

Human Body—Organ Systems



We Already Know

- Sense organs ----eyes, nose, tongue, skin and ear
- External body parts----head, neck, shoulders, arms, legs, etc.
- Internal body parts----heart, brain, food pipe, stomach and intestines, windpipe and lungs
- Bones and muscles and their functions



We Will Learn About

- Structure of the human body
- Organ systems and their functions

Your body is made up of many small **cells** of different shapes and sizes. Similar types of cells form a **tissue**. Different types of tissues join to form **organs** such as eyes, ears, stomach and lungs. Each organ in our body has its own job to do.

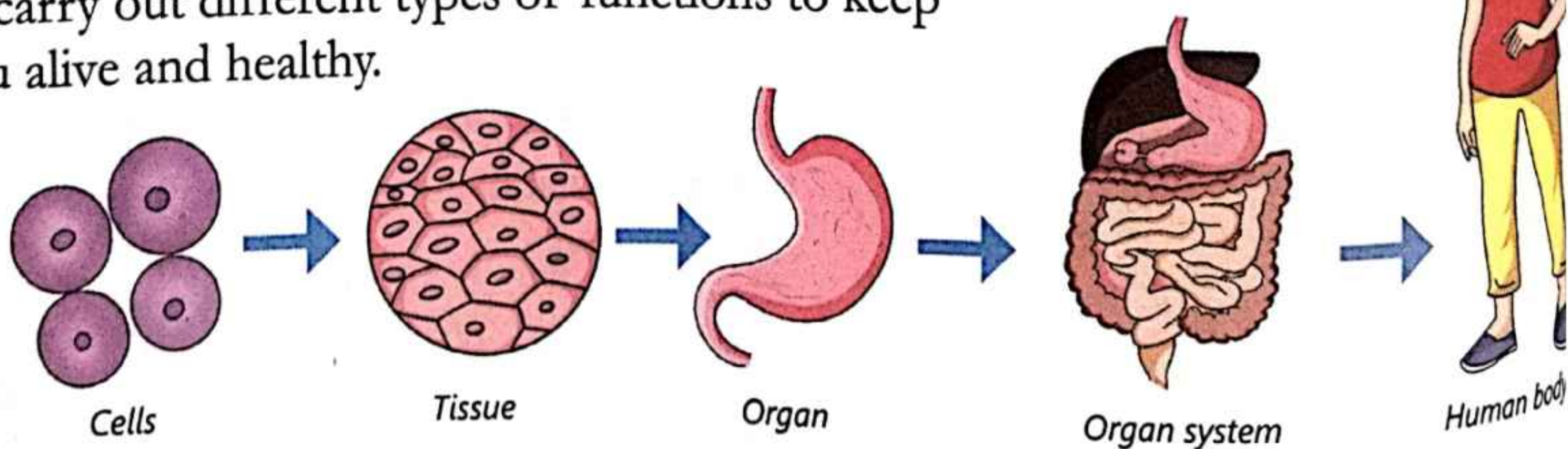


Think

What job do your lungs do for you?

(Reflective Thinking)

These organs work in groups. A group of organs working together to do an important **function** for your body is called an **organ system**. There are several organ systems in your body. They work together to carry out different types of functions to keep you alive and healthy.



Cell: The smallest unit of living things
Tissue: A collection of similar cells
Function: Job or work to be performed



THE SKELETAL SYSTEM

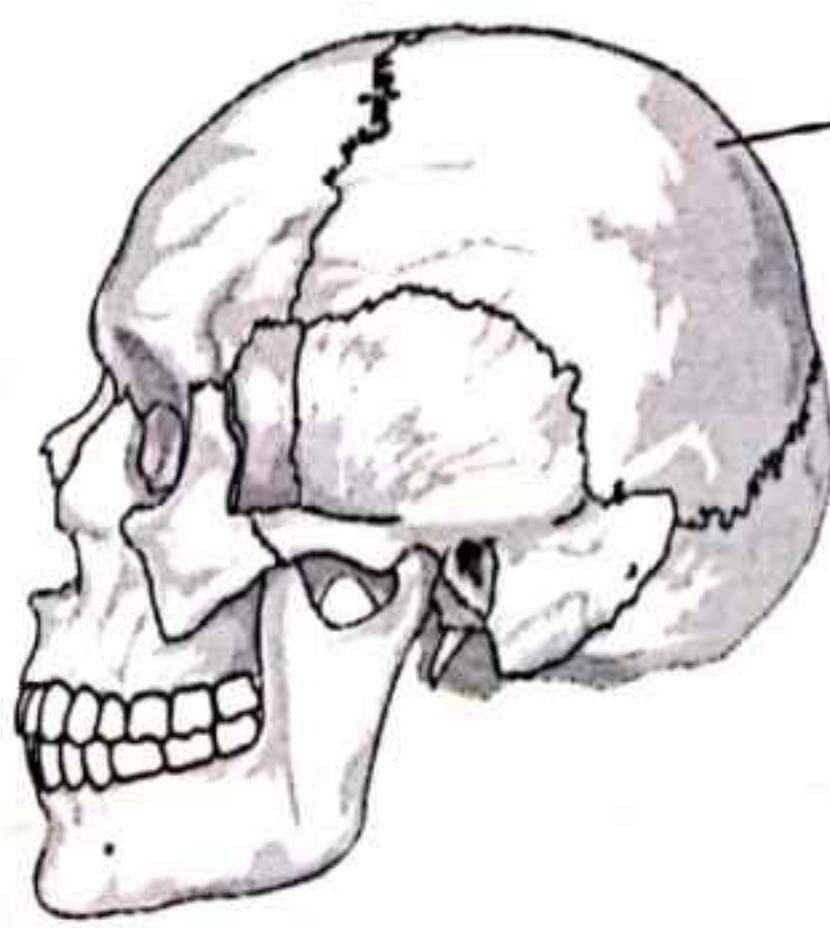
This system is made up of **bones** that are joined to form a framework known as the **skeleton** or the **skeletal system**. The skeleton of an adult is made up of 206 bones. They are hard and strong. The main parts of the skeletal system are the skull, ribcage, backbone, and limbs.

Functions of the Skeletal System

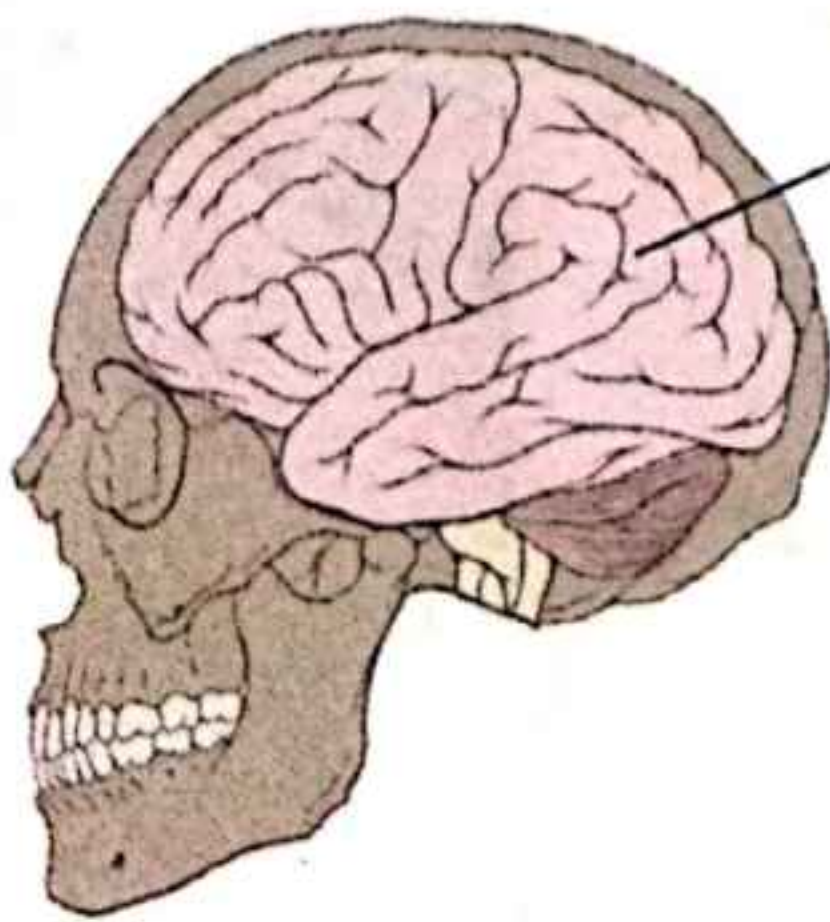
The skeleton supports your body and gives it a shape. Without bones your body would be just like a blob of jelly!

It also protects the soft organs of your body such as the brain, heart and lungs.

The bones in your skeleton are joined together in such a way that you can move parts of your body.

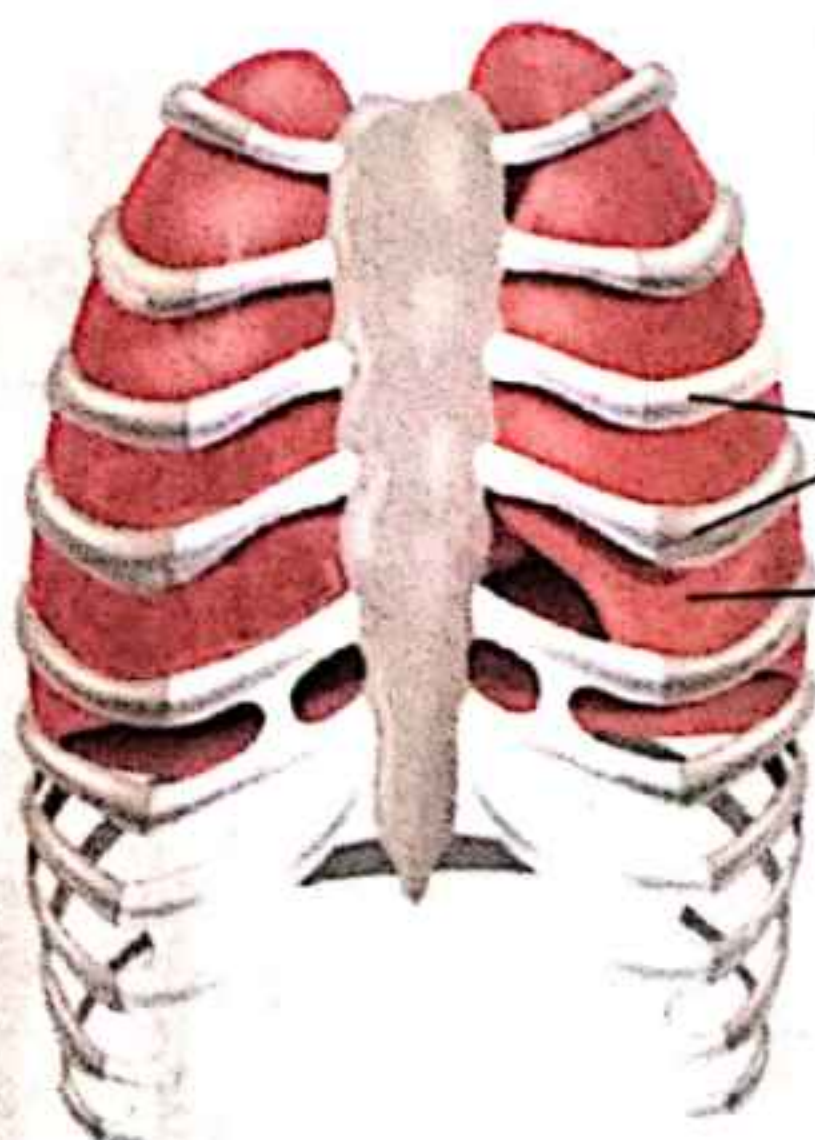


Skull



Brain

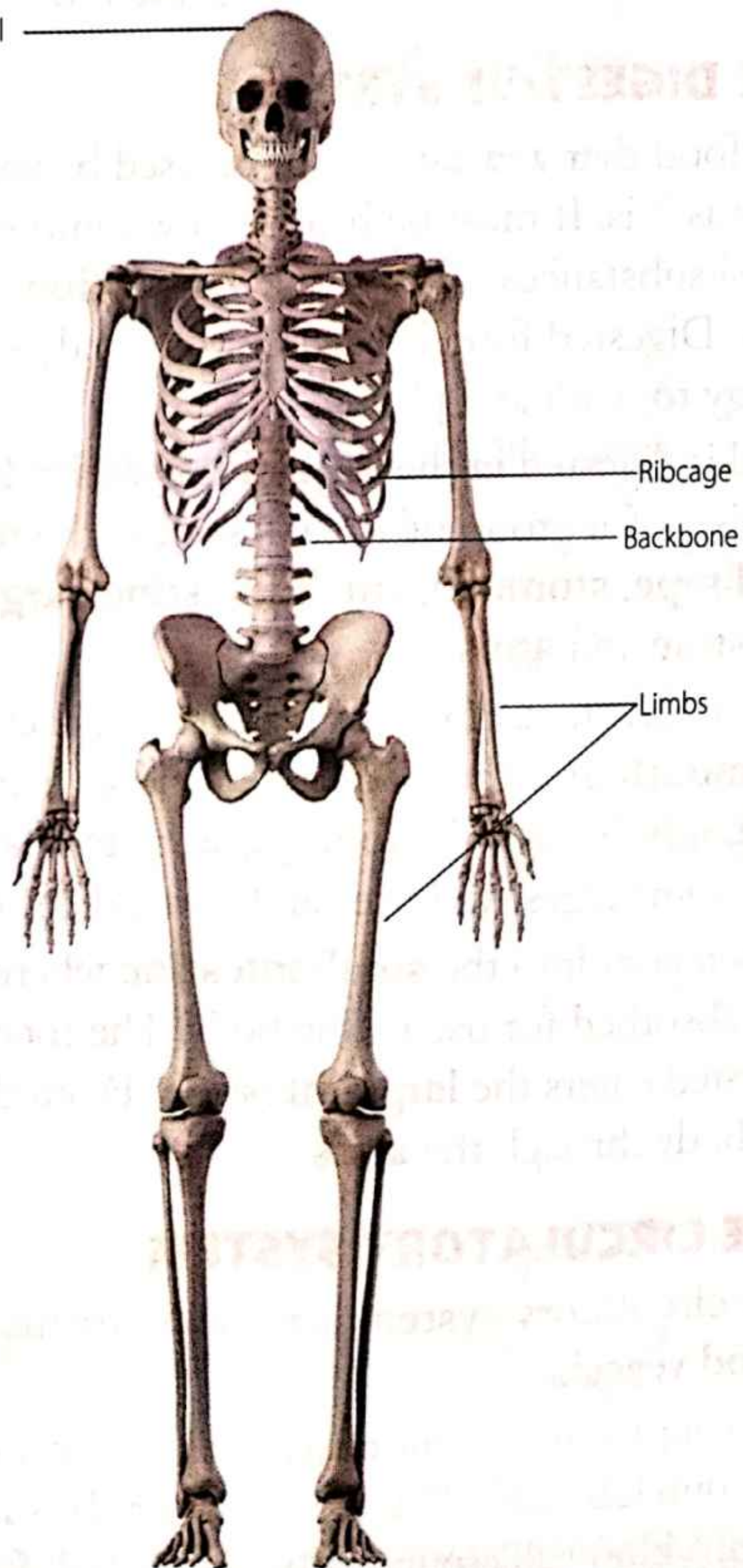
The brain is protected by the skull



Ribs

Lungs

The lungs and heart are protected by the ribcage



Ribcage

Backbone

Limbs

The skeletal system

THE MUSCULAR SYSTEM

The **muscular system** helps you to move your body parts. It is made up of stretchy bands called muscles. There are more than 600 muscles in your body. You use **muscles** for all movements of your body parts, whether to move and blink your eyes, to smile, or to jump up and down.

Some muscles are attached to your bones. They pull your bones to make them move. For example, muscles attached to the bones in your arms enable you to raise or lower your arms.

Your internal organs also move because of muscles. Your heart keeps beating because of the muscles that make up your heart. Muscles that make up your stomach help it to churn the food that you eat.



The muscular system

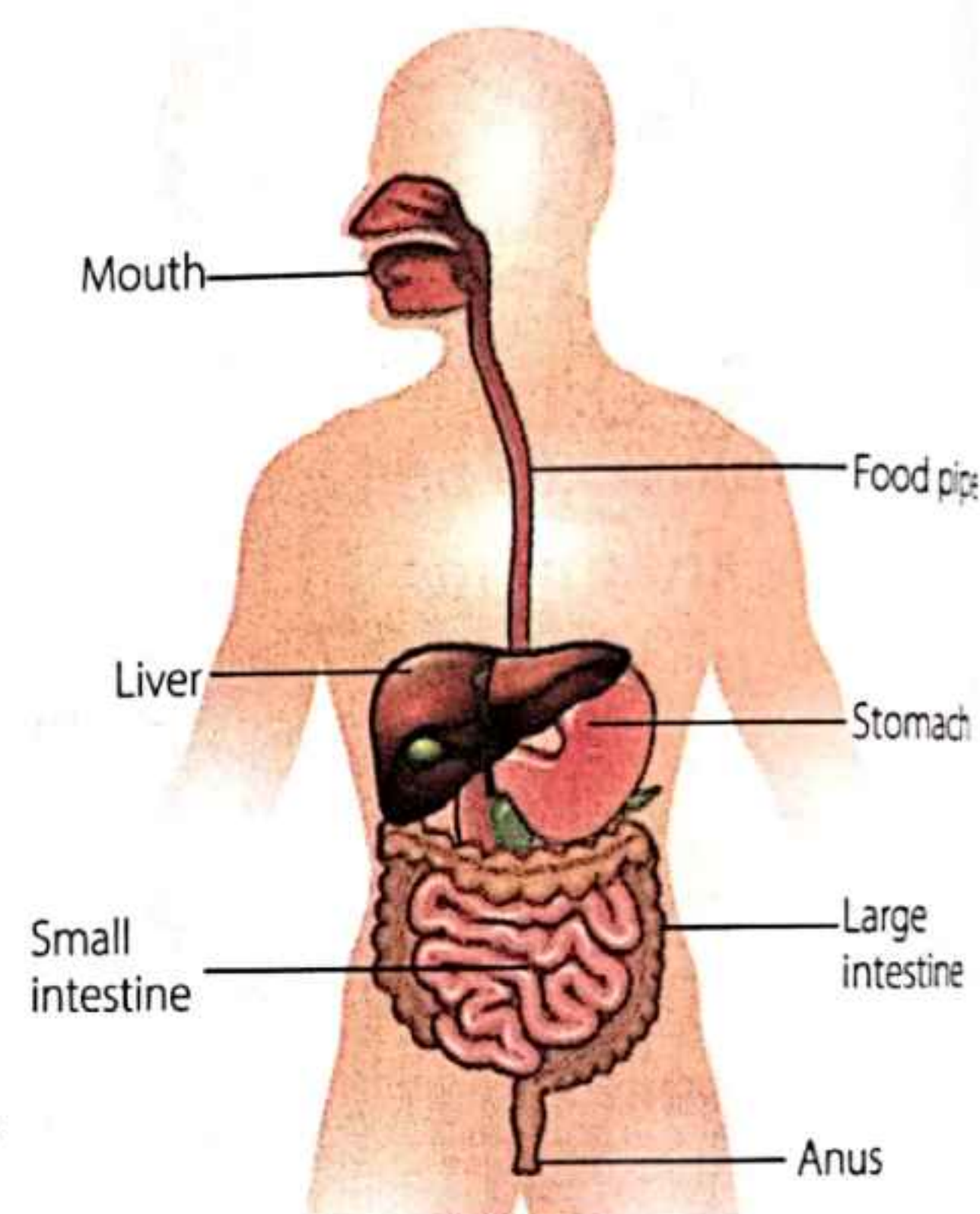
THE DIGESTIVE SYSTEM

The food that you eat cannot be used by your body as it is. It must be broken down into simple useful substances. This is called **digestion** of food. Digested food is used by your body to get energy to work and play.

Food is digested in the **digestive system**. It consists of a group of organs such as the **mouth**, **food pipe**, **stomach**, **small intestine**, **large intestine** and **anus**.

The food is first mixed with saliva and chewed in the **mouth**. It is then swallowed and goes into the **stomach** through the **food pipe**. Here it is mixed with some digestive juices and partly digested.

It then goes into the **small intestine** where it is further digested and absorbed for use by the body. The food that cannot be digested enters the **large intestine**. From there it is sent out of the body through the **anus**.

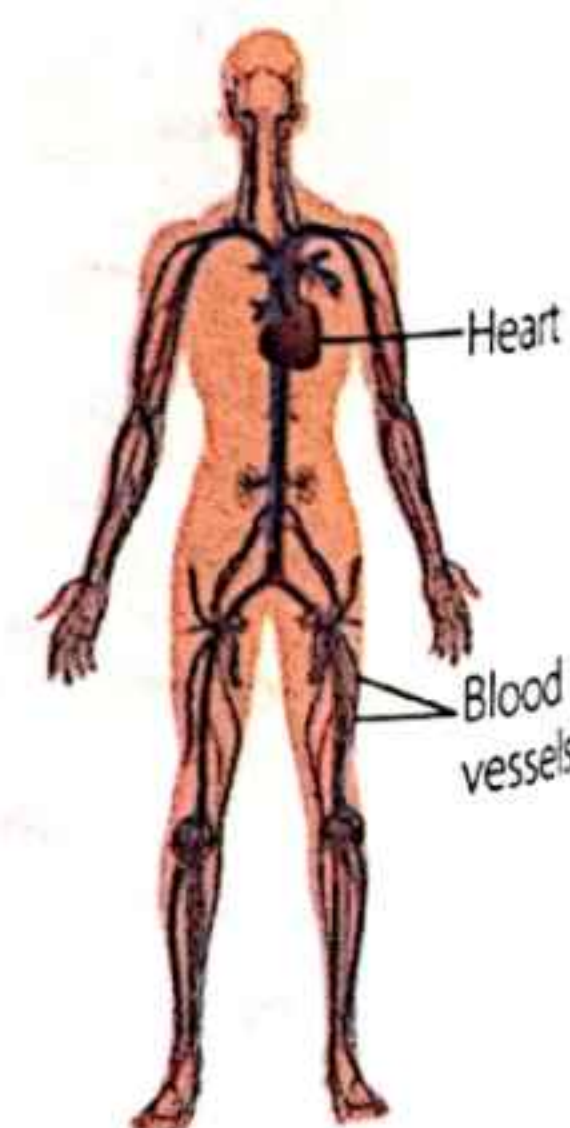


The digestive system

THE CIRCULATORY SYSTEM

The **circulatory system** is made up of the **heart**, **blood** and **blood vessels**.

Put your hand on your chest. Can you feel something going 'lub-dub lub-dub'? This is your heart. It is made up of muscles. It pumps blood all around your body.



The circulatory system



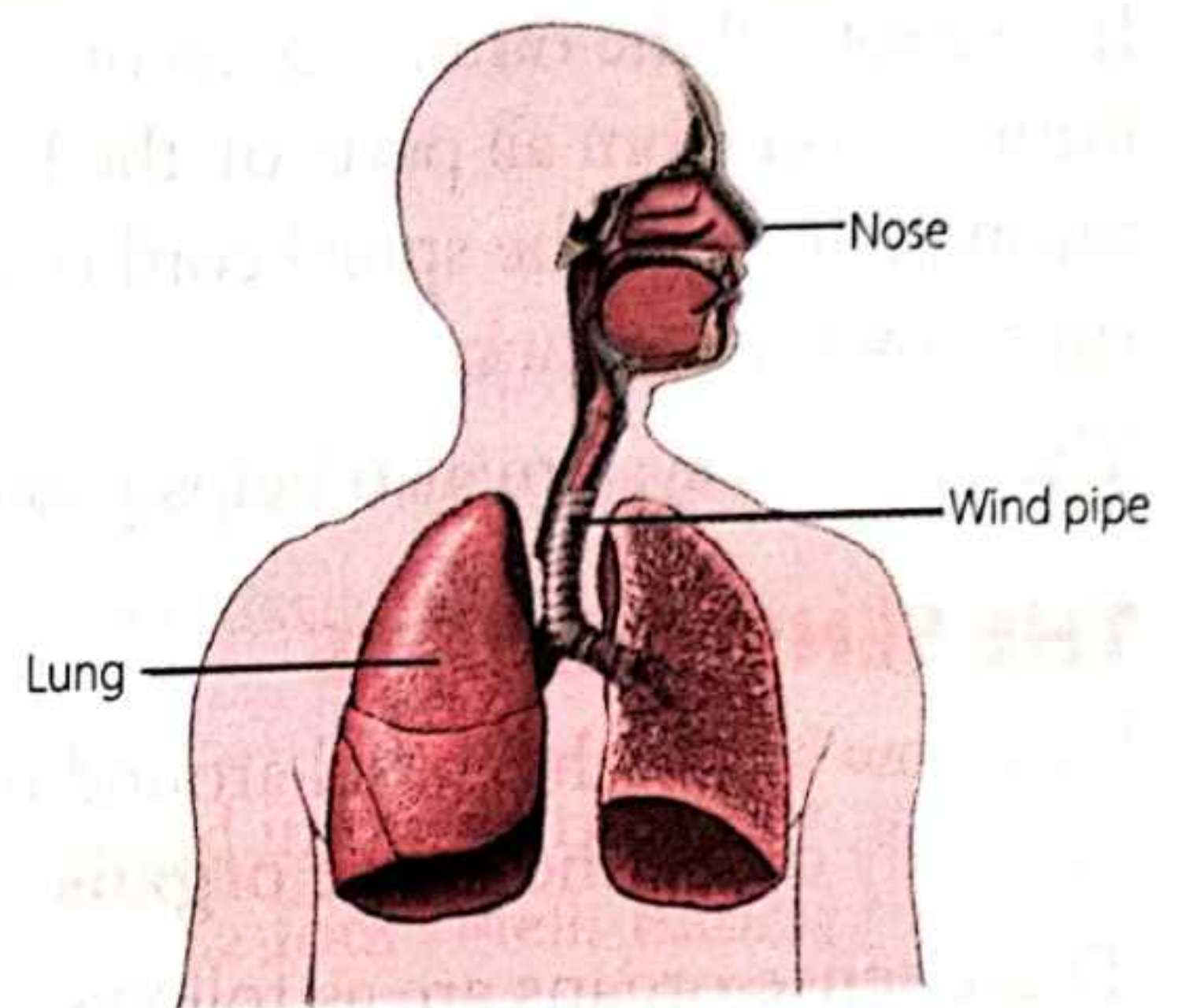
Blood travels through thin tubes called blood vessels. It carries digested food and oxygen to all parts of your body. It also collects waste, such as carbon dioxide, from all parts of the body.

THE RESPIRATORY SYSTEM

The respiratory system is made up of the nose, windpipe and lungs. It helps you to breathe. You breathe in air through your nose. The air then goes down through the windpipe and reaches the lungs.

The lungs absorb the oxygen in air. This oxygen is then taken by the blood to all parts of the body.

The air you breathe in is called **inhaled air** and the air you breathe out is called **exhaled air**.



The respiratory system



Think

Which of these has more oxygen – inhaled air or exhaled air?

(Critical Thinking)



Activity 1



Stand in front of a mirror and breathe out on it through your mouth. Does the mirror become cloudy?

It becomes cloudy because of small drops of water in your breath.

This shows that the air we breathe out has also got _____ in it.

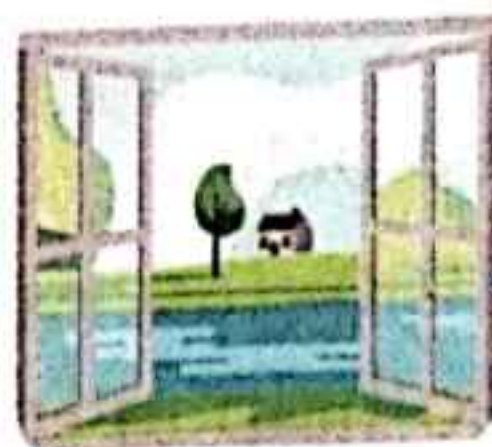


Some healthy breathing habits:

- Always exercise in an open area where there are many trees around.
- Always breathe through your nose and not through your mouth. The nose has tiny hair that trap dust and germs. Thus dust free air enters our lungs.
- Always keep doors and windows open for a supply of fresh air.
- Never cover your face while sleeping.



Exercise in open



Keep doors and windows open



Never cover face while sleeping

Skills: Observation, Analysing, Classifying, Interpretation

THE NERVOUS SYSTEM

The **brain**, **spinal cord** and the **nerves** together make up your **nervous system**.

Your brain is the main organ of your nervous system. It controls all the other organs by sending and receiving information from all parts of the body. The messages travel through nerves. The spinal cord is a thick bundle of nerves that runs down your back.

The nervous system also helps you to think and learn.



Human Nervous System

THE SENSE ORGANS

We know about the world around us through the parts of our body called the **sense organs**.

These sense organs are as follows:

Eyes: They help you to see things. They also help you to see if something is far or near.

Ears: You hear sounds which may be loud or soft, sharp or dull, and pleasant or unpleasant through your ears.

Nose: It allows you to smell.

Tongue: You can taste sweet, salty, sour or bitter tastes with it.

Skin: It enables you to feel pain, and to feel if a substance is hot or cold, smooth or rough, hard or soft.



Mnemonics

You can remember the names of sense organs by remembering the word TENSE.

Tense

T denotes Tongue

E denotes Eyes

N denotes Nose

S denotes Skin

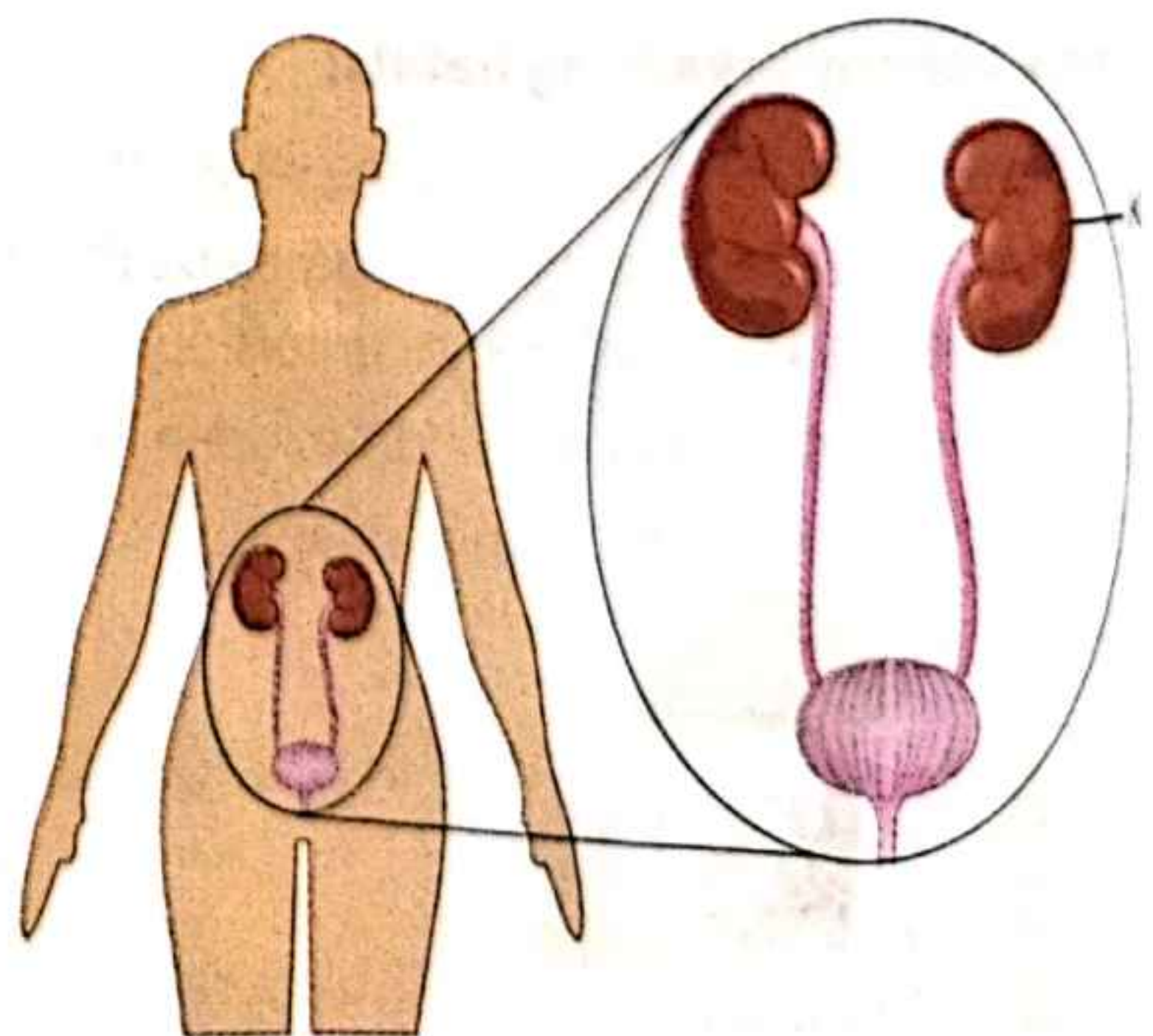
E denotes Ears

THE EXCRETORY SYSTEM

As the body parts do their work, waste materials are produced. For example, when food is converted into energy, a gas called **carbon dioxide** is produced.

The organs that remove waste like urine, carbon dioxide and sweat produced in the body form the **excretory system**.

The main organ of this system is a pair of **kidneys**. They remove urine from the body. The **lungs** and the **skin** also help in removing wastes from the body. The lungs get rid of carbon dioxide. The skin gets rid of sweat.



Human excretory system



What will happen if the waste produced in your body is not removed?

(Critical Thinking)

Some Healthy Habits

- Always keep all parts of your body clean.
- Wash your hands before and after eating and rinse your mouth after every meal.
- Eat a balanced meal that can give you all the things your body needs.
- Eat plenty of fruits and vegetables. Do not eat too many sweets and chocolates.
- Drink about eight glasses of water every day.
- Eat fresh food or food that has been properly stored in the refrigerator. Food goes bad and rots after a few days. It then gives out a foul smell. Eating rotten food will give you a bad stomach. Never eat food that smells bad.
- Give your body enough exercise. Running, playing outdoor games and swimming are some good exercises.
- Give your body rest when you are tired and get sufficient sleep.



IN BRIEF

1. Our body is made up of many small cells. Similar types of cells form a tissue. Different types of tissues join to form organs.
2. An organ system is a group of organs working together to do an important function for the body. The different organ systems in your body help to keep you alive and healthy.
3. The skeletal system gives shape to the body, protects the soft organs and allows you to move body parts.
4. The muscular system helps you to move your body parts and organs.
5. The digestive system helps to digest food, so that it can be used by the body.
6. The heart, blood, and blood vessels make up the circulatory system. It helps to pump blood that carries food and oxygen to all parts of the body.
7. The nose, wind pipe, and lungs are parts of the respiratory system. It helps us to breathe.
8. The brain, spinal cord and nerves make up the nervous system. It controls all other organs of the body, and also helps to think and learn.
9. Eyes, ears, nose, tongue and skin are your five sense organs.
10. The excretory system gets rid of waste from our body in the form of urine, carbon dioxide and sweat. Its main organs are the kidneys.



Exercises

Objective Type Questions

A. Name the organ system that does the following.

- Helps in movement of body organs such as the heart *Muscular...system...*
- Helps in breaking down food into simple substances *Digestive...system...*
- Framework that gives the body its shape *skeleton.....*
- Carries digested food and oxygen to all parts of the body *Circulatory...system...*
- Helps to take in oxygen from air *Respiratory...system.....*

B. Choose the correct option.

- Which of these organs controls all other organs of the body?
☒ a. Brain b. Kidneys c. Heart d. Stomach
- Which of these is not a sense organ?
☒ a. Nerves b. Tongue c. Skin d. Ears
- The sense organ that enables us to feel hot and cold is:
 a. nose b. eyes ☒ c. skin d. ear
- Which of these is not a part of the circulatory system?
 a. Blood ☒ b. Stomach c. Blood vessels d. Heart
- Which system converts food into a form in which it can be absorbed by the body?
 a. Circulatory b. Respiratory ☒ c. Digestive d. Excretory
- Which organ system protects the soft organs in our body?
 a. Nervous ☒ b. Skeletal c. Digestive d. Muscular

C. Fill in the blanks.

- The five sense organs in our body are*tongue*.....,*eyes*.....,*nose*.....,*skin*..... and*ears*.....
- Air enters the*lungs*..... through the wind pipe.
- The*circulatory system*..... has tubes through which digested food and oxygen are carried to all parts of the body.
- Breaking down of food into tiny simple substances is called ...*digestion*..... of food.
- To smile, you use your*muscular*.... system.

D. Write T for True statements or F for False statements.

1. The brain is the control organ of our body.
2. The food we eat is fully digested in our stomach.
3. Muscles and bones together enable us to move our body parts.
4. Blood continuously takes digested food and oxygen to all parts of our body.
5. A group of tissues form a cell

.....T.....
.....F.....
.....T.....
.....T.....
.....F.....

E. Match the following.

1. Helps to think and learn
2. Number of bones in an adult
3. Removes wastes from the body
4. Pumps blood
5. Absorbs oxygen from air

1 - c
2 - d
3 - a
4 - e
5 - b

- a. Excretory system
- b. Respiratory system
- c. Nervous system
- d. 206
- e. Circulatory system

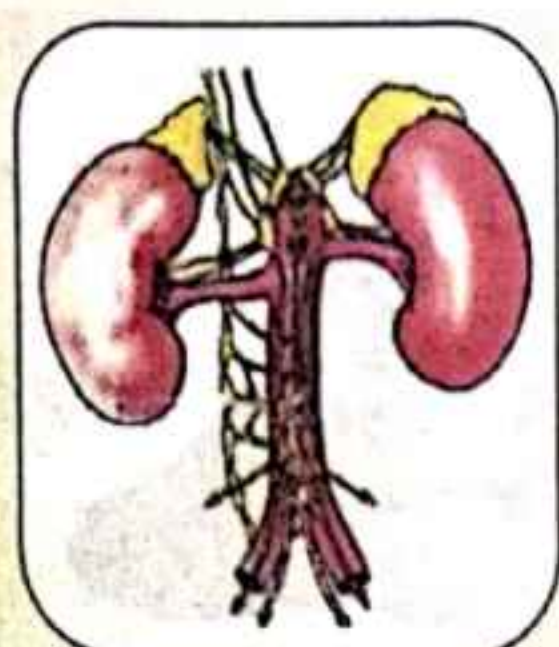
Theoretical Questions

A. Answer the following questions in brief.

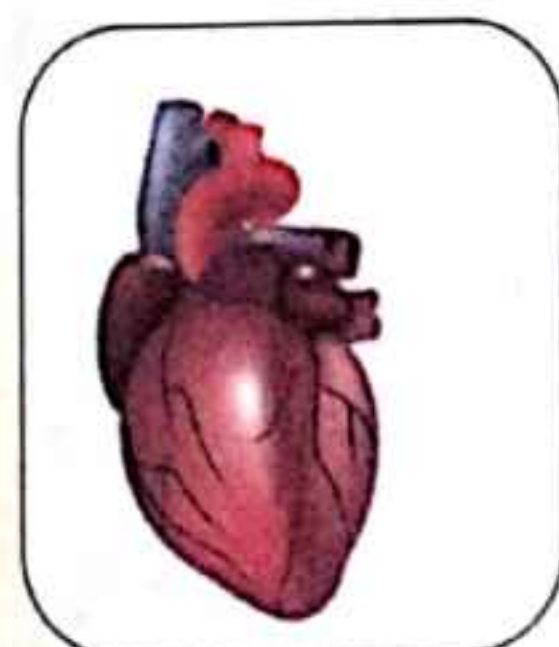
1. What is an organ system?
2. How are the delicate organs like lungs and heart in our body protected from injury?
3. List the organs of the nervous system and write its functions.
4. Name the materials that the circulatory system takes from one place to another in the body.
5. What is the role of excretory system in the body?

B. Write the correct matching number below each picture.

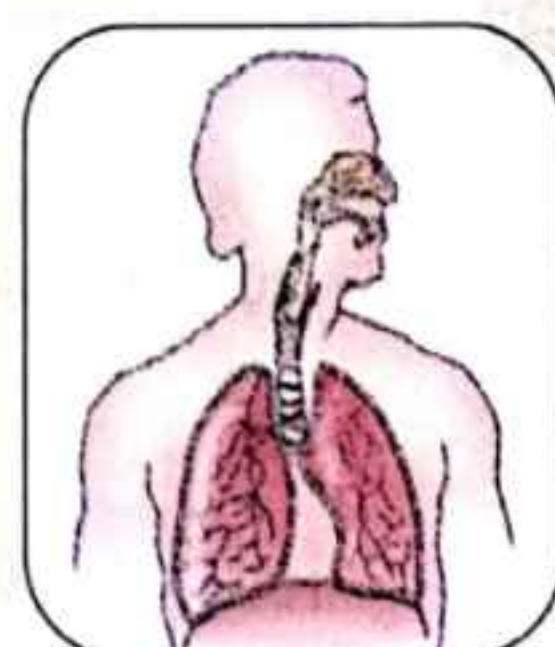
1. The Breathing System
2. The Excretory System
3. The Circulatory System
4. The Nervous System
5. The Digestive System



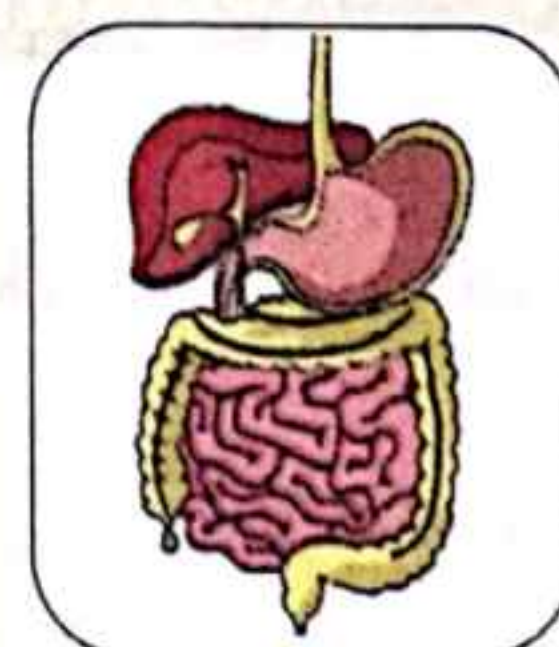
2



3



1



5



4



Thinking Skills

Suppose your skin was not sensitive to heat and cold. What problems do you think you would face?

LEARNING BEYOND CLASSROOM



1. You can feel your heart pumping blood if you keep your hand on your chest. You can also feel blood being pumped in the blood vessels by putting your hand over a blood vessel on your wrist. This is called your pulse. You can count the number of times your heart beats every minute by measuring the pulse rate. The doctor also does this when you are not well.

Measure the pulse rate of a friend. Then ask him/her to run about 100 metres and measure the pulse rate again. Is there any difference?

Carry out this measurement on 4-5 students in your class, and fill in the table.

Name	Normal pulse rate per minute	Pulse rate after running

Why do you think the pulse rate increases while running? Discuss with your teacher.

2. Looking after yourself – good and bad touch

A hug or kiss from your parents, a pat from your teacher or a doctor examining your body are safe touches. However, sometimes you feel uncomfortable when people touch you in a bad way. A stranger may try to hug or kiss you. Someone may try to touch your body parts such as lips, chest, between your legs or buttocks. In such a situation:

- Shout 'No' loudly.
- Get away from that person.
- Tell your parents or an elder at home.

Art and Craft + Integration

Suppose you did not have bones! What kind of body do you think you would have?

This is the picture one child drew!

Draw your own imaginary boneless shape!

Also, use plasticine to make a model of yourself!

