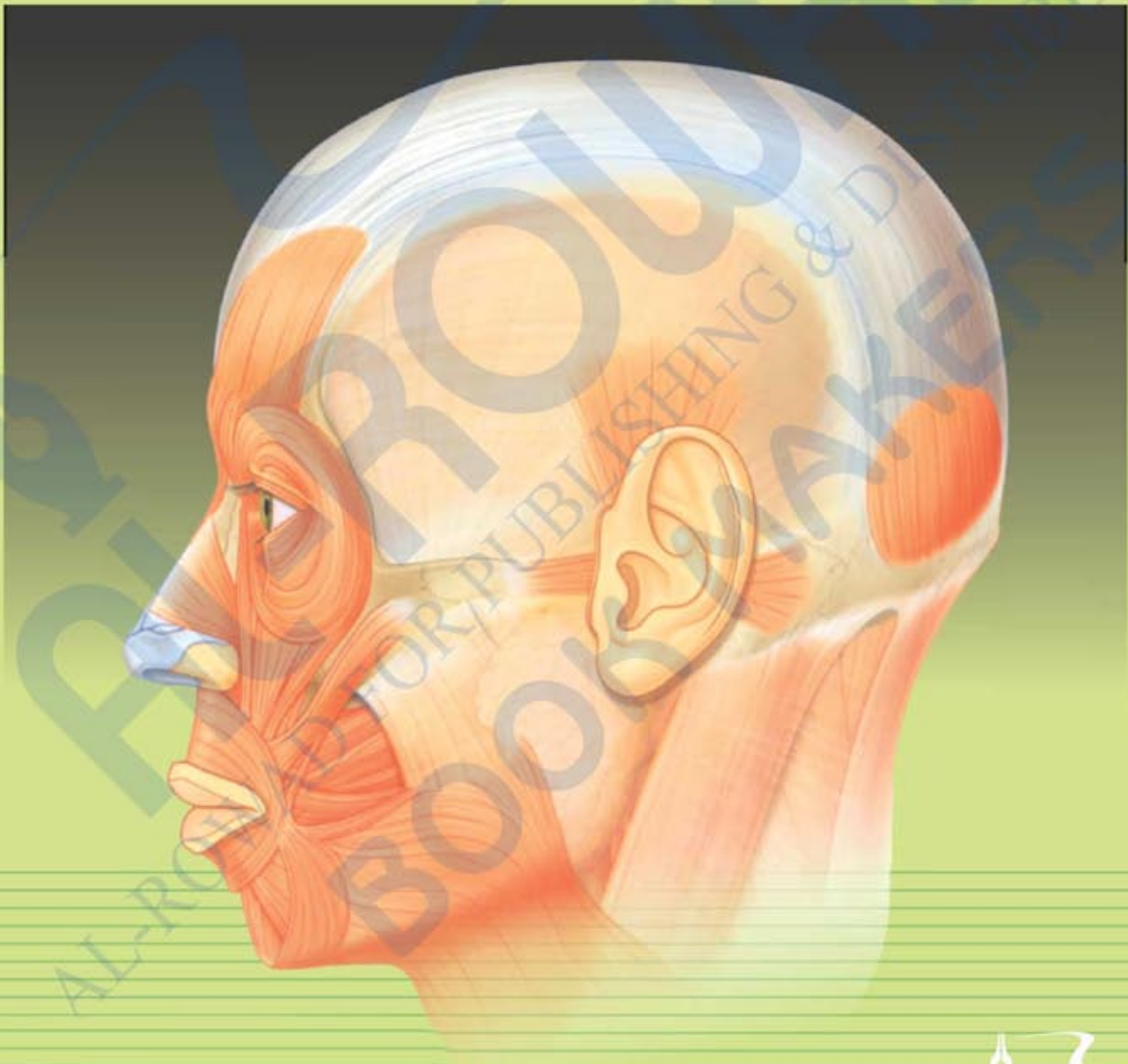


BOOK

**G**

# SCIENCE BASICS

Essential



# Contents

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Understanding ourselves.

Theme 2

Investigating plants.

Theme 3

How birds live.

Theme 4

Air, water and weather.

Theme 5

How sound travels.

Theme 6

How the earth moves.

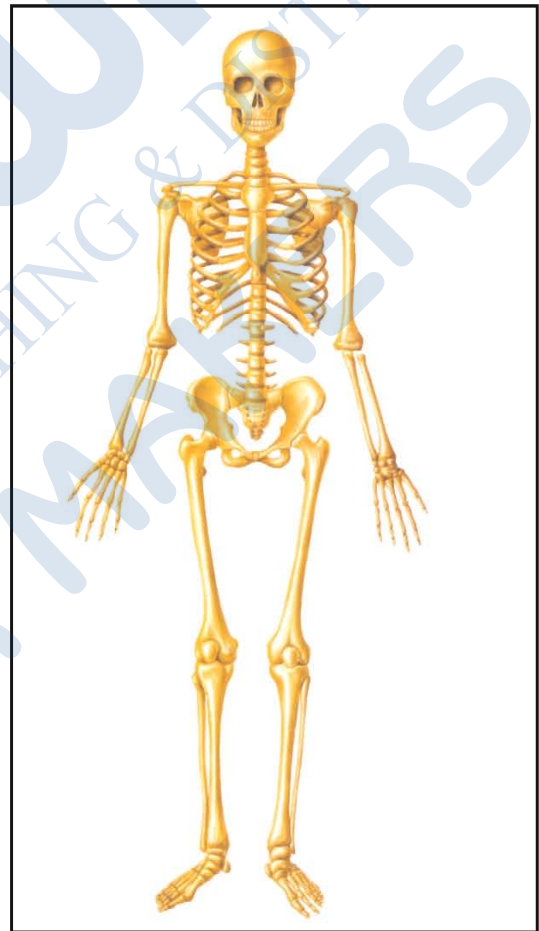
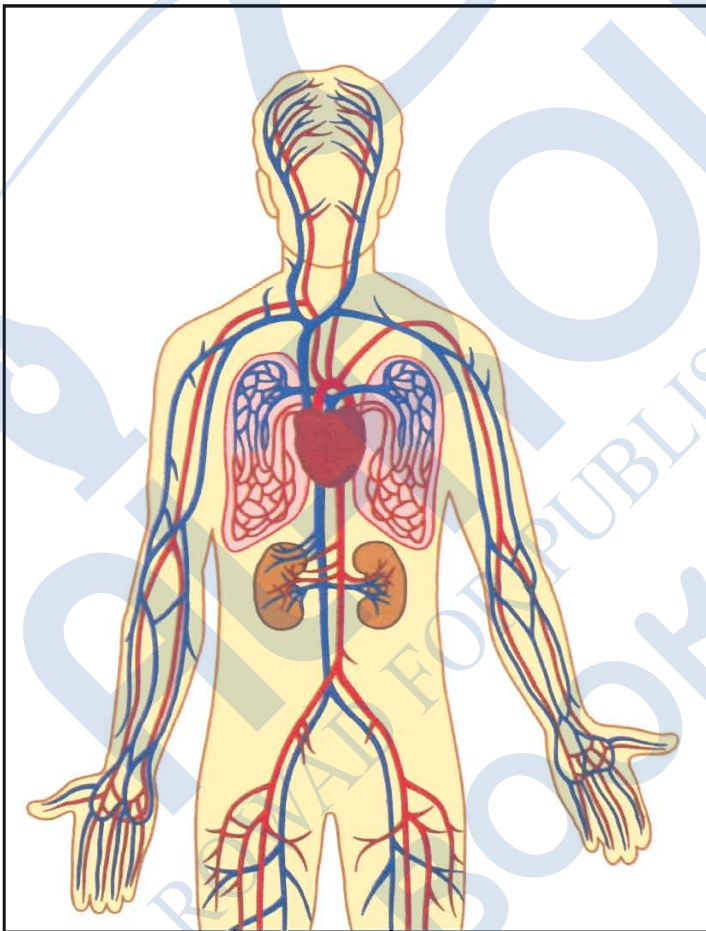
Theme 7

Using electricity.



# Understanding ourselves

Our body is like a machine. It has many different parts. They work together to keep us alive. They enable us to see, hear, taste, feel, smell, play, study and do so many other things. Some parts are outside and can be easily seen. Many parts are inside. The inside parts are just as important as the outer ones even though we cannot see them.

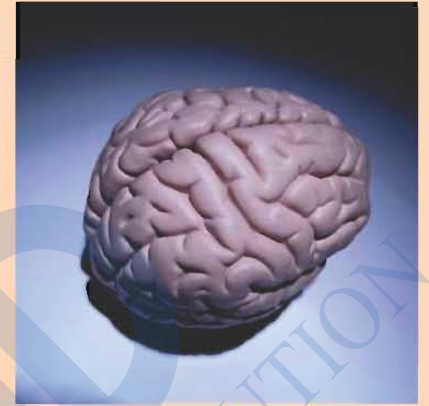


Some parts of our body are integral to stay alive. Without brain, or heart, we die. Some of our parts help us to live, but they are not essential to life. You could continue to live without your eyes or ears.

## Some important parts of our body

### The Brain

Our brain is the part of our body that controls all other parts and their functions. Our brain is linked to the other parts of our body by nerves. These are like telephone lines. Through nerves brain sends and receives messages from all parts of our body.



### The Blood

Blood is the transport system of our whole body. Water, food and oxygen are all carried by the blood. It also collects waste material from all parts of the body. Blood travels through pipes called blood vessels.

### INVESTIGATE

What would happen if you have only one ear instead of two?  
Would you have any difficulty in listening?  
Why does tickling make you laugh?  
Do other animals also have heart and blood?

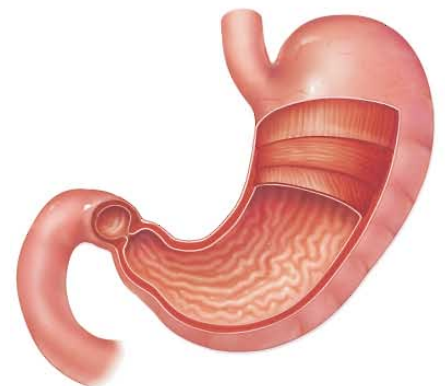
### The Heart

Our heart is like a machine. It pumps blood to every part of our body. Our heart is a powerful muscle. It works all the time. It never rests. When we exercise, our heart pumps faster. The heart is at the centre of our blood system. It pumps blood through blood vessels.



### The Stomach

Everything we do needs a supply of energy. Walking, running and even sleeping, all need a supply of energy. Energy comes from the food we eat. Our stomach helps to digest food. When food is digested it provides energy to our body.



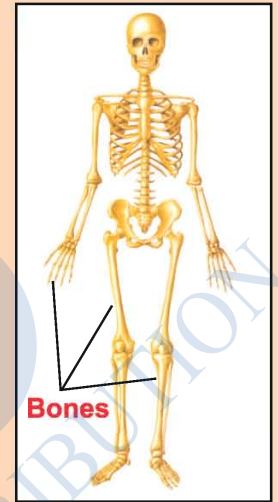
## Bones

That framework of bones is called the skeleton that supports and gives shape to our body. It protects our brain, heart and other soft parts. Bones are solid like metal bars.

They also need a blood supply. We are actually born with more bones, but many fuse together as a child grows up.

The average adult has about 200 bones.

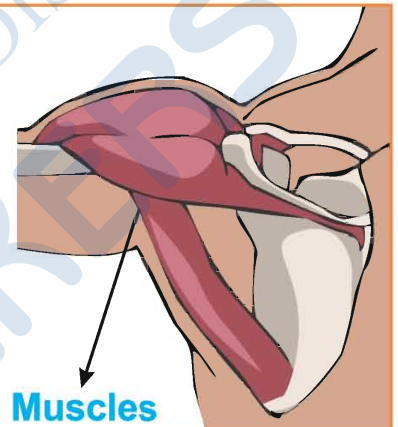
Our height depends upon the size of our skeleton.



## Muscles

Whenever we move we make use of our muscles.

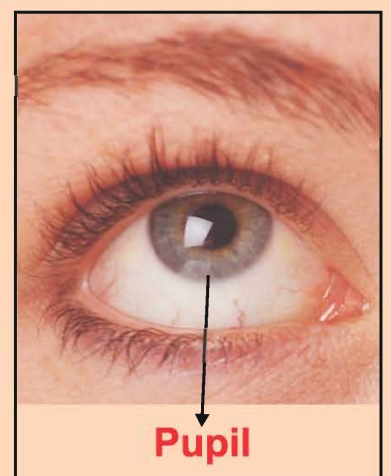
We use them to bend, run, walk, and even to open and close our eyes. There are more than 650 muscles in our body. The bones in our skeleton are connected at the joints. Muscles are attached to the bones by elastic tissue called tendons.



## Eyes

We use our eyes to look round. When light goes in through the black part of our eye, we can see.

This black part is called (the pupil). The white part is called (the sclera) which has the important job of covering most of the eyeball. Our eye is about as big as a ring-pong ball. Eyes work like a camera. Each part plays very important and lively role in providing clear vision.



## Ears

We hear sounds with our ears. We have two ears. We hear different sounds when they reach our ears. Our ear is made up of three main sections called the outer, middle and inner ear. We can see only the outer ear. The main job of the outer ear is to collect sounds whether they are your friend's whisper or a yell from the outside.



## Nose

We can smell different things with our nose. And it's a big part of why we are able to taste things. Our nose is also used to breathe air in and out (inhale and exhale). When we breathe, air passes over a sensitive area known as the lining that removes dirt from the air. This area contains fine hair and nerves.



## Tongue

Our tongue helps us to chew, swallow and sing besides talking and tasting. When we eat something, we can instantly tell if it is sweet, salty, bitter or sour. Our tongue is very sensitive to these four tastes.



## Skin

Our skin is the largest part of our body. This is why it covers up everything. Without skin people's muscles, bones and organs would be hanging out all over the place. It is water-proof. It bends and stretches. It sweats when we are feeling hot. Sweating helps us to cool down.



## Remember

1. Our body is like a machine and it has different parts.
2. All parts join together and enable us to do lots of work.
3. The important parts of our body are the brain, heart, stomach, bones, muscles, eyes, ears, nose, tongue and skin.



**Study your heart beat**

Your heart is located a little to the left of the middle of your chest, and it's about the size of your fist. You can feel it's pumping 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 in a minute by counting the pulse rate. The doctor also does this when you are not well.

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

Carry out this measurement on several children 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?
- Measure your pulse rate when you have a fever.
- Why does it increase? Discuss with your teacher.

**1. Name these:**

- (a) A sensitive area present in the nose \_\_\_\_\_
- (b) Brain is linked to other parts with \_\_\_\_\_
- (c) Transport system of the body \_\_\_\_\_
- (d) Frame-work of bones \_\_\_\_\_
- (e) Black part of the eye \_\_\_\_\_
- (f) Largest part of the body \_\_\_\_\_
- (g) We can feel pain, hot or cold through our \_\_\_\_\_
- (h) The hard parts of our body. \_\_\_\_\_
- (i) We use them to move the joints. \_\_\_\_\_
- (j) It covers our entire body. \_\_\_\_\_
- (k) It makes the structure of our body. \_\_\_\_\_

**2. What are the functions of our muscles?**

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**3. What are the functions of our skin?**

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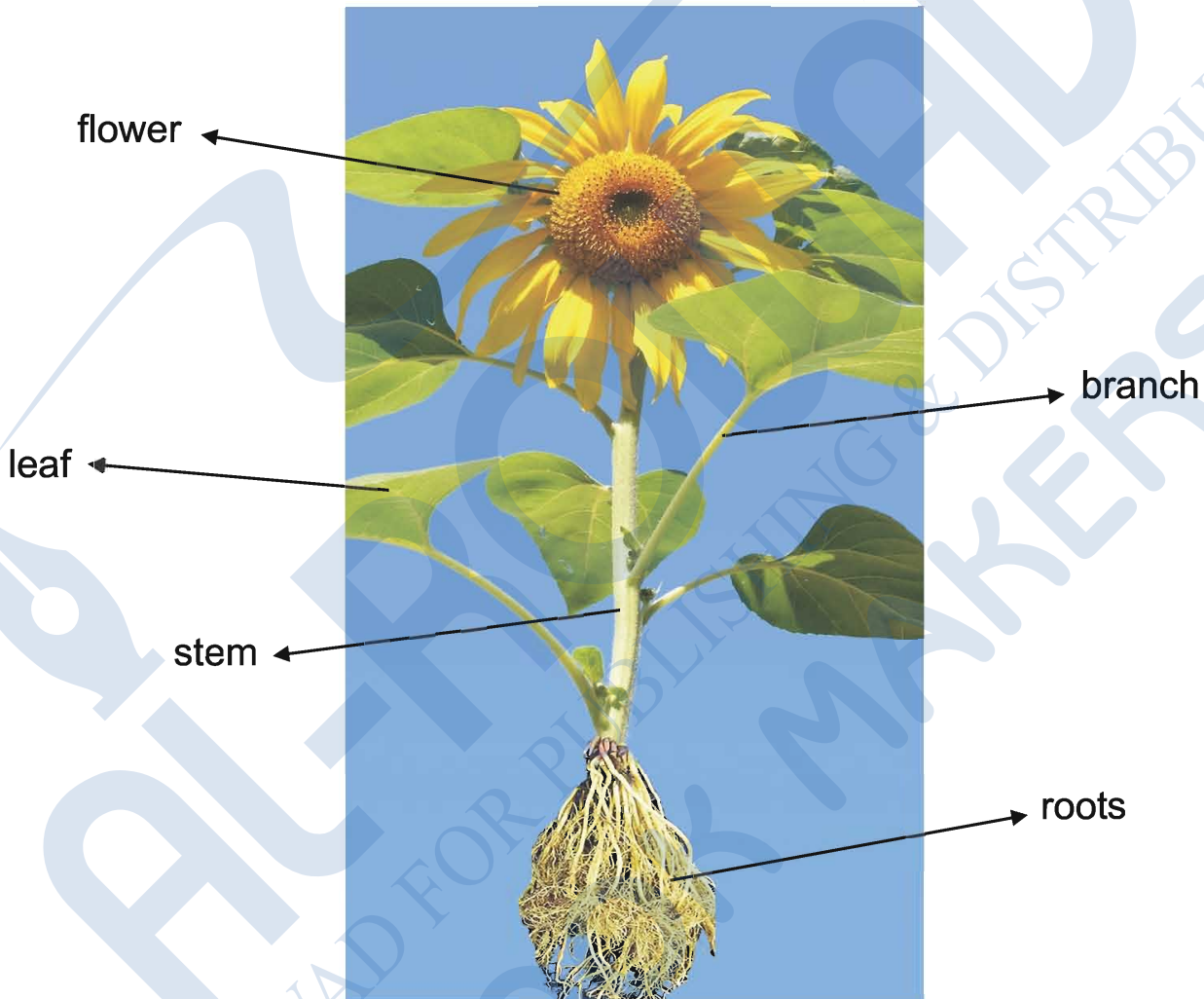
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# Investigating plants

Plants are living beings. And like all living beings plants grow and need food. Plants also breathe and produce new plants. A plant has many parts. Each part has a special job to do. The picture shows a sunflower plant.



Like most plants, a sunflower plant has two main parts. These are the roots and the shoots. A shoot is the portion of the plant that grows above the ground. A root is the portion of the plant that grows below the ground. The stem, branches, leaves, buds, flowers and fruit are the shoots.

## The roots

Roots of most plants grow in the soil.

Roots are of different kinds.

Some plants have thick roots that go deep into the soil. Other plants have a number of thin short roots. Roots have tiny root hair on them.

Some plants have a main long, straight root. Several thinner roots grow out from the main root. This type of root is called tap root. Plants like bean, pea, carrot, balsam and mustard have tap roots.

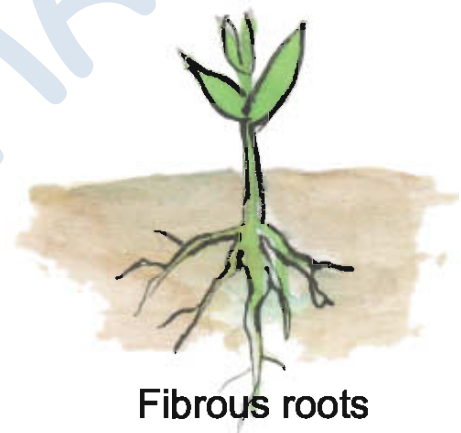
Other plants such as grasses have many roots. All roots are about the same size. These roots are attached to the end of the stem. There is no main root. These roots are called fibrous roots. Grass, wheat, rice and onion have fibrous roots.



Roots



Tap root



Fibrous roots

### Functions of roots

- 1) Some plants store the prepared food in the roots. We eat these roots, for example carrot, radish and beet roots.
- 2) Roots hold the plants in the soil and take in water and salts. Which the plant needs from the soil.
- 3) Roots also absorb the water from the soil. Roots take these from the soil and give them to the plant.

