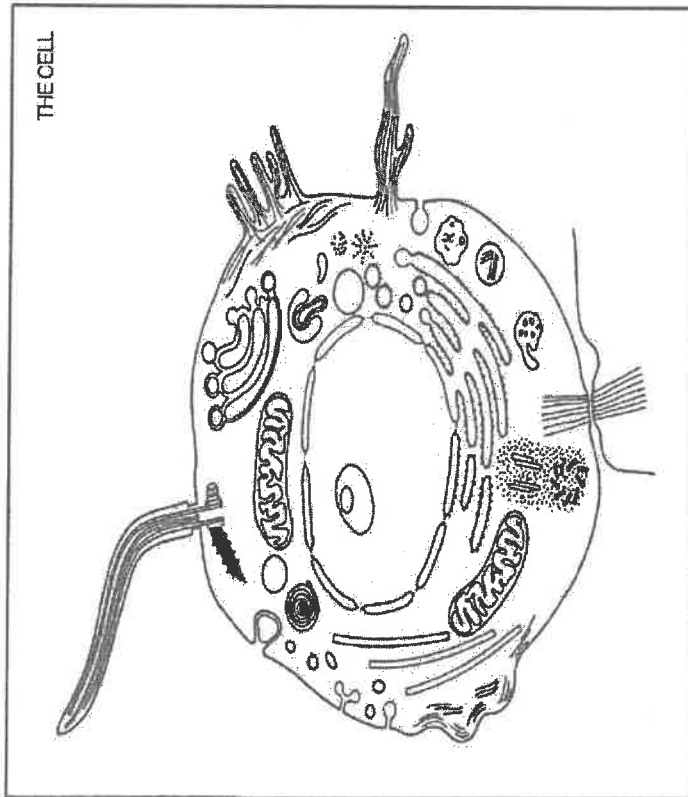


## 5. THE HUMAN BODY

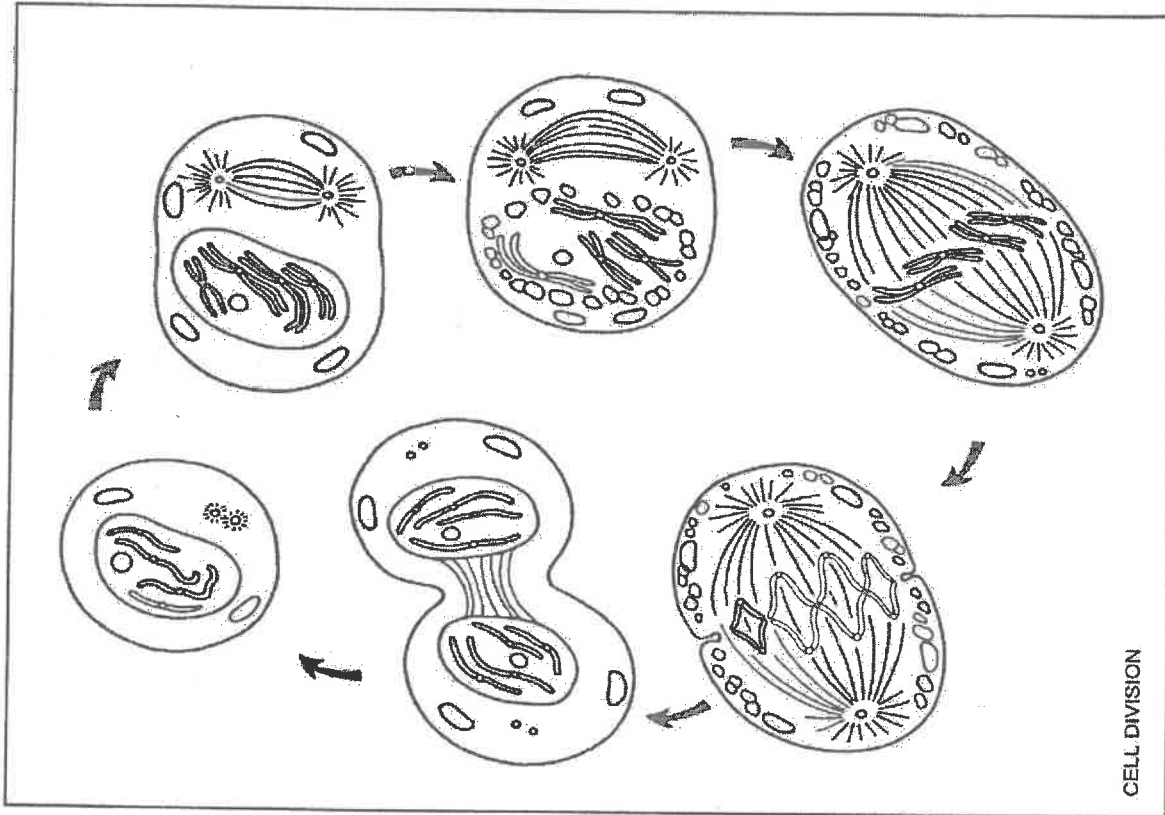
The human body functions as a whole, but it is composed of many separate functional units that must work together.

### The Cell

The smallest and most basic unit of life is called the cell. Cells are made of protoplasm, a watery substance that consists of proteins, carbohydrates and nucleic acids and have three parts: cytoplasm, the cell membrane and the nucleus.



The nucleus is responsible for the cell reproduction and contains 46 chromosomes important for the hereditary factors. They are made up of ribonucleic acid known as RNA and deoxyribonucleic acid, or DNA.



Each cell has three functions: reproduction, movement of fluid through the cell membrane and metabolism. Groups of similar cells form tissues: epithelium, connective tissue, muscle tissue and nerve tissue.

Epithelium contains no nerve or blood vessels and its main function is protection.

Connective tissue supports and shapes the body and muscle tissues enable contractions (movements). Nerve tissue is composed of cells that generate, transmit and modify electrical impulses in the body, which provide communication between the body parts.

A body system consists of a group of organs that form different systems as:

1. **The musculoskeletal system** — composed of the skeletal system that provides a framework for the body and protects vital organs. It consists of bones and joints and its functions are connected with the muscle system. The purpose of this system is a movement caused by contraction and extension of muscles. We distinguish between voluntary and involuntary muscles. Most of the voluntary (or transversely striped) muscles are found in the extremities, in the trunk and in the head and they are capable of rapid and complicated movements. Involuntary (or smooth) muscles provide only mechanical movement in the walls of the tracts and organs.
2. **The circulatory system** — the heart and a network of blood vessels: arteries, capillaries and veins.
3. **The digestive system** — the mouth, oropharynx, oesophagus, stomach, small intestine, large intestine and the anus.
4. **The respiratory system** — the nose, nasopharynx, trachea, bronchi and the lungs.
5. **The urinary system** — the kidneys, ureters, bladder and the urethra.
6. **The nervous system** — the brain, spinal cord, peripheral nerves, autonomic nerves.
7. **The endocrine system** — it consists of seven glands and its function is to produce hormones.
8. **The reproductive system** — which is divided into the male's: the testes, epididymis, seminal vesicles and the prostate; and the female's: the ovaries, Fallopian tubes, uterus and the vagina.
9. **The integumentary system** — protects the body against pathogenic organisms and injury and consists of the skin, lymph channels and the lymph nodes.

Organs of the body are positioned within spaces called **cavities**. The skull surrounds the cranial cavity that contains the brain. The spinal cavity formed by the vertebrae contains the spinal cord. The thoracic cavity contains the heart, bronchial tubes and the lungs. The floor of this cavity is a muscle organ called the diaphragm. Below the diaphragm there are the abdominal cavity that contains organs of the digestive system and next the pelvic cavity where we can find organs of the reproductive and urinary systems. The human body itself consists of three major areas: the head, the trunk and the extremities.

The **head** consists of the cranium and the face. The cranium contains the brain and its membrane and is covered by the hair; the face is made up of the forehead, eyes, cheeks, nose, ears and the chin. The mouth has two lips and contains the tongue and the teeth.

The head and the trunk are joined together at the neck that contains the cervical vertebrae, the larynx, the pharynx, and important vessels and nerves.

The **trunk** is made up of the vertebral column, the chest, the abdomen and the pelvis. Each vertebra has a spinal canal through which the spinal cord runs. The chest contains the oesophagus, the trachea, the heart, the lungs and the great vessels. On the chest there are two nipples and, in women, two breasts.

The **upper limb** is made up of the shoulder, upper arm, elbow, forearm, wrist and the hand with thumb and four fingers.

The **lower limb** is composed of the pelvic girdle, the hip, thigh, knee, lower leg with the calf and the shin, the ankle and the foot with five toes. Fingers and toes are called the digits.

The **skeleton** of an adult consists of more than 200 bones of various shapes and sizes. They are made up of hard osseous tissue and are described as long, short, flat and irregular. The point where two bones meet is a joint, which contains an oily substance called synovia. The bones are held together by the ligaments.

## VOCABULARY

abdomen [æb'dɔ:mən]	břícho
adrenal [æ'dri:nəl]	nadledvinka, nadledvinkový
ankle [æŋkl]	kotník
anterior [æn'tiəriə]	přední
anus [eɪnəs]	řít
arm [ɑ:m]	paže
arteria [ɑ:'tiəriə]	tepna
backside [bæksaɪd]	zadek
bladder [blædə]	měchýř
brain [breɪn]	mozek
breast, -s [breɪst]	prsa
bronchi [brɒŋkaɪ]	průdušky
bone [bəʊn]	kost
calf [kɑ:f]	lýtko
capillaries [ke'pɪlɪəriəs]	vlásečnice
cavity [kævəti]	dutin
cell [sel]	buňka
cerebral [sɪ'rebrəl]	mozkový
colon [kə'lɒn]	tračník, tlusté střevo
connective tissue [kə'nektɪv tɪʃju:]	pojivová tkáň
costal [kɒstl]	žeberní
cranium [kreɪniəm]	lebka
cytoplasm [saɪtəplæzəm]	buněčná hmota
digestive [dɪ'dʒestɪv]	trávicí, zažívací
digits [dɪdʒɪts]	prsty
ear [iə]	ucho
elbow [elbəʊ]	loket
endocrine [endə'kraɪn]	endokrinní
epididymis [epɪ'dɪdɪmɪs]	nadvarle
epithelium [epɪ'ti:liəm]	výstelka
extremity [eks'treməti]	končetina
eye [aɪ]	oko
face [feɪs]	obličej
Fallopian tube [fælə'pi:ən tju:b]	vejcovod
finger [fɪŋgə]	prst ruky
fluid [fluɪd]	tekutina
foot, pl. feet [fu:t, fi:t]	chodidlo

forehead [fɔ:hed]	čelo
framework [freɪmwɜ:k]	podpěra, rámec
girdle [gɜ:dl]	pletenec
gland [glænd]	žláza
hair [heə]	vlasý, chlupy
hand [hænd]	ruka
head [hed]	hlava
heart [hɑ:t]	srdce
heel [hi:l]	pata
hip [hɪp]	bok, kyčel
human [hju:mən]	lidský
chest [tʃest]	hrudník
chin [tʃɪn]	brada
integumentary [ɪntegju'mentəri]	krycí, kožní
intestine [ɪn'testɪn]	střevo
intestines [ɪn'testɪns]	vnitřnosti
joint [dʒɔɪnt]	kĺoub
kidney [kɪdni]	ledvina
knee [ni:]	koleno
larynx [læ:rɪŋks]	hrtan
leg [leg]	noha
ligament [lɪgəmənt]	vaz, vazivo
limbs [lɪms]	končetiny, údý
liver [lɪvə]	játra
lung [lʌŋz]	plice
membrane [mem'breɪn]	blána
mouth [maʊθ]	ústa
muscle [mʌskl]	sval
neck [nek]	krk
network [netwɜ:k]	sít
nipples [nɪplz]	bradavky
nose [nəʊz]	nos
nucleus [nju:kliəs]	jádro
oesophagus [i:so'fəgəs]	jícen
oropharynx [ɔ:rə'fæ:rɪŋks]	ústní část hltanu
ovary, -ies [əʊvəri]	vaječník, vaječníky
pelvis [pelvɪs]	pánev
pharynx [fæ:rɪŋks]	hltan

<b>shape</b> [ʃeɪp]	tvar
<b>shoulder</b> [ˈʃəʊldə]	rameno
<b>skeleton</b> [ˈskelɪn]	kostra, skelet
<b>skin</b> [skɪn]	kůže
<b>spinal canal</b> [ˈspaɪnəl kænəl]	pátevní kanál
<b>spinal cord</b> [ˈkɔːd]	mícha
<b>spinal column</b> [ˈkɒləm]	páteř
<b>stomach</b> [ˈstæmək]	žaludek
<b>synovium</b> [saɪˈneʊvɪəm]	kloubní nitroblána
<b>tooth, pl. teeth</b> [tuːθ, tiːθ]	zub, zuby
<b>testis, testicle</b> [ˈtestɪs]	varle
<b>thigh</b> [θaɪ]	stěno
<b>thorax</b> [θɔːræks]	hrudník
<b>thumb</b> [θʌm]	palec u ruky
<b>tissue</b> [ˈtɪʃuː]	tkáň
<b>toe</b> [toʊ]	prst nohy
<b>tongue</b> [tʌŋ]	jazyk
<b>trachea</b> [ˈtrækiə]	průdušnice
<b>transversely stripped</b> [ˌtrænsvɜːsli stript]	příčně pruhovaný
<b>trunk</b> [trʌŋk]	trup
<b>ureter</b> [jʊəˈri:tə]	močovod
<b>urethra</b> [jʊəˈri:θrə]	močová trubice
<b>uterus</b> [juːˈterəs]	děloha
<b>vagina</b> [vəˈdʒaɪnə]	pochva
<b>vein</b> [veɪn]	žilka
<b>vertebra, pl. vertebrae</b> [ˈvɜːtibrə]	obratel
<b>vessel</b> [ˈvesl]	céva, nádoba
<b>vital</b> [ˈvaɪt]	životní

### QUESTIONS AND EXERCISES

Answer:

1. What is the basic unit of the living organism?
2. What are the cells made of?
3. Describe the nucleus.
4. What are the three functions of a cell?
5. List all the body systems and talk about each of them.

30

6. What are voluntary and involuntary muscles?
7. What are the main parts of the human body?
8. Describe the parts of the head.
9. Describe the parts of the trunk.
10. Describe the upper and lower extremities.
11. Name the five cavities.
12. Which organs can be found in the abdominal cavity?

Translate:

Základní stavební jednotkou každého živého organismu je buňka. Jádru obsahuje 46 chromozomů nesoucích dědičné faktory. Volní svaly jsou schopné kmpilkovaných pohybů. Na každé ruce jsou čtyři prsty a jeden palec. Které důležité orgány můžete nalézt v hrudníku? Hlava se skládá z částí mozkové a části obličejové. Celé tělo je pokryto kůží s jemnými chloupky. Kostra dospělého člověka obsahuje přes 200 kostí. Co obsahuje dutina břišní? Základní funkci reprodukčního systému je zajistit reprodukci druhu.

31