪ.və'tɪk.jə.lə/	a small pocket that forms inside a hollow structure in the body, especially inside one of the tubes of the digestive system, because of a medical problem.
12.	cirrhosis (n.)	/sɪ'rəʊ.sɪs/	a serious disease of the liver that usually causes death
13.	bulging (n.)	/'bʌl.dʒɪŋ/	sticking out in a rounded shape
14.	gurgle (v.)	/'ɡɜː.gəl/	to make a sound like that of a gurgling liquid
15.	peritoneal (adj.)	/.pɛr.ɪ.tə'niː.əl/	relating to the peritoneum (the membrane on the inside walls of the abdomen and pelvis)

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

What is the digestive system?

The digestive system is made up of the gastrointestinal tract, also called the GI tract or digestive tract, and the liver, **pancreas**, and gallbladder. The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. The hollow organs that make up the GI tract are the mouth, **esophagus**, stomach, small intestine, large intestine, and anus. The liver, pancreas, and gallbladder are the solid organs of the digestive system.

The small intestine has three parts. The first part is called the **duodenum**. The **jejunum** is in the middle and the **ileum** is at the end. The large intestine includes the appendix, **cecum**, colon, and rectum. The appendix is a finger-shaped pouch attached to the cecum. The cecum is

the first part of the large intestine. The colon is next. The rectum is the end of the large intestine.

Bacteria in your GI tract, also called gut flora or microbiome, help with digestion. Parts of your nervous and circulatory systems also help. Working together, nerves, hormones, bacteria, blood, and the organs of your digestive system digest the foods and liquids you eat or drink each day.

Gastroesophageal Reflux Disease (GERD) – severe “heartburn” in laymen’s language. Weakness of the **valve** between the esophagus and stomach may allow stomach acid to **reflux (regurgitate, backup)** into the esophagus and irritate and inflame the lining. This results in chest pain which can mimic that of angina (pain of cardiac **ischemia** or an MI).

Jaundice – Literally means “yellow” in French. Yellowing of the skin and whites of the eyes from a backup of bile metabolic by-products from the blood into body tissues. May result from blockage of the ducts draining bile from the liver into the intestines or excessive breakdown of red blood cells. Hemoglobin from destroyed RBCs is broken down, and in part, ends up in bile secretions.

Diverticulosis/diverticulitis – small pouches may form along the walls of the large intestine called **diverticula** which if symptomatic, causing discomfort to the patient, is called diverticulosis. These abnormal out pocketings may collect and not be able to empty fecal material which can lead to inflammation and diverticulitis.

Cirrhosis – literally, “orange-yellow” in Greek. A degenerative disease of the liver that often develops in chronic alcoholics, but can have other causes. The name refers to the gross appearance of the organ.

Portal hypertension – a potential complication of chronic alcoholism resulting in liver damage and obstruction of venous blood flow through the liver. The rising blood pressure in the veins between the gastrointestinal tract and liver causes engorgement of veins around the umbilicus (navel). The characteristic radiating pattern of veins is called a “caput medusae” (head of Medusa). Medusa was the “snake-haired lady” in Greek mythology.

Esophageal varices – **bulging**, engorged veins in the walls of the esophagus are often a complication of chronic alcoholism (see portal hypertension). The thin-walled, swollen veins are at risk of tearing resulting in severe, possibly fatal, bleeding.

Dysphagia – difficulty swallowing. May be related to GERD (see above), esophageal tumor or other causes.

Crohn’s Disease – a chronic inflammatory disease primarily of the bowel. Typical symptoms are abdominal pain, weight loss, diarrhea. There may also be rectal bleeding that can lead to anemia. Special X-rays and tests are needed to differentiate Crohn’s from other diseases with similar symptoms.

Peritonitis – inflammation of the lining of the abdominal cavity. Before antibiotics, people would die from peritonitis if an inflamed appendix burst. Indications of peritonitis are called “peritoneal signs”: tender abdomen, rebound pain (pain when manual pressure released from examining abdomen), board-like rigidity of abdominal muscles, and no bowel sounds (**gurgles**). The peritoneal membrane is very sensitive to exposure to foreign substances. Contact with blood, bile, urine, pus will cause **peritoneal** signs.

5.6 Stomach Movements

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	roentgen ray (n.)	/ˈrɒnt.ɡən/ /reɪ/	a photograph obtained by use of X-rays
2.	fundus (s. n.) fundi (pl. n.)	/ˈfʌn.dəs/ /ˈfʌn.daɪ/	the lower part of an organ that is furthest from its opening
3.	orifice (n.)	/ˈɒr.i.fɪs/	an opening or hole, especially one in the body, such as the mouth
4.	incisura angularis	/ˌɪn.sɪˈʒʊə.rə/	a notch or bend in the lesser curvature of the stomach near its pyloric end
5.	pylorus (n.)	/paɪˈlɔːrəs/	the muscular opening from the vertebrate stomach into the intestine, through which partially digested food (chyme) passes to the duodenum
6.	constriction (n.)	/kənˈstrɪk.ʃən/	the process of becoming tighter and narrower, or something that makes you feel that this is happening

7.	peristaltic (adj.)	/,per.i'stæl.tik/	the repeated movements made by the muscle walls in the digestive tract tightening and then relaxing that push food and waste through the body
8.	flexure (n.)	/'flek.ʃə/	a bend or fold in something such as a part of the body, or the act of bending or folding
9.	faeces (n.)	/'fi:.si:z/	the solid waste passed out of the body of a human or animal through the bowels

***Read the text. Guess the meaning of the highlighted words.**

The movements of the stomach can be best studied by direct observation by means of X-rays. In order to make the shape of the stomach visible, food like bread and milk is mixed with a certain quantity of barium sulphate. The presence of this substance does not interfere with the processes of digestion but renders the gastric contents to **roentgen rays**. In the human stomach, the **fundus** is limited to that part of the stomach situated above the cardiac **orifice** (in the erect position). The body of the stomach is marked off from the pyloric part by the **incisura angularis** on the lesser curvature represented in many animals by a strong “transverse band”. The pyloric portion consists of the pyloric vestibule (or antrum) and the pyloric canal, the latter being a tubular portion with thick muscular walls about 3 cm in length, especially well marked in children. When food has been swallowed (in the erect position) its weight is sufficient to overcome the resistance of the contracted gastric wall and some of it rapidly passes to the pyloric part. The remainder stays in the body of the stomach which keeps constant pressure on its contents, tending to force them towards the pylorus. Peristalsis begins almost at once, each **constriction** starting near the middle of the stomach, and deepening as it slowly progresses towards the **pylorus**.

These waves succeed one another, so that the pyloric part may present a series of constrictions. Their effect is to force towards the pylorus the food which has been mixed with gastric juice. The longer the pylorus remains closed the longer the food cannot escape and therefore is squeezed back, forming an axial reflux stream towards the body. These

constrictions last throughout the whole period of gastric digestion and become more marked as it proceeds. Due to their action a thorough mixture of food and gastric juice results.

Small Intestine (Small Bowel). The small intestine, or the small bowel, extends from the pyloric sphincter to the first part of the large intestine. It is 20 feet long and has three parts. The duodenum, the first part, receives food from the stomach, bile from the liver and gall bladder, and **pancreatic** juice from the pancreas. Food is digested in the duodenum and passes in peristaltic waves from the duodenum to the second part, the jejunum, which is about 8 feet long. The jejunum connects with the third section, the ileum, about 11 feet long, which is attached to the large intestine.

In the wall of the entire small intestine are millions of tiny, finger-like projections called villi (singular: villus). It is through the capillary network of the villi that digested foods (simple sugars, amino acids, and fatty acids) pass to enter the bloodstream (absorption).

Large Intestine (Large Bowel). The large intestine extends from the ileum to the anus. It is divided into four parts: caecum, colon, sigmoid colon, and rectum. The caecum, or the first part, is a pouch on the right side which is connected to the ileum by the ileocaecal sphincter (ring of muscles). The vermiform (worm-like) appendix hangs from the caecum; the appendix is a blind alley and has no function. The colon is about 5 feet long and has three divisions. The ascending colon extends from the caecum to the undersurface of the liver where it turns to the left (**hepatic flexure**) into the transverse colon; the transverse colon passes horizontally to the left toward the spleen, and as it reaches the splenic region it turns downward (splenic flexure) into the descending colon. The sigmoid colon (resembling an S) is at the distal end of the descending colon and leads into the rectum. The rectum terminates in the lower opening of the gastrointestinal tract, the anus.

The large intestine receives the fluid by-products of digestion from the small intestine. The unabsorbed solid material is stored in the colon and water is reabsorbed into the bloodstream while the solid material travels along to eventually be eliminated from the body as **faeces**.

5.7 Why Should We Have a Healthy Diet?

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	diabetes (n.)	/ˌdaɪ.əˈbiː.tiːz/	a disease in which the body cannot control the level of sugar in the blood
2.	osteoarthritis (n.)	/ˌps.ti.əʊ.ɑːˈθraɪ.tɪs/	a disease that causes pain and stiffness in the joints
3.	arthritis (n.)	/ɑːˈθraɪ.tɪs/	a serious condition in which a person's joints become painful, swollen, and stiff

***Read the text. Look at the highlighted words in the text and guess their meaning.**

Having a healthy diet is one of the most important things you can do to help your overall health. Along with physical activity, your diet is the key factor that affects your weight. Having a healthy weight for your height is important. Being overweight or obese increases your risk of heart disease, type 2 **diabetes**, high blood pressure, stroke, breathing problems, **arthritis**, gallbladder disease, sleep apnea (breathing problems while sleeping), **osteoarthritis**, and even cancer. You can find out if you're overweight or obese by figuring out your body mass index (BMI). Women with a BMI of 25 to 29.9 are considered overweight, whereas women with a BMI of 30 or more are considered obese. All adults (aged 18 years or older) who have a BMI of 25 or more are considered at risk for premature death and disability from being overweight or obese. These health risks increase as the BMI rises. Your health care provider can help you figure out your body mass.

Having a healthy diet is sometimes easier said than done. It is tempting to eat less healthy foods because they might be easier to get or prepare, or they satisfy a craving. Between family and work or school, you are probably balancing a hundred things at once. Taking time to buy the ingredients for and cooking a healthy meal sometimes falls last on

your list. But you should know that it isn't hard to make simple changes to improve your diet. And you can make sense of the mounds of nutrition information out there. A little learning and planning can help you find a diet to fit your lifestyle, and maybe you can have some fun in the process!

How can I start planning a healthy diet for me and my family?

The best way to give your body balanced nutrition needs eating a variety of nutrient-packed foods every day. Just be sure to stay within your daily calorie needs. Mix up your choices within each food group. Focus on vegetables and fruits. Eat a variety of fruits – whether fresh, frozen, canned or dried – rather than fruit juice for most of your fruit choices. For a 2,000-calorie diet, you will need 2 cups of fruit each day (for example, 1 small banana, 1 large orange, and 1/4 cup of dried apricots or peaches).

Vegetables

Vary your veggies. Eat more dark green veggies, such as broccoli, kale, and other dark leafy greens; orange veggies, such as carrots, sweet potatoes, pumpkin, and winter squash; and beans and peas, such as pinto beans, kidney beans, black beans, garbanzo beans, split peas and lentils.

Calcium-rich foods

Get your calcium-rich foods. Get 3 cups of low-fat or fat-free milk – or an equivalent amount of low-fat yogurt and/or low-fat cheese (1 1/2 ounces of cheese equals one cup of milk) – every day. For kids aged 2 to 8, it's 2 cups of milk. If you don't or can't consume milk, choose lactose-free milk products and/or calcium-fortified foods and beverages.

Eat at least 3 ounces of whole-grain cereals, bread, crackers, rice, or pasta every day. One ounce is about 1 slice of bread, 1 cup of breakfast cereal, or 1/2 cup of cooked rice or pasta. Look to see that grains such as wheat, rice, oats, or corn are referred to as 'whole' in the list of ingredients. Foods high in protein Go lean with protein. Choose lean meats and poultry. Bake it, broil it, or grill it. And vary your protein choices – with more fish, beans, peas, nuts and seeds.

5.8 Muscular System Anatomy

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	authorhythmic (adj.)	/ˈɔːθə ˈrɪð.mɪk/	the heart produces its own pulses through electrochemical stimuli originating from a small group of cells in the wall of the right atrium, known as the sinoatrial node (or SA node).
2.	junction (n.)	/ˈdʒʌŋk.tʃən/	a place where things, especially roads or railways, come together
3.	intercalated disk	/ɪnˈtɜːkəˌleɪt disk/	any of the specialized regions of the sarcolemma and underlying cytoplasm of cardiac muscle cells that comprise the longitudinal and end-to-end junctions between adjacent cells and that function to connect them mechanically and electrically.

***Read the text. With a partner, guess the meaning of the highlighted words.**

There are three types of muscle tissue: visceral, cardiac, and skeletal.

Visceral Muscle.

Visceral muscle is found inside organs like the stomach, intestines, and blood vessels.

The weakest of all muscle tissues, visceral muscle makes organs contract to move substances through the organ.

Because visceral muscle is controlled by the unconscious part of the brain, it is known as involuntary muscle it cannot be directly controlled by the conscious mind.

The term “smooth muscle” is often used to describe visceral muscle because it has a very smooth, uniform appearance when viewed under a microscope.

This smooth appearance starkly contrasts with the banded appearance of cardiac and skeletal muscles.

Cardiac Muscle.

Found only in the heart, cardiac muscle is responsible for pumping blood throughout the body.

Cardiac muscle tissue cannot be controlled consciously, so it is an involuntary muscle. While hormones and signals from the brain adjust the rate of contraction, the cardiac muscle stimulates itself to contract.

The natural pacemaker of the heart is made of cardiac muscle tissue that stimulates other cardiac muscle cells to contract.

Because of its self-stimulation, cardiac muscle is considered to be **autorhythmic** or intrinsically controlled.

The cells of cardiac muscle tissue are striated—that is, they appear to have light and dark stripes when viewed under a light microscope.

The arrangement of protein fibers inside of the cells causes these light and dark bands.

Striations indicate that a muscle cell is very strong, unlike visceral muscles.

The cells of cardiac muscle are branched X or Y-shaped cells tightly connected together by special **junctions** called **intercalated disks**.

Intercalated disks are made up of fingerlike projections from two neighboring cells that interlock and provide a strong bond between the cells.

The branched structure and intercalated disks allow the muscle cells to resist high blood pressures and the strain of pumping blood throughout a lifetime.

These features also help to spread electrochemical signals quickly from cell to cell so that the heart can beat as a unit.

Skeletal Muscle

Skeletal muscle is the only voluntary muscle tissue in the human body — it is controlled consciously.

Every physical action that a person consciously performs (e.g. speaking, walking, or writing) requires skeletal muscle.

The function of skeletal muscle is to contract to move parts of the body closer to the bone that the muscle is attached to.

Most skeletal muscles are attached to two bones across a joint, so the muscle serves to move parts of those bones closer to each other.

Skeletal muscle cells form when many smaller progenitor cells lump themselves together to form long, straight, multinucleated fibers.

Striated just like cardiac muscle, these skeletal muscle fibers are very strong.

Skeletal muscle derives its name from the fact that these muscles always connect to the skeleton in at least one place.

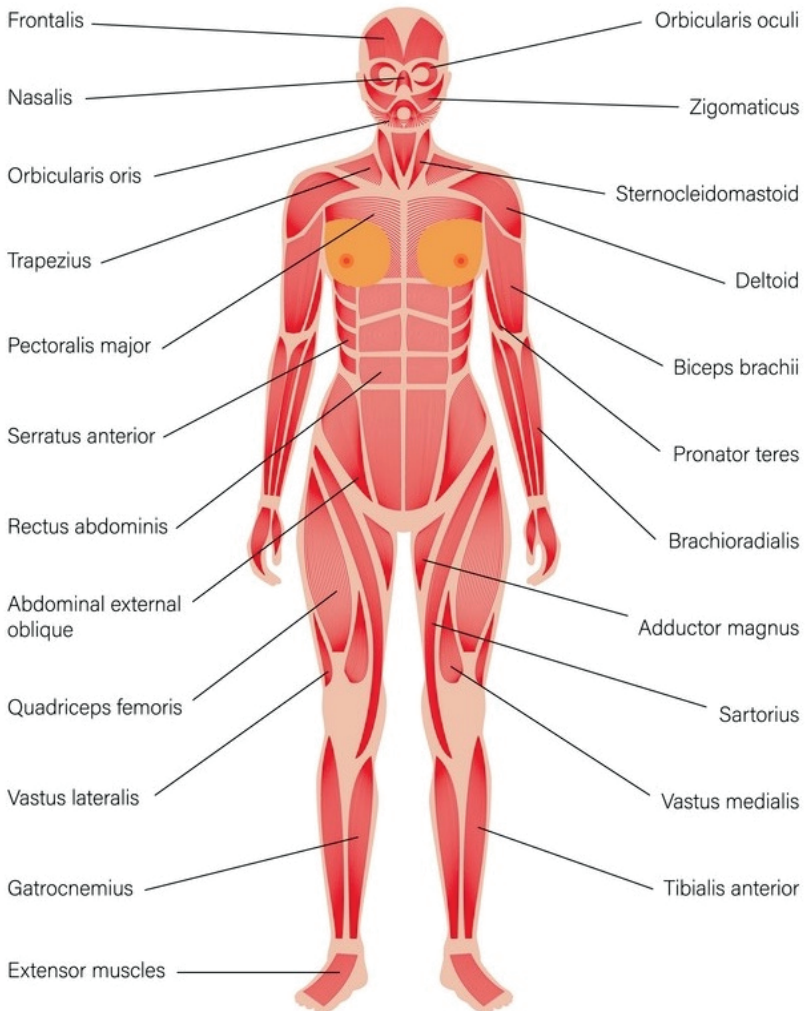
Most skeletal muscles are attached to two bones through tendons.

Tendons are tough bands of dense regular connective tissue whose strong collagen fibers firmly attach muscles to bones.

Tendons are under extreme stress when muscles pull on them, so they are very strong and are woven into the coverings of both muscles and bones.

Muscles move by shortening their length, pulling on tendons, and moving bones closer to each other.

MUSCULAR SYSTEM



5.9 Cardiovascular System

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	cellular (adj.)	/ˈsel.jə.lər/	having to do with the cells of an organism
2.	aorta (n.)	/eɪˈɔː.tə/	the main artery (thick tube carrying blood from the heart) that takes blood to the other parts of the body
3.	vena cava (s. n.) venae cavae (pl. n.)	/ˌviː.nə ˈkeɪ.və/ /ˌviː.nə ˈkeɪ.veɪ/	one of the two very large veins through which blood returns to the heart, one from the upper body and head and one from all of the body below the chest

***Read the text. Look at the highlighted words. With a partner, guess their meaning.**

The cardiovascular system consists of the heart, blood vessels, and the approximately 5 liters of blood that the blood vessels transport. Responsible for transporting oxygen, nutrients, hormones, and **cellular** waste products throughout the body, the cardiovascular system is powered by the body's hardest-working organ — the heart, which is only about the size of a closed fist. Even at rest, the average heart easily pumps over 5 liters of blood throughout the body every minute.

As the heart beats, it pumps blood through a system of blood vessels, called the circulatory system. The vessels are elastic tubes that carry blood to every part of the body.

Blood is essential

- It carries oxygen and nutrients to your body's tissues
- It takes carbon dioxide and waste products away from the tissues.
- It is needed to sustain life and promote the health of all the body's tissues.

There are three main types of blood vessels:

Arteries

The arteries (red) carry oxygen and nutrients away from your heart, to your body's tissues. **The veins (blue)** take oxygen-poor blood back to the heart.

- Arteries begin with the **aorta**, the large artery leaving the heart.

- They carry oxygen-rich blood away from the heart to all of the body's tissues.
- They branch several times, becoming smaller and smaller as they carry blood further from the heart.

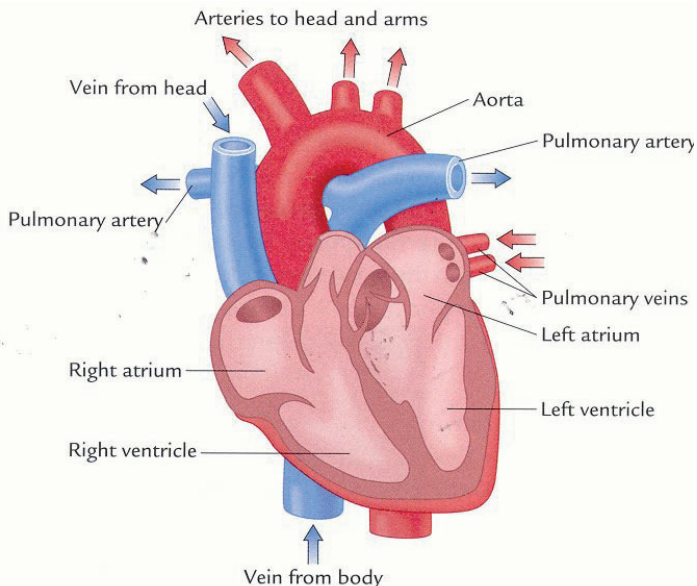
Capillaries

- Capillaries are small, thin blood vessels that connect the arteries and the veins.
- Their thin walls allow oxygen, nutrients, carbon dioxide and waste products to pass to and from the tissue cells.

Veins

- These are blood vessels that take oxygen-poor blood back to the heart.
- Veins become larger and larger as they get closer to the heart.
- The superior vena cava is the large vein that brings blood from the head and arms to the heart, and the inferior **vena cava** brings blood from the abdomen and legs into the heart.

This vast system of blood vessels - arteries, veins, and capillaries - is over 60,000 miles long. That's long enough to go around the world more than twice! Blood flows continuously through your body's blood vessels. Your heart is the pump that makes it all possible.



5.10 Diseases of Cardiovascular System

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	cerebrovascular (adj.)	/,ser.i.brəʊ'væs.kjə.lər/	relating to the blood vessels, especially the arteries, that supply the brain
2.	morbidity (n.)	/mɔ:'bɪd.ə.ti/	the morbidity of a disease is how many people have it in a particular population
3.	maternal (adj.)	/mæ'tɜ:.nəl/	related by way of the mother
4.	perinatal (adj.)	/,per.i'nei.təl/	relating to the period before and soon after birth
5.	noncommunicable disease	/,nɒn.kə'mju:.nɪ.kə.bəl/	a disease that is not transmissible directly from one person to another. NCDs include Parkinson's disease, autoimmune diseases, strokes, most heart diseases, most cancers, diabetes, chronic kidney disease, osteoarthritis, osteoporosis, Alzheimer's disease, cataracts, and others.
6.	agenda (n.)	/ə'dʒen.də/	a list of aims or possible future achievements
7.	implementation (n.)	/,ɪm.plɪ.men'teɪ.ʃən/	the act of starting to use a plan or system
8.	tangible (adj.)	/'tæŋ.dʒə.bəl/	real and not imaginary; able to be shown, touched, or experienced

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

Cardiovascular disease is a major cause of disability and premature death throughout the world and contributes substantially to the escalating costs of health care. The underlying pathology is atherosclerosis,

which develops over many years and is usually advanced by the time symptoms occur, generally in middle age. Acute coronary and **cerebrovascular** events frequently occur suddenly and are often fatal before medical care can be given. Modification of risk factors has been shown to reduce mortality and **morbidity** in people with diagnosed or undiagnosed cardiovascular disease.

Of an estimated 58 million deaths globally from all causes in 2005, cardiovascular disease (CVD) accounted for 30%. This proportion is equal to that due to infectious diseases, nutritional deficiencies, and **maternal** and **perinatal** conditions combined. It is important to recognize that a substantial proportion of these deaths (46%) were of people under 70 years of age, in the more productive period of life; in addition, 79% of the disease burden attributed to cardiovascular disease is in this age group.

Between 2006 and 2015, deaths due to **noncommunicable diseases** (half of which will be due to cardiovascular disease) are expected to increase by 17%, while deaths from infectious diseases, nutritional deficiencies, and maternal and perinatal conditions combined are projected to decline by 3%. Almost half the disease burden in low- and middle-income countries is already due to noncommunicable diseases.

A significant proportion of this morbidity and mortality could be prevented through population-based strategies, and by making cost-effective interventions accessible and affordable, both for people with established disease and for those at high risk of developing the disease.

To address the rising burden of noncommunicable diseases, in May 2000 the 53rd World Health Assembly adopted the WHO Global Strategy for the Prevention and Control of Noncommunicable Diseases. In doing so, it placed noncommunicable diseases on the global public health **agenda**.

Since then, WHO (World Health Organization) has strengthened its efforts to promote population-wide primary prevention of noncommunicable diseases, through the Framework Convention on Tobacco Control and the Global Strategy for Diet, Physical Activity and Health. These activities target common risk factors that are shared by CVD, cancer, diabetes and chronic respiratory disease, and their **implementation** is critical if the growing burden of noncommunicable diseases is to be controlled.

These measures should make it easier for healthy people to remain healthy, and for those with established CVD or at high cardiovascular risk to change their behaviour. However, population-wide public health approaches alone will not have an immediate **tangible** impact on cardiovascular morbidity and mortality and will have only a modest absolute impact on the disease burden. By themselves, they cannot help the millions of individuals at high risk of developing CVD or with an established CVD. A combination of population-wide strategies and strategies targeted at high-risk individuals is needed to reduce the cardiovascular disease burden. The extent to which one strategy should be emphasized over the other depends on achievable effectiveness, as well as cost-effectiveness and availability of resources.

Although CVD already places a significant economic burden on low- and middle-income countries, the resources available for its management in these countries are limited because of competing health priorities. It is, nevertheless, essential to recognize that the transition to lower levels of infectious diseases and higher levels of noncommunicable diseases is already underway; failure to act now will result in large increases in avoidable CVD, placing serious pressures on the national economies. In this context, it is imperative to target the limited resources on those who are most likely to benefit.

5.11 Respiratory System

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	exhale (v.)	/eks'heil/	to send air out of your lungs
2.	larynx (s. n.) larynxes or larynges (pl. n.)	/'lær.ɪŋks/ /lær'in.dʒi:z/	an organ in humans and animals between the nose and the lungs that contains the muscles that move very quickly to create the voice or animal sound
3.	trachea (s. n.) tracheae or tracheas (pl. n.)	/trə'ki:.ə/	windpipe

4.	bronchus (s. n.) bronchi (pl. n.)	/'brɒŋ.kəs/ /'brɒŋ.kai/	one of the two tubes that branch from the trachea and carry air into the lungs
5.	bronchial (adj.)	/'brɒŋ.ki.əl/	of the pipes that carry air from the windpipe to the lungs
6.	carbon dioxide (n.)	/'kɑ:.bəʊn daɪ'ɒk.saɪd/	the gas formed when carbon is burned, or when people or animals breathe out (symbol CO ₂)

***Read the text. Look at the highlighted words. Practise the pronunciation of the words using the table above.**

The primary function of the respiratory system is to supply the blood with oxygen in order for the blood to deliver oxygen to all parts of the body.

The respiratory system does this through breathing.

When we breathe, we inhale oxygen and **exhale** carbon dioxide. This exchange of gases is the respiratory system's means of getting oxygen to the blood.

Respiration is achieved through the mouth, nose, trachea, lungs, and diaphragm. Oxygen enters the respiratory system through the mouth and the nose.

The oxygen then passes through the **larynx** (where speech sounds are produced) and the **trachea** which is a tube that enters the chest cavity.

In the chest cavity, the trachea splits into two smaller tubes called the bronchi.

Each **bronchus** then divides again forming the **bronchial** tubes. The bronchial tubes lead directly into the lungs where they divide into many smaller tubes which connect to tiny sacs called alveoli.

The average adult's lungs contain about 600 million of these spongy, air-filled sacs that are surrounded by capillaries.

The inhaled oxygen passes into the alveoli and then diffuses through the capillaries into the arterial blood.

Meanwhile, the waste-rich blood from the veins releases its **carbon dioxide** into the alveoli.

The carbon dioxide follows the same path out of the lungs when you exhale.

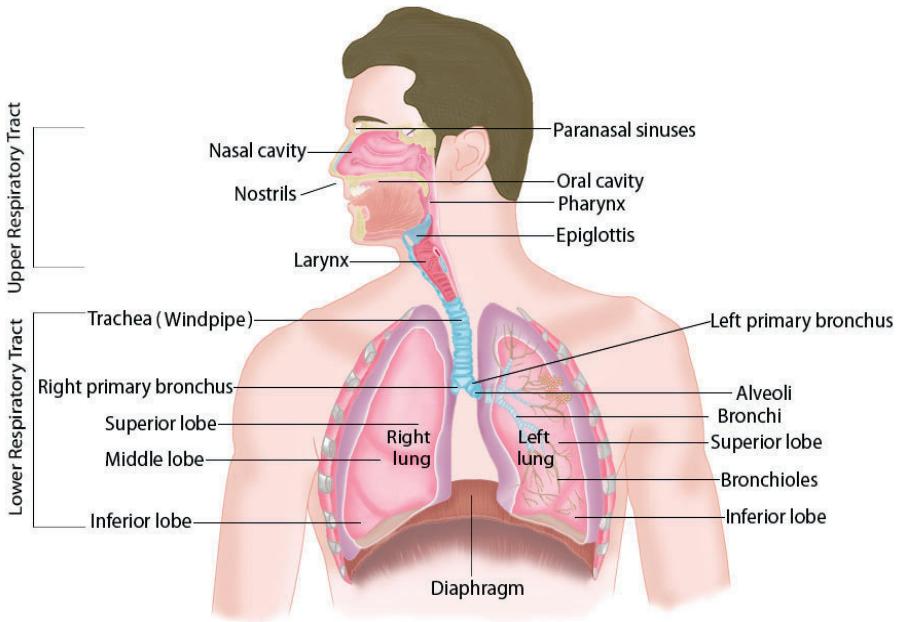
The diaphragm's job is to help pump the carbon dioxide out of the lungs and pull the oxygen into the lungs.

The diaphragm is a sheet of muscles that lies across the bottom of the chest cavity.

As the diaphragm contracts and relaxes, breathing takes place.

When the diaphragm contracts, oxygen is pulled into the lungs.

When the diaphragm relaxes, carbon dioxide is pumped out of the lungs.



5.12 How Does the Respiratory System Clean the Air?

Blocking/Active Vocabulary

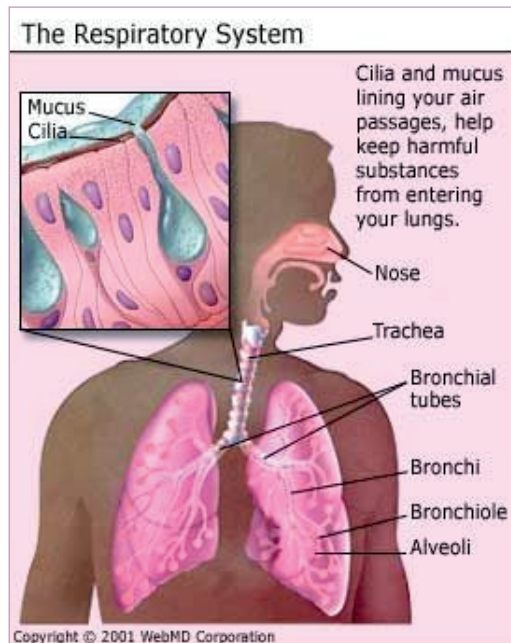
	Term/Word/ Phrase	Transcription	Definition
1.	cilium (s. n.) cilia (pl. n.)	/'sɪl.i.əm/ /'sɪl.i.ə/	one of the very small parts like hairs on the surface of a cell that move regularly and keep the surrounding liquid moving around it to help an organism with only one cell to move
2.	mucus (n.)	/'mju:.kəs/	a thick liquid produced inside the nose and other parts of the body
3.	bacterium (s. n.) bacteria (pl. n.)	/bæk'tɪə.ri.əm/ /bæk'tɪə.ri.ə/	a type of very small organism that lives in air, earth, water, plants, and animals, often one that causes disease

***Read the text. Guess the meaning of the highlighted words and phrases.**

Your respiratory system has built-in methods to keep harmful things in the air from entering your lungs.

Hairs in your nose help filter out large particles. Tiny hairs, called **cilia**, along your air passages move in a sweeping motion to keep the passages clean. But if you breathe in harmful things like cigarette smoke, the cilia can stop working. This can lead to health problems like bronchitis.

Cells in your trachea and bronchial tubes make **mucus** that keeps air passages moist and helps keep things like dust, **bacteria** and viruses, and allergy-causing things out of your lungs.



Mucus can bring up things that reach deeper into your lungs. You then cough out or swallow them.

5.13 Respiratory System Diseases

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	gene (n.)	/dʒi:n/	a part of the DNA in a cell that controls the physical development, behavior, ect. of an individual plant or animal and is passed on from its parents
2.	emphysema (n.)	/,em.fə'si:mə/	a condition in which the small sacs on the lungs become filled with too much air, causing breathing difficulties and heart problems
3.	granuloma (n.)	/græn.jə'ləʊ.mə/	a small lump of fleshy tissue that forms after injury, infection, or inflammation
4.	bronchiectasis (n.)	/,brɒŋki'ektəsis/	a chronic dilatation of bronchi or bronchioles
5.	effusion (n.)	/ɪ'fju:ʒən/	a sudden and uncontrolled expression of strong emotion
6.	sarcoidosis (n.)	/,sɑ:kəɪd'əʊsɪs/	a chronic disease of unknown cause that is characterized by the formation of nodules especially in the lymph nodes, lungs, bones, and skin

***Read the text. Look at the highlighted words and phrases in the text and guess their meaning.**

Common diseases of the respiratory system include:

Asthma. Your airways narrow and make too much mucus.

Bronchiectasis. Inflammation and infection make your bronchial walls thicker.

Chronic obstructive pulmonary disease (COPD). This long-term condition gets worse over time. It includes bronchitis and **emphysema**.

Pneumonia. The infection causes inflammation in your alveoli. They might fill up with fluid or pus.

Tuberculosis. A bacterium causes this dangerous infection. It usually affects your lungs but might also involve your kidney, spine, or brain.

Lung cancer. Cells in your lung change and grow into a tumor. This often happens because of smoking or other chemicals you have breathed in.

Cystic fibrosis. This disease is caused by a problem in your **genes** and gets worse over time. It causes lung infections that do not go away.

Pleural effusion. Too much fluid builds up between the tissues that line your lungs and chest.

Idiopathic pulmonary fibrosis. Your lung tissue becomes scarred and can't work the way it should.

Sarcoidosis. Tiny clumps of inflammatory cells called **granulomas** form, often in your lungs and lymph nodes.

5.14 What is the Nervous System?

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	trauma (n.)	/ˈtrɔː.mə/ /ˈtraʊ.mə/	physical injury, usually caused by an accident or attack, or a case of such injury happening; severe and lasting emotional shock and pain caused by an extremely upsetting experience, or a case of such shock happening
2.	degeneration (n.)	/diˌdʒen.əˈreɪ.ʃən/	the process by which something gets worse
3.	disruption (n.)	/dɪsˈrʌp.ʃən/	the action of preventing something, especially a system, process, or event, from continuing as usual or as expected
4.	autoimmune (adj.)	/ˌɔː.təʊ.ɪˈmjuːn/	relating to a condition in which someone's antibodies attack substances that are naturally found in the body

***Read the text. With a partner, guess the meaning of the highlighted words.**

The nervous system is a complex, sophisticated system that regulates and coordinates body activities. It is made up of two major divisions, including the following:

Central nervous system. This consists of the brain and spinal cord.

Peripheral nervous system. This consists of all other neural elements, including the peripheral nerves and the autonomic nerves.

In addition to the brain and spinal cord, principal organs of the nervous system include the following:

Eyes

Ears

Sensory organs of taste

Sensory organs of smell

Sensory receptors located in the skin, joints, muscles, and other parts of the body

What are some disorders of the nervous system?

The nervous system is vulnerable to various disorders. It can be damaged by the following:

Trauma

Infections

Degeneration

Structural defects

Tumors

Blood flow **disruption**

Autoimmune disorders

5.15 Disorders of the Nervous System

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	stroke (n.)	/strəʊk/	a sudden change in the blood supply to a part of the brain, sometimes causing a loss of ability to move particular parts of the body
2.	transient (adj.)	/'trænz.i.ənt/	lasting for only a short time; temporary
3.	subarachnoid hemorrhage	/,sʌb.ə'ræk.nɔɪd 'hem.ər.ɪdʒ/	bleeding in the space that surrounds the brain
4.	hemorrhage (n.)	/'hem.ər.ɪdʒ/	a large flow of blood from a damaged blood vessels (tube carrying blood around the body)
5.	hematoma (n.)	/hi:.mə'təʊ.mə/	a thick mass of blood anywhere in the body resulting from an injury or blood disorder
6.	extradural hemorrhage	/,ɛkstrə'dʒʊərəl/	the blood that leaks forms a pocket that bulges out and puts pressure on your brain
7.	meningitis (n.)	/,men.ɪn'dʒaɪ.tɪs/	a serious infectious disease that causes the tissues around the brain and spinal cord to swell
8.	encephalitis (n.)	/,en.kef.ə'lɑɪ.tɪs/	a serious illness caused by an infection that makes the brain swell
9.	polio (n.)/ poliomyelitis	/'pəʊ.li.əʊ/	a serious infectious disease that can cause permanent paralysis (being unable to move the body)
10.	epidural abscess	/,ep.ɪ'dʒʊərəl 'æb.ses/	an infection inside your skull or near your spine
11.	neuralgia (n.)	/njʊə'ræl.dʒə/	short, severe pains felt suddenly along a nerve, especially in the neck or head

12.	tingle (v.)	/ˈtɪŋ.gəl/	to have a feeling as if a lot of sharp points are being put quickly and lightly into your body
13.	impaired (adj.)	/ɪmˈpeəd/	damaged in a way that makes something less effective
14.	rigidity (n.)	/rɪˈdʒɪd.ə.ti/	the quality of being stiff, fixed, or impossible to bend
15.	tremor (n.)	/ˈtrem.ər/	a slight shaking movement in a person's body, especially because of nervousness or excitement
16.	seizure (n.)	/ˈsiː.ʒər/	a very sudden attack of an illness in which someone becomes unconscious or develops violent movements
17.	slurred speech	/slɜːrd/	to pronounce the sounds of a word in a way that is wrong or not clear
18.	aneurysm (n.)	/ˈæn.jə.rɪ.zəm/	a swollen area on the wall of an artery
19.	endovascular (adj.)	/endəˈvæs.kjə.lər/	intravascular, the treatment is performed inside your body using long, thin tubes called catheters
20.	biopsy (n.)	/ˈbaɪ.ɒp.si/	the process of removing and examining a small amount of tissue from a sick person, in order to discover more about their illness
21.	physiatrist (n.)	/fɪˈzɪətrɪst/	a physician who specializes in physical medicine and rehabilitation

***Read the text. Look at the highlighted words. With a partner, guess their meaning.**

Disorders of the nervous system may involve the following:

Vascular disorders, such as **stroke**, **transient ischemic attack (TIA)**, **subarachnoid hemorrhage**, **subdural hemorrhage** and **hematoma**, and **extradural hemorrhage**.

Infections, such as **meningitis**, **encephalitis**, **polio**, and **epidural abscess**.

Structural disorders, such as brain or spinal cord injury, Bell's palsy, cervical spondylosis, carpal tunnel syndrome, brain or spinal cord tumors, peripheral neuropathy, and Guillain-Barré syndrome.

Functional disorders, such as headache, epilepsy, dizziness, and **neuralgia**.

Degeneration, such as Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis (ALS), Huntington chorea, and Alzheimer's disease.

Signs and symptoms of nervous system disorders. The following are the most common general signs and symptoms of a nervous system disorder. However, each individual may experience symptoms differently. Symptoms may include:

Persistent or sudden onset of a headache

A headache that changes or is different

Loss of feeling or **tingling**

Weakness or loss of muscle strength

Loss of sight or double vision

Memory loss

Impaired mental ability

Lack of coordination

Muscle **rigidity**

Tremors and **seizures**

Back pain which radiates to the feet, toes, or other parts of the body

Muscle wasting and **slurred speech**

New language impairment (expression or comprehension)

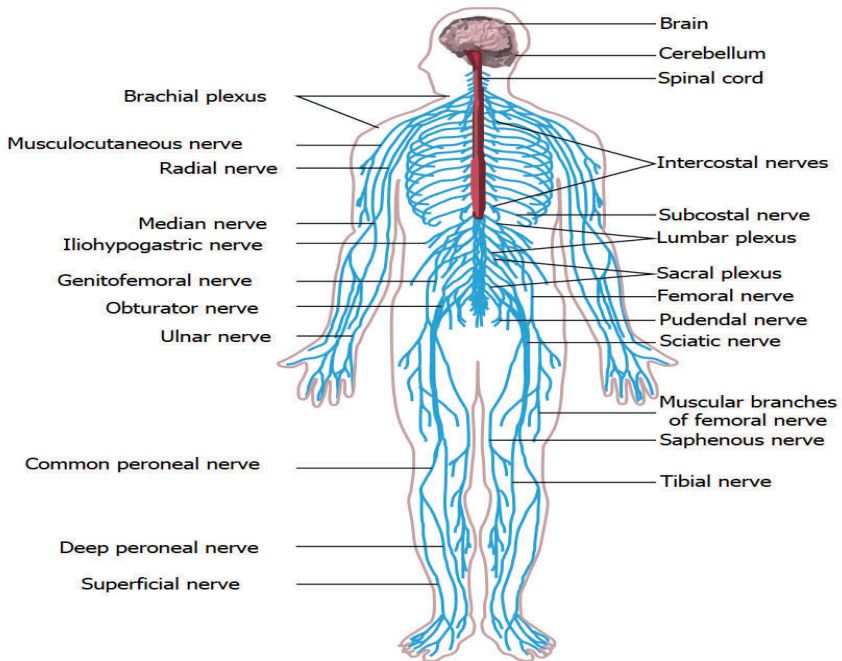
The symptoms of a nervous system disorder may look like other medical conditions or problems. Always see your healthcare provider for a diagnosis.

Healthcare providers who treat nervous system disorders. Healthcare providers who treat nervous system disorders may have to spend a lot of time working with the patient before making a probable diagnosis of the specific condition. Many times, this involves performing numerous tests to eliminate other conditions, so that the probable diagnosis can be made.

Neurology. The branch of medicine that manages nervous system disorders is called neurology. The medical healthcare providers who treat nervous system disorders are called neurologists. Some neurologists treat acute strokes and cerebral **aneurysms** using **endovascular** techniques.

Neurological surgery. The branch of medicine that provides surgical intervention for nervous system disorders is called neurosurgery, or neurological surgery. Surgeons who operate as a treatment team for nervous system disorders are called neurological surgeons or neurosurgeons.

Neuroradiologists and interventional radiologists. Radiologists specialize in the diagnosis of neurological conditions using imaging and in the treatment of certain neurologic conditions such as cerebral aneurysms, acute strokes, and vertebral fractures, as well as **biopsies** of certain tumors.



Rehabilitation for neurological disorders. The branch of medicine that provides rehabilitative care for patients with nervous system disorders is called physical medicine and rehabilitation. Healthcare providers who work with patients in the rehabilitation process are called **physiatrists**.

5.16 Infectious Diseases

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	remedy (n.)	/'rem.ə.di/	a successful way of curing an illness or dealing with a problem or difficulty
2.	measles (n.)	/'mi:.zəlz/	an infectious disease that produces small, red spots all over the body; an acute contagious disease that is caused by a morbillivirus (species Measles morbillivirus) and is marked especially by an eruption of distinct red circular spots; called also rubeola
3.	chickenpox (n.)	/'tʃik.in.pɒks/	an infectious disease that causes a slight fever and red spots on the skin; an acute contagious disease especially of children marked by low-grade fever and formation of vesicles and caused by a herpesvirus (species Human herpesvirus 3 of the genus Varicellovirus; shingles:
4.	diarrhea (n.)	/'daɪ.ə'ri:.ə/	an illness in which the body's solid waste is more liquid than usual and comes out of the body more often

5.	tuberculosis (n.)	/tʃuːˌbɜː.kjəˈleɪ.sɪs/	a serious infectious disease that can attack many parts of a person's body, especially their lungs; a highly variable communicable disease of humans and some other vertebrates that is caused by the tubercle bacillus and rarely in the U.S. by a related mycobacterium (<i>Mycobacterium bovis</i>), that affects especially the lungs but may spread to other areas (such as the kidney or spinal column), and that is characterized by fever, cough, difficulty in breathing, formation of tubercles, caseation, pleural effusions, and fibrosis
6.	fungus (s. n.) fungi (pl. n.)	/'fʌŋ.gəs/ /'fʌŋ.gaɪ/	any of various types of organisms that get their food from decaying material or other living things; any of a kingdom (Fungi) of saprophytic and parasitic spore-producing eukaryotic typically filamentous organisms formerly classified as plants that lack chlorophyll and include molds, rusts, mildews, smuts, mushrooms, and yeasts
7.	ringworm (n.)	/'rɪŋ.wɜːm/	a disease that causes red rings on the skin
	athlete's foot	/,æθ.li:ts 'fʊt/	a disease in which the skin between the toes cracks (breaks open) and feels sore; ringworm of the feet

8.	malaria (n.)	/mə'leəri.ə/	a disease that you can get from the bite of a particular type of mosquito. Malaria causes periods of fever and makes you shiver and feel very cold. It is common in many hotter parts of the world; a human disease that is caused by sporozoan parasites (genus <i>Plasmodium</i>) in the red blood cells, is transmitted by the bite of anopheline mosquitoes, and is characterized by periodic attacks of chills and fever
9.	fatal (adj.)	/'feɪ.təl/	a fatal illness, accident, ect. causes death
10.	toxoplasmosis (n.)	/'tɒk.səʊ.plæz'məʊ.sɪs/	an infection caused by the toxoplasma organism, which can be dangerous for an unborn child if a pregnant woman is affected by it; infection of humans, other mammals, or birds with disease caused by a toxoplasma (<i>Toxoplasma gondii</i>) that invades the tissues and may seriously damage the central nervous system especially of infants
11.	placenta (s. n.) placentas or placentae (pl. n.)	/plə'sen.tə/ /plə'sen.ti:/	the temporary organ that feeds a foetus (developing baby) inside its mother's womb
12.	pneumonia (n.)	/nju:'məʊ.ni.ə/	a serious illness in which one or both lungs become red and swollen and filled with liquid

13.	papillomavirus (n.)	/ˌpæprɪˈləʊməˈvaɪə.rəs/	any of numerous papilloma viruses (as of the genera <i>Alphapapillomavirus</i> , <i>Betapapillomavirus</i> , and <i>Gammapapillomavirus</i>) that cause various human papillomas (such as genital warts and plantar warts) and include some associated with the production of human cancer — abbreviation <i>HPV</i>
14.	helicobacter pilory	/hel.i.kəʊ.bæk.tə paɪ.əˈlɔːrɪ/	a type of bacteria
15.	peptic ulcer	/ˌpeptɪk ˈʌlsə(r)/	a painful sore inside the stomach or another part of the digestive system
16.	shingles (n.)	/ˈʃɪŋ.gəls/	a disease caused by a virus that infects particular nerves and that produces a line or lines of painful red spots, especially around the waist; an acute viral inflammation of the sensory ganglia of spinal and cranial nerves that is associated with a vesicular eruption and neuralgic pains and is caused by reactivation of the herpes virus causing chicken pox called also herpes zoster, zoster
17.	ingestion (n)	/ɪnˈdʒes.tʃən/	the process of absorbing nutrients or medications into the body by eating or drinking them
18.	contaminated food	/kənˈtæm.i.neɪ.tɪd/	poisonous or not pure
19.	tick (n.)	/tɪk/	a very small creature like a spider that lives on and sucks the blood of other animals
20.	utensil (n.)	/juːˈten.sɪl/	a device or tool having a particular use, esp. in a kitchen

***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

Infectious diseases are disorders caused by organisms — such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They're normally harmless or even helpful, but under certain conditions, some organisms may cause disease.

Some infectious diseases can be passed from person to person. Some are transmitted by bites from insects or animals. And others are acquired by ingesting contaminated food or water or being exposed to organisms in the environment.

Signs and symptoms vary depending on the organism causing the infection but often include fever and fatigue. Mild infections may respond to rest and home **remedies**, while some life-threatening infections may require hospitalization.

Many infectious diseases, such as **measles** and **chickenpox**, can be prevented by vaccines. Frequent and thorough hand-washing also helps protect you from most infectious diseases.

Symptoms

Each infectious disease has its specific signs and symptoms. General signs and symptoms common to a number of infectious diseases include:

- Fever
- **Diarrhea**
- Fatigue
- Muscle aches
- Coughing

Causes

Infectious diseases can be caused by:

Bacteria. These one-cell organisms are responsible for illnesses such as strep throat, urinary tract infections and **tuberculosis**.

Viruses. Even smaller than bacteria, viruses cause a multitude of diseases — ranging from the common cold to AIDS.

Fungi. Many skin diseases, such as **ringworm** and **athlete's foot**, are caused by fungi. Other types of fungi can infect your lungs or nervous system.

Parasites. **Malaria** is caused by a tiny parasite that is transmitted by a mosquito bite. Other parasites may be transmitted to humans from animal feces.

Direct contact

An easy way to catch most infectious diseases is by coming in contact with a person or animal who has the infection. Three ways infectious diseases can be spread through direct contact are:

Person to person. A common way for infectious diseases to spread is through the direct transfer of bacteria, viruses or other germs from one person to another. This can occur when an individual with the bacterium, virus touches, kisses, or coughs or sneezes on someone who is not infected.

Animal to person. Being bitten or scratched by an infected animal — even a pet — can make you sick and, in extreme circumstances, can be **fatal**. Handling animal waste can be hazardous, too. For example, you can acquire a **toxoplasmosis** infection by scooping your cat's litter box.

Mother to the unborn child. A pregnant woman may pass germs that cause infectious diseases to her unborn baby. Some germs can pass through the **placenta**.

Complications

Most infectious diseases have only minor complications. But some infections — such as pneumonia, AIDS and meningitis — can become life-threatening. A few types of infections have been linked to a long-term increased risk of cancer:

- Human **papillomavirus** is linked to cervical cancer
- **Helicobacter pylori** is linked to stomach cancer and **peptic ulcers**
- Hepatitis B and C have been linked to liver cancer

In addition, some infectious diseases may become silent, only to appear again in the future — sometimes even decades later. For example, someone who's had a chickenpox infection may develop **shingles** much later in life.

Prevention

Infectious agents can enter your body through:

- Skin contact or injuries
- Inhalation of airborne germs

- **Ingestion of contaminated food** or water
- **Tick** or mosquito bites

Follow these tips to decrease the risk of infecting yourself or others:

Wash your hands. This is especially important before and after preparing food, before eating, and after using the toilet. And try not to touch your eyes, nose or mouth with your hands, as that's a common way germs enter the body.

Get vaccinated. Immunization can drastically reduce your chances of contracting many diseases. Make sure to keep up to date on your recommended vaccinations, as well as your children's.

Stay home when ill. Don't go to work if you are vomiting, have diarrhea or have a fever. Don't send your child to school if he or she has these signs and symptoms, either.

Prepare food safely. Keep counters and other kitchen surfaces clean when preparing meals. Cook foods to the proper temperature using a food thermometer to check for doneness. For ground meats, that means at least 160 F (71 C); for poultry, 165 F (74 C); and for most other meat, at least 145 F (63 C).

In addition, promptly refrigerate leftovers — don't let cooked foods remain at room temperature for extended periods of time.

Don't share personal items. Use your own toothbrush, comb and razor. Avoid sharing drinking glasses or dining **utensils**.

Travel wisely. If you're traveling out of the country, talk to your doctor about any special vaccinations — such as yellow fever, cholera, hepatitis A or B, or typhoid fever — you may need.

5.17 The Endocrine System and Glands of the Human Body

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	gland (n.)	/glænd/	an organ of the body or of a plant that secretes liquid chemicals that have various purposes
2.	hormone (n.)	/'hɔ:.məʊn/	any of various chemicals made by living cells that influence the development, growth, sex, etc. of an animal and are carried around the body in the blood
3.	puberty (n.)	/'pju:.bɜ:ti/	the stage in people's lives when they develop from a child into an adult because of changes in their body that make them able to have children
4.	endocrine gland	/'en.də.krɪn ,glænd/	any of the organs of the body, such as the pituitary gland or the ovaries, that produce and release hormones into the blood to be carried around the body
5.	exocrine gland	/'eksəʊ ,krɪn ,glænd/	gland (such as a salivary gland or part of the pancreas) that releases a secretion external to or at the surface of an organ by means of a canal or duct
6.	metabolism (n.)	/mə'tæb.əl.ɪ.zəm/	all the chemical processes in your body, especially those that cause food to be used for energy and growth
7.	hypothalamus (n.)	/'haɪ.pəʊ'θæl.ə.məs/	a small part in the brain that controls things such as body temperature and the release of hormones, that is below the thalamus

8.	pituitary gland	/pɪ'tjuː.ɪ.tə.ri ,glænd/	a small organ at the base of the brain that controls the growth and activity of the body by producing hormones
9.	thyroid gland	/'θaɪ.rɔɪd ,glænd/	a gland (organ) in the front of the neck that helps to control growth and chemical processes in the body
10.	parathyroid gland	/,pær.ə'θaɪ.rɔɪd ,glænd/	any of four glands (small organs in the body) that control the amount of the chemicals calcium and phosphorus in the body
11.	thymus (n.)	/'θaɪ.məs/	a small gland behind the breathbone that helps build the immune system
12.	ovaries (pl. n.) ovary (s. n.)	/'əʊ.vər.ɪs/ /'əʊ.vər.i/	either of the pair of organs in a woman's body that produce eggs, or the part of any female animal or plant that produces eggs or seeds
13.	testis (s. n.) testes (pl. n.)	/'tes.tɪs/ /'tes.tiːz/	a testicle; a typically paired male reproductive gland that produces sperm and secretes testosterone and that in most mammals is contained within the scrotum at sexual maturity
14.	adrenocortico- trophic hormone (ACTH)	/ə,driː.nəʊ, kɔːtəkəʊ'trɒfɪk hɔː'moʊn/	a protein hormone of the anterior lobe of the pituitary gland that stimulates the adrenal cortex
15.	get constipated	/'kɒn.stɪ.peɪ.tɪd/	unable to empty your bowels as often as you should
16.	hypothyroidism (n.)	/,haɪ.pəʊ'θaɪ.rɔɪd. ɪzəm/	a condition in which the thyroid gland does not produce enough thyroid hormone, leading to heart problems, problems with nerve function in the hands and feet, and mental health issues such as depression
17.	shrink (n.) informal	/'ʃrɪŋk/	a psychiatrist

18.	enzyme (n.)	/ˈen.zaɪm/	any of a group of chemical substances that are produced by living cells and cause particular chemical reactions to happen while not being changed themselves
19.	osteoporosis (n.)	/ˌɒs.ti.əʊ.pəˈrɒʊ.sɪs/	a disease that causes the bones to become weaker and easily broken

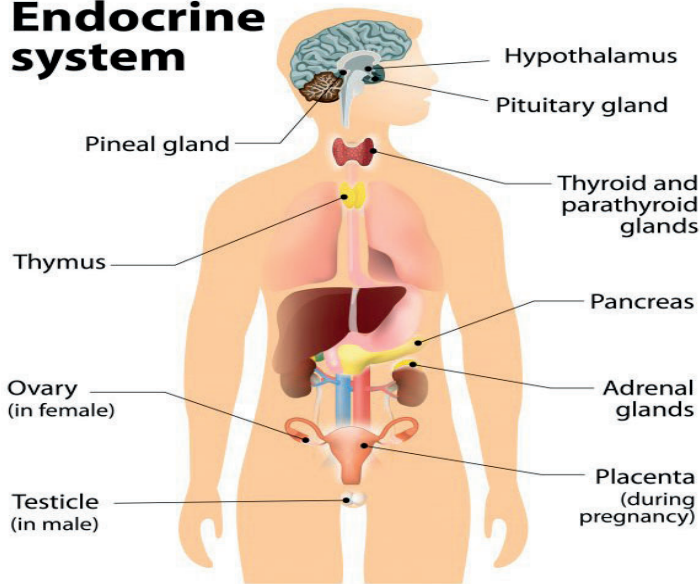
***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

What is the endocrine system?

The endocrine system is a network of **glands** in your body that make the **hormones** that help cells talk to each other. They're responsible for almost every cell, organ, and function in your body.

If your endocrine system isn't healthy, you might have problems developing during **puberty**, getting pregnant or managing stress. You also might gain weight easily, have weak bones, or lack energy because too much sugar stays in your blood instead of moving into your cells where it's needed for energy.

Endocrine system



What Is a Gland?

A gland is an organ that makes and puts out hormones that do a specific job in your body. **Endocrine** and **exocrine glands** release the substances they make into your bloodstream.

Endocrine System Functions

Your endocrine system:

Makes hormones that control your moods, growth and development, **metabolism**, organs, and reproduction.

Controls how your hormones are released

Sends those hormones into your bloodstream so they can travel to other body parts

Parts of the Endocrine System

Many glands make up the endocrine system. The **hypothalamus**, **pituitary gland**, and **pineal gland** are in your brain. The **thyroid** and **parathyroid glands** are in your neck. The **thymus** is between your lungs, the adrenals are on top of your kidneys, and the pancreas is behind your stomach. Your **ovaries** (if you're a woman) or **testes** (if you're a man) are in your pelvic region.

Hypothalamus. This organ connects your endocrine system with your nervous system. Its main job is to tell your pituitary gland to start or stop making hormones.

Pituitary gland. This is your endocrine system's master gland. It uses the information it gets from your brain to tell other glands in your body what to do. It makes many important hormones, including growth hormone; prolactin, which helps breastfeeding moms make milk; antidiuretic hormone (ADH) (vasopressin), which controls blood pressure and helps control body water balance through its effect on the kidney, corticotropin /ACTH: **Adrenocorticotrophic hormone**, which stimulates the adrenal gland to make certain hormones, thyroid-stimulating hormone (TSH), which stimulates the production and secretion of thyroid hormones, oxytocin which helps in milk ejection during breastfeeding; and luteinizing hormone, which manages estrogen in women and testosterone in men.

Pineal gland. It makes a chemical called melatonin that helps your body get ready to go to sleep.

Thyroid gland. This gland makes thyroid hormone, which controls your growth and metabolism. If this gland doesn't make enough (a condition called hypothyroidism), everything happens more slowly. Your heart rate might slow down. You could **get constipated**. And you might gain weight. If it makes too much (hyperthyroidism), everything speeds up. Your heart might race. You could have diarrhea. And you might lose weight without trying. The thyroid gland also produces the hormone calcitonin, which may contribute to bone strength by helping calcium to be incorporated into bone.

Parathyroid. This is a set of four small glands behind your thyroid. They play a role in bone health. The glands control your levels of calcium and phosphorus.

Thymus. This gland makes white blood cells called T-lymphocytes that fight infection and are crucial as a child's immune system develops. The thymus starts to **shrink** after puberty.

Adrenals. Best known for making the "fight or flight" hormone adrenaline (also called epinephrine), these two glands also make hormones called corticosteroids. They affect your metabolism heart rate, oxygen intake, blood flow, and sexual function, among other things.

Pancreas. This organ is part of both your digestive and endocrine systems. It makes digestive **enzymes** that break down food. It also makes the hormones insulin and glucagon. These ensure you have the right amount of sugar in your bloodstream and your cells.

If you don't make insulin, which is the case for people with type 1 diabetes, your blood sugar levels can get dangerously high. In type 2 diabetes, the pancreas usually makes some insulin but not enough.

Ovaries. In women, these organs make estrogen and progesterone. These hormones help develop breasts at puberty, regulate the menstrual cycle, and support a pregnancy.

Testes. In men, the testes make testosterone. It helps them grow facial and body hair at puberty. It also tells the penis to grow larger and plays a role in making sperm.

Health Issues

As you get older, it's natural to notice some things related to your endocrine system. Your metabolism tends to slow down. So you might

gain weight even though you haven't changed how you eat or exercise. Hormonal shifts also explain, at least in part, why you're more likely to have heart disease, osteoporosis, and type 2 diabetes as you age.

No matter how old you are, stress, infections, and being around certain chemicals can also mess with parts of your endocrine system. And genetics or lifestyle habits can increase your chances of an endocrine disorder like **hypothyroidism**, diabetes, or **osteoporosis**.

5.18 Endocrine System Disorders

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	acromegaly (n.)	/,ækrəʊ'megəli/	a disorder caused by excessive production of growth hormone by the pituitary gland and marked especially by progressive enlargement of hands, feet, and face
2.	insufficiency (n.)	/,ɪn.sə'fɪʃ.ən.si/	the fact of not being enough
3.	cortisol (n.)	/'kɔː.tɪ.zəl/	a hormone (a chemical made in the body) that is used in medicine to treat parts of the body that are swollen and painful
4.	Cushing's syndrome	/'kʊʃ.ɪŋz ,sɪn.drəʊm/	a condition in which there are too many corticosteroids (a hormone) in the body caused by the adrenal cortex producing too much cortisol
5.	hyperthyroidism (n.)	/,haɪ.pə'θaɪ.rɔɪd.ɪzəm/	a condition in which the thyroid gland produces large amounts of hormones
6.	hypopituitarism (n.)	/,haɪpəpɪ'tjuː.ɪtə,ɪzəm/	deficient production of growth hormones by the pituitary gland
7.	neoplasia (n.)	/,niː.əʊ'pleɪ.zi.ə/	abnormal growth of new cells that may develop into a tumour

8.	polycystic ovary syndrome	/ˌpɒl.iˈsɪs.tɪk/	a variable disease that is marked by amenorrhea, hirsutism, obesity, infertility, and ovarian enlargement and is usually initiated by an elevated level of luteinizing hormone, androgen, or estrogen which results in an abnormal cycle of gonadotropin release by the pituitary gland – called also polycystic ovarian syndrome
9.	acne (n.)	/ˈæk.ni/	a skin disease common in young people, in which small, red spots appear on the face and neck
10.	precocious puberty	/prɪˈkeʊ.jəs/	showing mental development or achievement much earlier than usual

***Read the text. Guess the meaning of the highlighted words and phrases.**

Acromegaly. Sometimes the pituitary gland makes too much growth hormone and your bones get bigger. It usually affects your hands, feet, and face. It usually starts in middle age.

Adrenal insufficiency. When you have this, your adrenal glands don't make enough of certain hormones, like **cortisol**, which controls stress.

Cushing's disease. In this, your body makes too much cortisol. You could gain weight, get stretch marks, bruise easily at first, then get weakened muscles and bones and possibly develop a hump on your upper back.

Hyperthyroidism. This is when your thyroid gland makes more hormones than your body needs. You might hear it called overactive thyroid. It makes your system run fast and you might feel nervous, lose weight, and have a rapid heartbeat or trouble sleeping.

Hypothyroidism. When your body doesn't make enough thyroid hormone, your system slows down. You might feel tired, gain weight, have a slow heartbeat, and get joint and muscle pain.

Hypopituitarism. Sometimes your pituitary gland doesn't make enough of certain hormones and your adrenal and thyroid glands can't work right.

Multiple endocrine neoplasia. This is a group of disorders that affect your endocrine system. It causes tumors on at least two endocrine glands or in other organs and tissues.

Polycystic ovary syndrome. An imbalance of reproductive hormones can cause your ovaries to either not make an egg or not release it during ovulation. This can throw off your periods, cause **acne**, and make hair grow on your face or chin.

Precocious puberty. When glands that control reproduction don't work properly, some kids start puberty abnormally early - around 8 in girls and 9 in boys.

5.19 Anatomy of the Urinary System

Blocking/Active Vocabulary

	Term/Word/Phrase	Transcription	Definition
1.	urine (n.)	/ˈjʊə.rɪn/	the yellowish liquid waste that is released from the body when you urinate
2.	renal pelvis	/ˈriː.nəl ˈpel.vɪs/	a funnel-shaped structure in each kidney that receives urine from the collecting duct for passage into the ureter and that is formed at one end by the expanded upper portion of the ureter and at the other end by the union of two or more calyces
3.	ureter (n.)	ˌjʊəˈriːtə	either of the paired ducts that carry away the urine from a kidney to the bladder or cloaca
4.	urethra (s. n.) urethras or urethrae (pl. n.)	/jʊəˈriː.θrə/ /jʊəˈriː.θriː/	the tube in most mammals that carries urine from the bladder out of the body. In males it also carries semen.
5.	urea (n.)	/jʊəˈriː.ə/	a substance found in urine and also made from ammonia, used in fertilizers, animal feed, and in the plastics industry

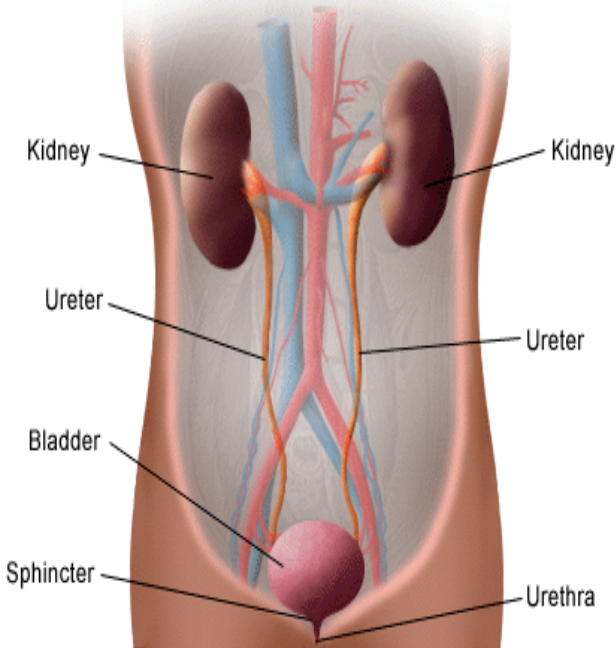
6.	potassium (n.)	/pə'tæs.i.əm/	a silver-white chemical element that, when combined with other elements, is used in the production of soap, glass, and fertilizers (substances that help plants to grow); (symbol K)
7.	sodium (n.)	/'səʊ.di.əm/	a soft, silver-white chemical element that is found in salt; (symbol Na)
8.	erythropoietin (n.)	/ɪ,rɪθrəʊpəɪ'tiːn/	a glycoprotein hormone formed especially in the kidney and stimulating red blood cell formation
9.	bone marrow (n.)	/'bəʊn ,mæɪ.əʊ/	a soft highly vascular modified connective tissue that occupies the cavities of most bones and occurs in two forms: a: one that is yellowish, consists chiefly of fat cells, and is found especially in the cavities of long bones; b: one that is reddish, is the chief site of blood cell formation, and occurs in the normal adult in cancellous tissue especially of certain flat bones — called also red marrow
10.	nephron (n.)	/'nef.rən/	a basic unit of the kidney
11.	glomerulus (s. n.) glomeruli (pl. n.)	/glə'mɜː.jə.ləs/ /glə'mɜː.jə.laɪ/	one of the tiny blood vessels in the kidneys that remove waste products from the blood into the urine
12.	renal tubule	/'riː.nəl 'tjuː.bjuːl/	the part of a nephron that leads away from a glomerulus, that is made up of a proximal convoluted tubule, loop of Henle, and distal convoluted tubule, and that empties into a collecting duct
13.	downward (adj.)	/'daʊn.wəd/	moving towards a lower position
14.	trigone (n.)	/'traɪ.gəʊn/	a three-sided area on the inner surface of the bladder (the bag where urine collects)
15.	dome (n.)	/dəʊm/	roof of the bladder

***Read the text. Look at the highlighted words and phrases in the text and guess their meaning**

How does the urinary system work?

The urinary system's function is to filter blood and create **urine** as a waste by-product. The organs of the urinary system include the kidneys, **renal pelvis**, **ureters**, bladder and **urethra**.

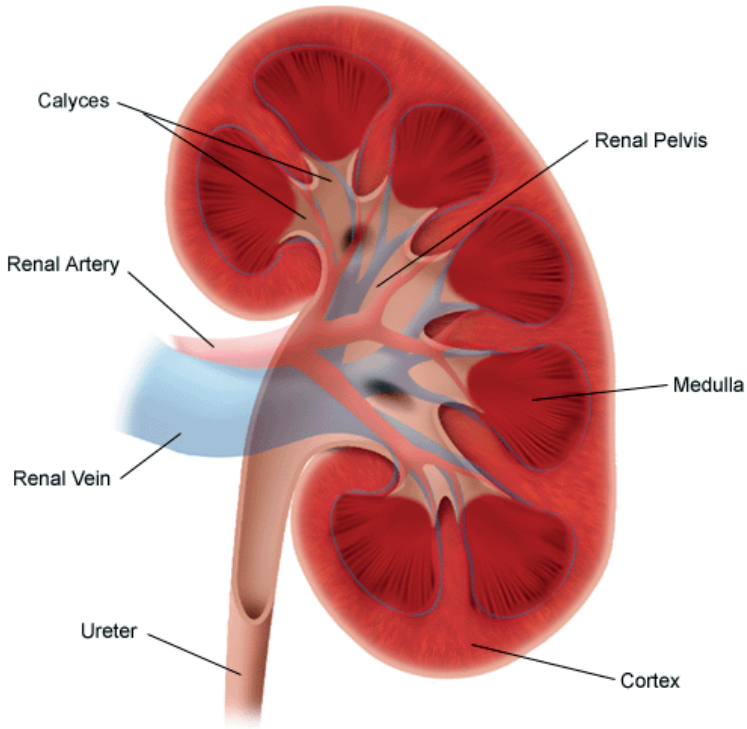
Front View of Urinary Tract



The body takes nutrients from food and converts them to energy. After the body has taken the food components that it needs, waste products are left behind in the bowel and in the blood.

The kidney and urinary systems help the body to eliminate liquid waste called **urea**, and to keep chemicals, such as **potassium** and **sodium**, and water in balance. Urea is produced when foods containing protein, such as meat, poultry, and certain vegetables, are broken down in the body. Urea is carried in the bloodstream to the kidneys, where it is removed along with water and other wastes in the form of urine.

Anatomy of the Kidney

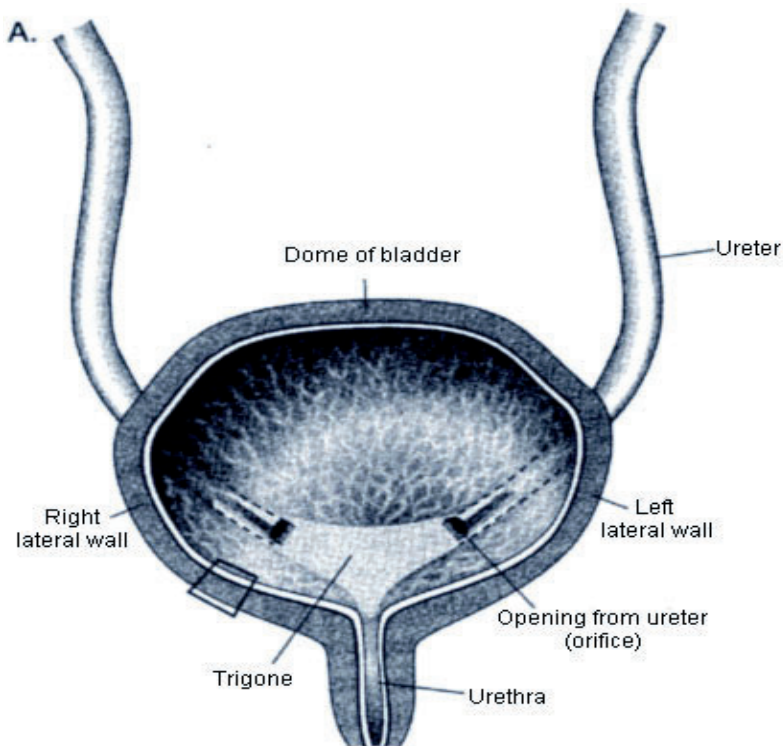


Other important functions of the kidneys include blood pressure regulation and the production of **erythropoietin**, which controls red blood cell production in the **bone marrow**. Kidneys also regulate the acid-base balance and conserve fluids.

Kidney and urinary system parts and their functions

Two kidneys. This pair of purplish-brown organs is located below the ribs toward the middle of the back. Their function is to:

- Remove waste products and drugs from the body
- Balance the body's fluids
- Release hormones to regulate blood pressure
- Control production of red blood cells



The kidneys remove urea from the blood through tiny filtering units called **nephrons**. Each nephron consists of a ball formed of small blood capillaries, called a **glomerulus**, and a small tube called a **renal tubule**. Urea, together with water and other waste substances, forms the urine as it passes through the nephrons and down the renal tubules of the kidney.

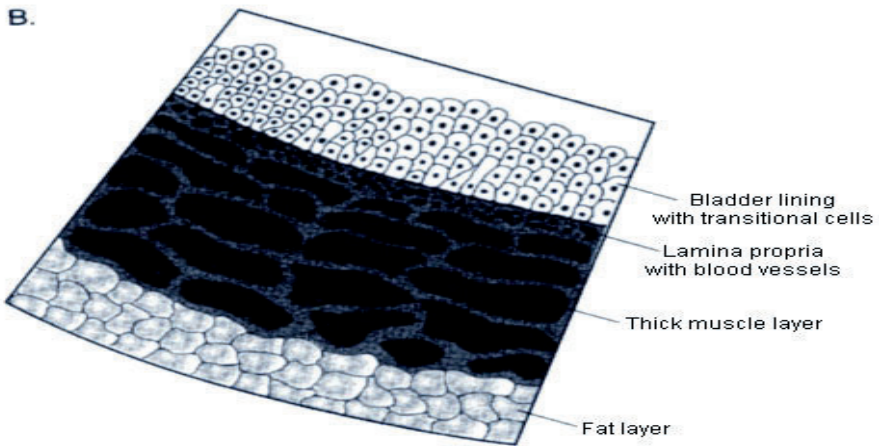
Two ureters. These narrow tubes carry urine from the kidneys to the bladder. Muscles in the ureter walls continually tighten and relax forcing urine **downward**, away from the kidneys. If urine backs up or is allowed to stand still, a kidney infection can develop. About every 10 to 15 seconds, small amounts of urine are emptied into the bladder from the ureters.

Bladder. This triangle-shaped, hollow organ is located in the lower abdomen. It is held in place by ligaments that are attached to other organs and the pelvic bones. The bladder's walls relax and

expand to store urine and contract and flatten to empty urine through the urethra. The typical healthy adult bladder can store up to two cups of urine for two to five hours.

Upon examination, specific “landmarks” are used to describe the location of any irregularities in the bladder. These are:

- **Trigone:** a triangle-shaped region near the junction of the urethra and the bladder
- Right and left lateral walls: walls on either side of the trigone
- Posterior wall: back wall
- **Dome:** roof of the bladder



Two sphincter muscles. These circular muscles help keep urine from leaking by closing tightly like a rubber band around the opening of the bladder.

Nerves in the bladder. The nerves alert a person when it is time to urinate or empty the bladder.

Urethra. This tube allows urine to pass outside the body. The brain signals the bladder muscles to tighten, which squeezes urine out of the bladder. At the same time, the brain signals the sphincter muscles to relax to let urine exit the bladder through the urethra. When all the signals occur in the correct order, normal urination occurs.

5.20 Urinary Disorders

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	incontinence (n.)	/m'kɒn.tɪ.nəns/	inability to control the excretion of urine or the contents of the bowels
2.	interstitial cystitis	/,ɪn.tə'stɪʃ.əl sɪ'staɪ.tɪs/	a chronic idiopathic cystitis characterized by painful inflammation of the subepithelial connective tissue and often accompanied by Hunner's ulcer
3.	cloudy urine	/'klaʊ.di 'jʊə.rɪn/	urine has a milky color that is not clear
4.	chill (n.)	/tʃɪl/	a slight fever; a feeling of cold
5.	hematuria (n.)	/,hɪmə'tʊəriə/	the presence of blood or blood cells in the urine
6.	foul-smelling urine	/,faʊl'smɛlɪŋ/	having a very unpleasant smell
7.	dysuria (n.)	/dɪs'jʊəriə/	difficult or painful discharge of urine
8.	gonorrhea (n.)	/,gɔ:.nə'ri:.ə/	a disease of the sexual organs that can be given from one person to another during sex; a contagious inflammation of the genital mucous membrane caused by the gonococcus – called also clap
9.	chlamydia (s. n.) chlamydiae (pl. n.)	/klə'mɪd.i.ə/	a disease of the sexual organs that is caused by bacteria and that can be given from one person to another during sex
10.	urinary retention	/rɪ'ten'ʃən/	a condition where your bladder does not completely empty each time you urinate

11.	prostate (n.)	/ˈprɒs.tet/	an organ near the penis in male mammals that produces a liquid that mixes with a carries sperm
12.	kink (n.)	/kɪŋk/	a sore place in a muscle, especially in the neck or back
13.	benign prostatic hyperplasia	/brɪˈnaɪn prɒˈstæt.ɪk ,haɪ.pəˈpleɪ.ʒə/	enlargement of the prostate gland caused by a benign overgrowth of chiefly glandular tissue that occurs especially in men over 50 years old and that tends to obstruct urination by constricting the urethra – abbreviation <i>BPH</i>
14.	post-vesectomy syndrome	/vəˈsek.tə.mi/	vasectomy has a low risk of problems, but some men develop post-vasectomy pain syndrome (PVPS). PVPS involves chronic pain in one or both testicles that is still present three months after the procedure
15.	catheterization (n.)	/ˌkæθ.ə.tə.raɪˈzeɪ.ʃən/	the process of putting a tube into the body to allow fluids to pass or to make a passage wider
16.	douche (v.)	/duːʃ/	to put a liquid, usually water, into the vagina in order to wash it or treat it medically
17.	spermicide (n.)	/ˈspɜː.mɪ.sɑɪd/	a substance that kills sperm, used especially on condoms or by a woman before she has sex in order to stop herself becoming pregnant
18.	lubricant (n.)	/ˈluː.brɪ.kənt/	a liquid such as oil that is used to make the parts of an engine move easily together, or a substance put on any surface to help it more easily against another one

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

What are urinary disorders?

The urinary tract consists of the kidneys, ureters, bladder and urethra. Your kidneys filter your blood, creating urine, which travels through the ureters to the bladder, where it is stored. When the appropriate time comes, the muscles of your bladder contract and urine exits your body through your urethra. Urinary disorders include any diseases, disorders or conditions that affect your kidneys, ureters, bladder or urethra, or that affect their function.

Examples of urinary disorders include cancers of the urinary tract, **incontinence** (inability to control urine flow), **interstitial cystitis**, kidney stones, kidney failure, and urinary tract infections. Common symptoms of urinary disorders include abdominal, pelvic, or lower back pain or discomfort; blood in the urine; changes in the urine; difficulty producing urine; fever and chills; frequent urination; leaking of urine; and urgent need to urinate. Some urinary disorders, such as infections, may develop quickly, while others, such as cancer, develop more slowly.

Urinary disorders can be caused by cancer, conditions affecting the structures near the urinary tract, infection, inflammation, injury, nervous system diseases, scarring, and urine crystallization. Treatment of urinary disorders involves identifying and treating the cause and symptoms. Some examples of possible treatments include self-care measures, medications to relieve pain, medications to relax the bladder, antibiotics, chemotherapy, radiation therapy, and surgery.

What are the symptoms of urinary disorders?

Some people who have urinary disorders do not experience symptoms. Others may notice changes in the color, smell or cloudiness of their urine. Some urinary disorders can cause pain or discomfort, which may be constant or may come and go in waves. Some urinary disorders involve changes in the frequency or urgency of urination, and others affect a person's ability to hold urine or to start and maintain the flow of urine. Urinary disorders caused by infections may be accompanied by fevers and **chills**. Sometimes the first symptom of urinary tract cancers is weight loss.

Common symptoms of urinary disorders

Symptoms of urinary disorders vary from person to person and based on the cause of the disorders. Common urinary symptoms include:

- Abdominal cramping
- Abdominal, pelvic or back pain that can be severe

- Bloody or pink-colored urine (**hematuria**)
- **Cloudy urine**
- Fever and chills
- **Foul-smelling urine**
- Frequent urination
- General ill feeling
- Leaking of urine
- Pain during sexual intercourse
- Pain or burning with urination (**dysuria**)
- Unexplained weight loss
- Urgent need to urinate

Serious symptoms that might indicate a life-threatening condition

In some cases, urinary disorders can be life threatening. Seek immediate medical care if you, or someone you are with, have any of these life-threatening symptoms including:

- Abdominal, pelvic, or lower back pain that can be severe
- High fever (higher than 101 degrees Fahrenheit)
- Not producing any urine
- Severe nausea and vomiting

What causes urinary disorders?

Urinary disorders have a wide variety of causes. Sexually transmitted infections, such as **gonorrhea** and **Chlamydia**, are common causes of urethritis. Other infectious agents can cause infections of the urethra, bladder or kidneys. Irritation or trauma can cause inflammation of the urethra.

Urinary incontinence can be due to weak muscles in the pelvis or around the urethra or to disorders of the nervous system. **Urinary retention** can be due to nervous system abnormalities, enlargement of the **prostate**, or **kinking** of the urethra. Kidney disease can result from other conditions, such as high blood pressure or diabetes (a chronic disease that affects your body's ability to use sugar for energy). The causes of some types of urinary disorders, such as interstitial cystitis, kidney stones, and cancers of the urinary tract, are not known.

Common causes of urinary disorders

Common causes of urinary disorders include:

- **Benign prostatic hyperplasia**(enlargement of the prostate)
- Cancers or benign tumors
- Dehydration
- Infections of the urinary tract
- Interstitial cystitis (conditions involving chronic inflammation of the bladder)
- Kidney diseases
- Kidney or urinary tract stones
- **Post-vasectomy syndrome**
- Sexually transmitted diseases
- Trauma or injury

What are the risk factors for urinary disorders?

A number of factors increase the risk of developing urinary disorders. Not all people with risk factors will get urinary disorders. Risk factors for urinary disorders include:

- Birth defects
- **Catheterization** (placement of a tube to drain the bladder)
- Chemical or irritant exposures
- Cigarette smoking
- Diabetes
- Genital piercing
- Low fluid intake
- Personal history or family history of some types of urinary tract disorders
- Pregnancy and delivery
- Sexual contact with someone who engages in high-risk sexual behavior or who has had a sexually transmitted disease
- Systemic diseases, such as high blood pressure or diabetes
- Surgery involving the upper or lower urinary tract
- Trauma
- Unsafe sexual practices
- Use of deodorant tampons or **douches**
- Use of **spermicides** or **lubricants** with irritants in

5.21 Human Reproductive System

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	fertilization (n.)	/ˌfɜːtɪ.laɪˈzeɪ.ʃən/	the process of joining male and female sexual cells to produce young
2.	spermatozoon (s. n.) spermatozoa (pl. n.)	/ˌspɜː.mə.təˈzəʊ.ɒn/	a sex cell produced by a man or male animal
3.	blastocyst (n.)	/ˈblæstəʊˌsɪst/	the modified blastula of a placental mammal having an outer layer composed of the trophoblast
4.	period of gestation	/dʒesˈteɪ.ʃən/	(the period of) the development of a child or young animal while it is still inside its mother's body
5.	expulsion (n.)	/ɪkˈspʌl.ʃən/	(the act of) forcing air or liquid out of something
6.	suckle (v.)	/ˈsʌk.əl/	to feed a baby, especially a baby animal, with milk from the organ in the mother that produces milk, or (of a baby, especially a baby animal) to drink milk from the mother
7.	scrotum (s. n.) scrotums or scrota (pl. n.)	/ˈskrəʊ.təm/	in most male mammals, a bag of skin near the penis that contains the testicles
8.	fallopian tube	/fəˌləʊ.pi.ən ˈtʃuːb/	either of the two tubes in a woman's body along which eggs travel from the ovaries to the womb
9.	epididymis (s. n.) epididymides (pl. n.)	/ˌepɪˈdɪd.ə.məs/ /ˌepɪˈdɪd.ɪ.miːz/	a tube that carries sperm from the testes (the two round male sex organs)

20.	ductus deferens (s. n.) ductus deferentes (pl. n.)	/ˈdʌk.təs ˈdef.ə.renz/	also called vas deferens, thick-walled tube in the male reproductive system that transports sperm cells from the epididymis, where the sperm are stored prior to ejaculation
21.	ejaculatory duct	/iˈdʒækjʊləˌtɔːri/	a duct through which semen is ejaculated specifically: either of the paired ducts in the human male that are formed by the junction of the duct from the seminal vesicle with the vas deferens and that pass through the prostate to empty into the urethra
22.	copulation (n.)	/ˌkɒp.jəˈleɪ.ʃən/	the act of having sex
23.	periodicity (n.)	/ˌpɪr.i.əˈdɪs.ə.ti/	the quality, state, or fact of being regularly recurrent or having periods
24.	menopause (n.) (informal the change (of life))	/ˈmen.ə.pɔːz/	the time in a woman's life when she gradually stops having periods (blood flow from her uterus each month)
25.	lactation (n.)	/lækˈteɪ.ʃən/	the process in which a woman or female animal produces milk

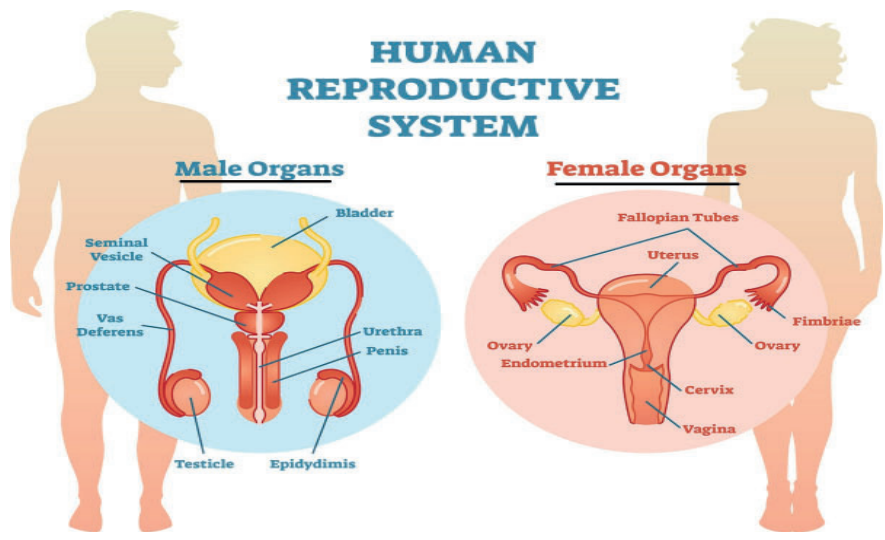
***Read the text. With a partner, say what the highlighted words mean. Check the meaning using the table above.**

The human reproductive system is an organ system by which humans reproduce and bear live offspring. Provided all organs are present, normally constructed, and functioning properly, the essential features of human reproduction are liberation of an ovum, or egg, at a specific time in the reproductive cycle, internal **fertilization** of the ovum by **spermatozoa**, or sperm cells, transport of the fertilized ovum to the uterus, or womb, implantation of the **blastocyst**, the early embryo developed from the fertilized ovum, in the wall of the uterus, formation of a placenta and maintenance of the unborn child during the entire **period of gestation**, birth of the child and **expulsion** of the placenta, and **suckling** and care of the child, with an eventual return of the maternal organs to virtually their original state.

For this biological process to be carried out, certain organs and structures are required in both the male and the female. The source of the ova (the female germ cells) is the female ovary; that of spermatozoa (the male germ cells) is the testis. In females, the two ovaries are situated in the pelvic cavity; in males, the two testes are enveloped in a sac of skin, the **scrotum**, lying below and outside the abdomen. Besides producing the germ cells, or gametes, the ovaries and testes are the sources of hormones that cause the full development of secondary sexual characteristics and also the proper functioning of the reproductive tracts. These tracts comprise the **fallopian tubes**, the uterus, the vagina, and associated structures in females and the penis, the sperm channels (**epididymis**, **ductus deferens**, and **ejaculatory ducts**), and other related structures and glands in males. The function of the fallopian tube is to convey an ovum, which is fertilized in the tube, to the uterus, where gestation (development before birth) takes place. The function of the male ducts is to convey spermatozoa from the testis, to store them, and, when ejaculation occurs, to eject them with secretions from the male glands through the penis.

At **copulation**, or sexual intercourse, the erect penis is inserted into the vagina, and spermatozoa contained in the seminal fluid (semen) are ejaculated into the female genital tract. Spermatozoa then pass from the vagina through the uterus to the fallopian tube to fertilize the ovum in the outer part of the tube. Females exhibit **periodicity** in the activity of their ovaries and uterus, which starts at puberty and ends at **menopause**.

The periodicity is manifested by menstruation at intervals of about 28 days; important changes occur in the ovaries and uterus during each reproductive, or menstrual, cycle. Periodicity, and subsequently menstruation, is suppressed during pregnancy and **lactation**.



Chapter 6. In the hospital

6.1 Hospitals

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	outcast (n.)	/ˈaʊt.kɑːst/	a person who has no place in their society or in a particular group, because the society or group refuses to accept them
2.	proprietary (adj.)	/prəˈpraɪ.ə.tər.i/	relating to owning something, or relating to or like an owner
3.	convalescent home/hospital	/ˌkɒn.vəˈles. ənt/	(for or relating to) convalescing (to rest in order to get better after an illness)
4.	generalist (n.)	/ˈdʒen.ər.əl.ɪst/	(someone who is) not specialized

***Read the text. Look at the highlighted words/phrases. Practise the pronunciation of the words/phrases using the table above.**

Health care is available for people all over the world through a variety of institutions and systems. Some communities have better facilities than others, but most people in developed countries have access to some form of medical attention. The most familiar health care institution is the hospital. Hospitals have provided care for the sick and injured for centuries, but modern hospitals bear little resemblance to earlier institutions of the same name. In ancient Greece and Rome, for example, temples were often used as hospitals. During the Middle Ages in Europe, hospitals were places of filth and death for the incurables and **outcasts** of society. This began to change in the nineteenth century with advances in medical science. Today's hospitals are complex institutions providing sophisticated medical care. There are many different kinds of hospitals. The most familiar is the general, or community, hospital, where patients of all ages with all kinds of illnesses and medical conditions are treated.

These hospitals provide a variety of services, including general and specialized medicine (therapy, cardiology, gastroenterology, urology, neurology, traumatology and orthopaedics, gynaecology, etc.), general and specialized surgery, and obstetrics, to meet the general medical needs of the community. Patients with acute problems stay there for only a short term, seven days on average. Other hospitals provide more specialized care. Some treat patients with chronic illnesses, such as tuberculosis, requiring long-term care, or patients of one age group, like children. Specialty hospitals also include rehabilitation and psychiatric ones. Hospitals can also be categorized by their means of financial support. Most hospitals in the world are operated and financed by the government of their country. Other hospitals are private, non-profit institutions, known as voluntary hospitals. The primary mission of such hospitals is to benefit the community in which they are located. **Proprietary** or investor-owned hospitals are run to make a profit. Despite their growth in numbers, hospitals cannot provide services for all medical needs or patients. As a result, many hospitals are developing outpatient facilities. A patient who remains in the hospital to receive constant medical attention is called an inpatient. An outpatient is ambulatory and visits the hospitals only as the need arises. Some frequent users of outpatient services are persons who need follow-up treatment after a hospital stay, patients undergoing physical or occupational therapy, and psychiatric day-care patients. The emergency units in hospitals are also becoming more important as all-purpose treatment centres. While these facilities have always been well used by the critically ill or injured, they are now also viewed as a convenient place to get treatment for conditions which are not critical. There are good reasons for this trend. Emergency rooms usually operate on a twenty-four-hour basis. Moreover, they are equipped with the most sophisticated facilities, available today. Other institutions provide health care in addition to hospitals. Nursing (or **convalescent**) **homes** offer live-in arrangements for the sick and for convalescing patients. They are becoming increasingly popular, particularly for the elderly. There are also prenatal clinics for pregnant women, well-baby clinics for new mothers and their babies, and mental health clinics for those who need periodic psychiatric attention, among others. In the delivery of health services, physicians play a central role by evaluat-

ing a patient's health condition, diagnosing abnormalities and prescribing treatment. Physicians trained in family medicine/general practice or general internal medicine are called **generalists** or primary care physicians (PCPs), while those dealing with non-primary care are called specialists. The common medical specialties include anaesthesiologists, cardiologists, family medicine doctors, neurologists, obstetricians and gynaecologists, ophthalmologist (eye doctors), pathologists, paediatricians, radiologists and others.

6.2 Medical Emergencies

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	first aid kit	/,fɜːst 'eɪd ,kɪt/	a box or bag containing basic medical equipment such as bandages and antiseptic cream
2.	asphyxiation (n.)	/əʃ, fɪk.sɪ' eɪ.ʃən/	the condition of being unable to breathe, usually resulting in death
3.	electrocution (n.)	/i, lek.trə'kjuː.ʃən/	the action of killing someone by causing electricity to flow through their body
4.	drowning (n.)	/'draʊn.ɪŋ/	death caused by being underwater and not being able to breathe, or a case when this happens:
5.	resuscitation (n.)	/rɪ, sʌs.ɪ'teɪ.ʃən/	the act of bringing someone or something back to life or waking them
6.	tachycardia (n.)	/,tæk.ɪ'kɑː.di.ə/	a heart rate that is over 100 beats per minute at rest
7.	tachypnoea (n.)	/,tækɪp'nɪə/	abnormally rapid breathing : increased rate of respiration. Respiratory distress observed shortly after birth in large full-term infants who are delivered by cesarean section is frequently a result of transient tachypnea of the newborn

8.	organ perfusion	/pə'fju:ʒən/	the act of pouring a liquid over or through the tissue of a particular organ
9.	hypoxia (n.)	/haɪ'pɒk.si.ə/	a condition in which there is not enough oxygen available to the blood and body tissues
10.	cardiac arrest	/,kɑ:.di.æk ə'rest/	a condition in which the heart stops beating
11.	ammonia (n.)	/ə'məʊ.ni.ə/	a gas or liquid with a strong smell, having various industrial uses such as in cleaning
12.	bleach (n.)	/bli:tʃ/	a strong chemical used for cleaning things or removing colour from things
13.	gastric lavage	/lɑ:vɜʒ/	washing; the process of cleaning out the contents of the stomach
14.	adhesive bandage	/əd'hi:.sɪv/	a sticky substance that is used for joining things together, usually permanently
15.	gauze pad	/gəʊz/	a very thin, light cloth, used to make clothing, to cover cuts and to separate solids from liquids, etc.
16.	saline (n.)	/'ser.laɪn/	a liquid mixture of salt and pure water, used to kill bacteria or to replace liquid lost from the body
17.	activated charcoal	/'tʃɑ:.kəʊl/	a highly adsorbent powdered or granular carbon made usually by carbonization and chemical activation and used chiefly for purifying by adsorption – also called activated carbon
18.	emetic (n.)	/i'met.ɪk/	a substance, especially a medicine, that causes vomiting
19.	tranquilizer (n.)	/'træŋ.kwə.laɪ.z ə/	a drug used to make a person or animal calmer
20.	iodine (n.)	/'aɪ.ə.di:n/ / 'aɪ.ə.dam/	a chemical element that is found in small amounts in sea water and used to prevent infection; (symbol I)

21.	brilliant green solution	/ˈbrɪl.jənt grɪːn səˈluːʃən/	also called emerald green, or malachite green G , a triphenylmethane dye of the malachite-green series used in dilute solution as a topical antiseptic. Brilliant green is effective against gram-positive microorganisms. It has also been used to dye silk and wool. It occurs as small, shiny, golden crystals soluble in water or alcohol.
22.	disposable syringes	/dɪˈspəʊ.zə.bəl sɪˈrɪndʒ/	a hollow, cylinder-shaped piece of equipment used for sucking liquid out of something or pushing liquid into something, especially one with a needle that can be put under the skin and used to inject drugs, remove small amounts of blood, ect. The disposable product is intended to be thrown away after use.
23.	hypodermic needle	/ˌhaɪ.pəˈdɜː.mɪk ˈniː.dəl/	a needle used to inject drugs (put them into the body) under a person's skin
24.	hemomanometer (n.)	/ˌhɪmoʊsɑːˈtəmɒtər/	an instrument for measuring blood pressure and especially arterial blood pressure, “sphygmomanometer”
25.	tracheotomy (n.) (also tracheostomy)	/ˌtræk.iˈtɒt.ə.mi/ /-ˈɒst.ə.mi/	a medical operation in which an opening is made in a person's neck and trachea, usually in order to help them to breathe
26.	suture kit	/ˈstætʃ.ər kɪt/	the kit includes a tray to hold pad, durable carrying case, needle holder, suture scissors, tissue forceps, scalpel, nylon suture and small case to hold the instruments
27.	dextrose (n.)	/ˈdek.strəʊs/	a form of glucose (a type of sugar) that is found in fruits, honey, etc
28.	plasma (n.)	/ˈplæz.mə/	the pale yellow liquid that forms 55% of human blood and contains the blood cells

***Read the text. Guess the meaning of the highlighted words and phrases.**

A medical emergency is an injury or illness that is acute and poses an immediate risk to a person's life or health. Not all medical emergencies are life-threatening; some conditions require medical attention in order to prevent significant and long-lasting effects on physical or mental health. There are emergencies that require assistance from a qualified person (e.g. a nurse, a doctor, an ambulance brigade), although some of the emergencies can be dealt with by the victims themselves knowing the ABC of first aid and having a **first aid kit**.

Different natural and man-made disasters such as floods, earthquakes, hurricanes, crowds, traffic accidents, gas or nuclear explosions, fire, etc. result in an emergency situation and a great number of victims who urgently need first aid. The key aims of first aid can be summarized in three key «P» points: to preserve life, to prevent further harm (prevent the condition from worsening), and to promote recovery. The ABC of first aid refers to the assessment of a person's airways, breathing and circulation (if the airway hasn't become blocked, if breathing hasn't stopped and if the person is not in cardiac arrest).

One of the most serious emergencies occurs when an individual has stopped breathing. This may be the result of **asphyxiation, electrocution, drowning**, a heart attack or another type of accident. Artificial respiration must be started immediately. Mouth-to-mouth breathing is the most effective form. If the heart has stopped beating as well, then cardiac massage will also be necessary.

The cardiopulmonary **resuscitation** (CPR) of a victim in these instances involves two aspects. The first is getting oxygen into the blood by blowing air into the lungs. The second is heart massage — the application of chest pressure to compress the heart and squeeze blood out of it into the circulatory system.

The second most critical emergency is severe bleeding, especially from the main artery. It can usually be stopped with direct pressure above the place of bleeding. If a vein bleeds, the extremity must be elevated.

A condition which accompanies many medical emergencies is circulatory shock, commonly known simply as a shock. It is a serious, life-threatening medical condition in which the victim's bodily tissues do not

receive an adequate supply of oxygen-containing blood. A circulatory shock should not be confused with the emotional state of shock, as these two are not related.

The essential signs of shock are seen as **tachycardia/tachypnoea**, hypotension, and signs of poor **organ perfusion** (such as low urine output, confusion or loss of consciousness). Also, a victim may suffer nausea, vomiting or diarrhea. The victim should be put supine with feet raised. No food or drink can be given. Any bleeding should be controlled and the victim should be kept warm and comfortable until professional assistance arrives. Shock may lead to **hypoxia** (a lack of oxygen in the blood) or **cardiac arrest** (the heart-stopping).

Another serious emergency situation occurs when a poisonous substance is swallowed. This usually happens in a household where a child swallows any chemical household product (**ammonia, bleach** or even shampoo), or takes an overdose of medicine. The antidote for each substance is different; thus, instructions on the container should be followed strictly. In some cases, the victim should be forced to vomit or even **gastric lavage** in the hospital may be needed.

It is also helpful to have the necessary equipment and medications readily available in a first aid kit. Any first aid kit should contain sterile cotton wool, **adhesive bandages** and **gauze pads** for cleaning wounds; **saline** for cleaning wounds or washing out foreign bodies from the eyes, and antiseptic wipes or sprays to reduce the risk of infection in abrasions or around the wounds. Various simple medications, such as aspirin, painkillers, antihistamines, **activated charcoal**, **emetics** to induce vomiting, **tranquilizers**, smelling salts and others should be available. There should be some medications for topical application — antiseptic ointment, fluid, or spray, **iodine** or **brilliant green solution**, burn gel or spray, mild anesthetic and others. A more elaborate kit might also contain forceps, **disposable syringes** and **hypodermic needles**, a stethoscope for measuring the heartbeat or listening to the lungs, a **hemomanometer**, **tracheotomy** and **suture kits**, and supplies of **dextrose**, **plasma** and saline solutions.

6.3 Chemist's Shop

Blocking/Active Vocabulary

	Term/Word/ Phrase	Transcription	Definition
1.	dispense drugs/ medication/ medicine	/dɪ'spens/	to prepare medicines as a job and give or sell them to people
2.	cupping glass	/kʌpɪŋ glɑ:s/	a small glass cup in which a partial vacuum is produced for cupping (an operation of drawing blood to the surface of the body by use of a glass vessel evacuated by heat)
3.	psychotropic drug/medication	/,saɪ.kə'trəʊ.pɪk/	drugs or other substances affect your mind
4.	prescription (for) (n.)	/prɪ'skrɪpʃən/	a doctor's written direction for the medicine that someone needs and how it is to be used, or the medicine itself
5.	potent (adj.) drug/remedy	/'pəʊ.tənt/	powerful, persuasive, or effective
6.	subscription (n.)	/səb'skrɪpʃən/	an amount of money that you pay regularly to receive a product or service
7.	superscription (n.)	,su:pə'skrɪpʃən	something written or engraved on the surface of, outside, or above something else; inscription also : address
8.	inscription (n.)	/ɪn'skrɪpʃən/	words that are written or cut in something
9.	adjuvant (n.)	/'ædʒ.ə.vənt/	a substance that strengthens the body's immune response (ability to fight harmful substance, disease, etc.)
10.	toxicologist (n.)	/'tɒk.sɪ'kɒl.ə.dʒɪst/	a person who studies or knows a lot about poisons

***Read the text. Look at the highlighted words and phrases in the text and guess their meaning.**

A chemist's shop is an institution of health service which supplies the population with medicines and medical things. It is a place where a wide variety of articles is sold, where prescriptions can be made; drugs are composed, **dispensed**, stored and sold. Chemist's shops are differentiated into municipal, public and private ones. An ordinary chemist's shop has a chemist's department, a prescription one, proper working rooms and a hall for visitors. At the chemist's department, one can buy ready-to-use drugs, different things for medical care (hot water bottles, medicine droppers, mustard plasters, **cupping glasses**, thermometers, etc.), and medical herbs.

At the chemist's all medicines are kept in drug cabinets. Poisonous, strong, narcotic and **psychotropic drugs** can be sold **by prescription** only. These drugs are **potent** and can be dangerous if taken in an overdose.

All containers of dispensed medicines should be clearly labeled with the following particulars: the name of the patient, the name of the medicine, correct dosage instructions, the date of dispensing, the expiry date, warnings or contraindications.

The pharmacist should instruct the patient about: the dangers of overdosage; the problems resulting from inadequate dosage; expected side effects of the drug; proper storage of the drug, etc. The pharmacist should also warn the patient about the dangers of taking drugs for longer periods unless he/she is supervised by a physician.

A complete prescription consists of six essential parts: the patient's name, **superscription**, **inscription**, **subscription**, the prescriber's name and signature. The superscription is the traditional symbol Rx that is always put at the beginning of the prescription. (It is a contracted form of the Latin verb "recipe", i.e. to take.) The inscription is the body of the prescription. It indicates the ingredients and the quantity of each ingredient. In complex prescriptions containing multiple ingredients, the inscription may consist of three parts: medication, **adjuvant** and vehicle. The subscription always follows the inscription and contains the doctor's instructions to the pharmacist. This designates the form of the preparation (mixture, tablets, ointment, etc.), its strength (in words and figures) and total quantity (in words and figures). The signature consists of the directions to be given to the patient. This information is

intended to be placed on the label of the container in which the medication is dispensed. The prescriber's name is the part of the prescription that guarantees its authenticity.

Until the best composition of medicines is determined, a **toxicologist** is to assess the safety factor of the drug or series. In most cases, the best composition is the one with the highest therapeutic index, i.e. the active/lethal dose ratio. Realization of medicines is promoted by obtaining a license issued by the State Department of Quality and Safety Control and Production of Medicines and Medical Articles.

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