

# 电子图书



信息技术的结晶

人类文明的载体

网络的基本资源

This is a picture book about the human body it answers 62 questions about the human body, such as why men have beards; why people have dreams; why some people are fat and some thin ;how the eyes see things This book can help young and old readers alike learn a lot about themselves and the people around them .

## Questions About the Human Body

## 1. Why Are Some People Tall and Some People Short?

There are many reasons for the varying heights of people. Under the normal conditions, the main factors for the growth of child are heredity, nutrition and physical training. Generally speaking, when both parents are tall, the children are also tall, and when both parents are short, the children are also short. But children can also grow taller than their parents, even though their parents are short, if attention is paid to nutrition and physical training during childhood. In addition, boys usually grow faster than girls after the age of fourteen, and generally men are taller than women. At the same time, sleep has a great influence on the growth of children. When children sleep, their growth rate is three times greater than when they are awake. So if you want to grow taller, you have to pay attention to eating, sleeping and physical exercise.

## 2. When Do People Stop Growing?

The age of maturity varies for the different organs of the body. Maturity of the body's organs is affected by sex distinction, nutrition and physical exercise. Generally, girls mature at an earlier age than boys. Well-nourished children mature earlier than undernourished children. Children who get a lot of physical exercise mature earlier than those who do not. When a person is about 20 to 25 years old, most of his or her body organs, as well as his or her skeleton, have matured. So at this time, a person stops growing.

## 3. Why Do Older People Have Gray or White Hair?

Hair grows out of cells. The colour of the hair is determined by the melanin in the cell and the melanin is produced by the cells at the root of the hair. When people are young, their hair grows unceasingly. At the same time, the melanin is also constantly produced, giving colour to the hair. But when people get older, hair growth becomes slower. At the same time, the melanin produced by the cells at the root of the hair is also reduced, causing the new growth of hair to gradually become white.

## 4. Why Do Old People Have Wrinkles on Their Faces?

When people are young, they have a lot of fat and tissue under the skin, which makes the skin smooth and oily. When people get

older, the amount of fat is reduced and some tissues atrophy. The smooth skin becomes flabby and folded. This is why old people have wrinkles on their faces.

#### 5. Why Do People Have Different Colours of Hair?

In addition to keratin protein, a small amount of water and fat, hair contains more than ten metallic elements, such as sulphur, carbon, phosphorus, calcium, iron, lead, zinc, Copper, manganese and cobalt. The colour of the hair is determined by the amounts of these various elements. If the hair contains more than the usual amounts of copper and iron, the hair will be black. If the hair contains a lot of titanium, the hair will be blond. If there is a lot of molybdenum in the hair, it will be dark brown, and if the hair contains a lot of copper, iron and cobalt, the hair will be reddish-brown.

#### 6. How Does Hair Grow Back Again After Falling Out?

Hair, like plants and trees, has roots. Hair roots grow in the scalp. If there is nothing wrong with the roots hair can grow back again after it falls out. Hair grows at a rate of two centimetres each month. After two to six years, every hair will be replaced. When hair grows to a certain length, it stops growing and then falls out. A new hair then grows out from the roots to replace it.

#### 7. Why Do People Have Dreams When They Sleep?

The part of a person's brain called the cerebrum contains a lot of cranial nerve cells which have different responsibilities. Some are for thinking, some are for seeing, some are for listening and some are for doing things. In the daytime, when people are busy at work, the cells also do their respective work. At night when people go to sleep, the cerebrum is also in a state of rest, but the cells aren't resting. People have dreams because some of these cells are still at work. Things people thought, saw or heard in the daytime may reappear in their dreams. For example, at night when you are sleeping, if a mosquito buzzes beside your head you may dream about an airplane, or when your feet feel cold you dream you are wading across a stream.

#### 8. How Many Bones Does a Person's Body Have?

A person's body is supported by a skeleton which is composed of 206 long, short, flat and round bones. The longest bone is the thigh bone, or femur, and the shortest are the three ossicles in a ear, which are as small as a sesame seed.

Other than functioning to support the body and help people complete various movements, the bones also form a protective cavity, or armour, to guard some very important organs. For example, the skull is formed by eight bones, which protect the cerebrum, and the ribs form a protective wall around the heart and lungs.

#### 9. Why Are Some People Fat and Some Thin?

Some children are fat and some children are thin. Which is better? Generally speaking, fat people have more calories than they need. The surplus calories turn into fat, which is stored under the skin, making the person look bigger and fat. Thin people generally do not get enough nutrition or they expend too much of the energy gained from their nutrition in their labours. When a person is ill, his or her body often consumes a lot of energy and doesn't want to eat, so he or she loses weight. But you can not tell if a person is healthy or unhealthy by how fat or thin he or she is. As long as the body organs function properly, a person will be considered healthy no matter whether he or she is thin or fat.

#### 10. Why Do Men and Women Have Different Sounding Voices?

There is an organ called the larynx in a person's neck, and inside the larynx there is a pair of vocal cords which produces vocal sounds. When boys and girls are small, the length of their vocal cords is about the same. When boys are in their pre- and early teens, their Adam's apple grows bigger and their vocal cords grow longer. So their voices gradually become husky. Girls' vocal cords, however, do not change much, remaining shorter and narrower, so the sounds produced by their vocal cords remain high and sharp. But each person, no matter whether male or female, has vocal cords which differ from those of other people. So that's why we have tenors, baritones, basses and sopranos, mezzo-sopranos and altos.

#### 11. Why Are There Mutes?

The voice is produced by the vibration of the vocal cords, ;instructed by the nerve of the cerebrum. When a person has

something wrong with his or her vocal cords or the nerve which controls speaking, he or she will become mute. Some children are mute because they had ear problems when they were born or they became deaf because of an illness when they were small. These children can not speak because they cannot hear the voices of other people. However, they can sometimes learn to speak with the help of specially-trained teachers. They also use sign language and lip-reading to communicate.

#### 12. Why Do Men Have Beards?

A beard is the symbol of man. Male bodies contain a male hormone which promotes the growth of men. As a result of this hormone, men are generally physically stronger than women. In addition, this male hormone also stimulates the growth of facial hair. When boys are thirteen or fourteen years old, they begin to produce this male hormone. As they grow, male bodies produce more and more of this hormone. So, facial hair begins to grow out gradually. As more and more facial hair grows, a man can grow a beard. That is why men have beards.

#### 13. How Can the Eye See Things?

In the middle of the eye there is a pupil. When a person sees things, the light and colour of the things reflect into the eye through the pupil. The pupil is changeable. When a person sees bright things, the pupil becomes smaller, and at night the pupil becomes larger. Inside the eye there is a crystalline lens which functions like a magnifying glass. It can gather the light and then reflect it onto the membrane of the eyeball. The membrane contains a lot of cells which are especially for seeing things. These cells transmit the images to the brain. At last the person can see these things.

#### 14. Does a Person with Big Eyes See Farther Than a Person with Small Eyes?

Each person has two eyes which differ in size from person to person. Does a person with big eyes see farther than a person with small eyes? The answer is no. In fact, whether a person can see far-away things or not has nothing to do with the size of the eyes. It depends on the ability of the eye, which is called vision by doctors. If a person's vision is normal, the person can see things from far away, whether his or her eyes are big or not.

If a person is shortsighted, the person can not see things in the distance, even though his or her eyes are very big. So we would not say that-people with big eyes can see farther than people with small eyes.

#### 15. Why Are Some Children Shortsighted?

The eyeball and the muscles which control the eye adjust the vision of the eye. When children read and write for quite a long time with their eyes very close to the books or notebooks, their eyes will feel tired. And some children like to read books when they are walking or lying in bed, or read in poor light. If they do this, after a period of time, the muscles of the eye will feel tired and they will suffer eyestrain and have trouble focussing. At the same time, some children who are shortsighted inherit the problem from their parents or grandparents. Those children who are shortsighted should wear glasses to correct defects of vision as soon as possible.

#### 16. What's the Function of Tears?

There is a small factory called the lachrymal gland in each person's eye that constantly produces tears.

Tears are very useful. When people blink their eyes, tears spread on the eyeball to moisten it. At the same time, tears can wash out the irritants on the eyeball to keep the eyeball clean. Tears can also function as a germicide.

#### 17. Where Does the Gum in the Eyes Come from?

In the daytime, tears and mucus produced by the eyes protect the eyeballs, and the surplus tears and mucus go into the nasal cavity through the lacrimal duct. When people sleep, less tears are produced, but the same amount of mucus is produced as in the day time. When the mucus mixes with dirt, it becomes sticky and thick. Because there are not enough tears and the mucus can not flow into the lacrimal duct in time, it is stored at the corner of the eye. This is the gum of the eyes. Usually people do not have a lot of gum. If a person has an eye infection or the eyes are too dry, he or she may have a lot of gum.

#### 18. Why Don't the Eyes Feel Cold?

Among the many nerves on the eyeball are nerves sensitive to

touching and pain, but not nerves sensitive to cold. Therefore, no matter how cold the weather is, the eyes do not feel cold.

In addition, the eyelids are just like two doors which prevent cold wind from entering. So the temperature of the eyeball is higher than that of the tip of the nose, ears and fingers, which are exposed to the air.

#### 19. What Can You Do If a Speck of Dirt Gets in Your Eye?

Don't rub your eye when dust gets into your eye, because the surface of the eyeball is very smooth and tender. If you rub your eye, the dirt may hurt the eyeball. In addition, there are a lot of germs on the fingers. If the germs go into the eyes, they may cause eye disease.

If dirt gets into your eye, a lot of tears will be produced. You can pull the upper and lower eyelids several times and then blink your eyes; the tears may wash out the sand. If it does not come out, you have to ask for help from adults or doctors.

#### 20. Why Do People Blink Their Eyes?

People blink their eyes unconsciously. Each person blinks his or her eyes once every two to eight seconds. This is the body's protection for the eyes.

Outside the eyeball, there is a layer of very thin membrane which can be very painful when it is irritated. In that case, you should blink your eyes so tears will be produced to wash the irritants out. In addition, if you do not blink your eyes for quite some time, your eyes will feel dry and sore. When you blink your eyes often, they are moister and feel more comfortable. When you suddenly see strong light, your eyes will blink automatically to adapt to the light.

#### 21. Why Do Your Eyes Get Red When You Cry for a Long Time?

Some children like to cry and can not stop once they start. As a result, the rims of the eyes become red and the eyelids get swollen. The reason is that the eyelid is very thin, and there are a lot of blood vessels on it. After a long time crying, the blood vessels will dilate and congest. So the eyelids look red.

Generally, children close their eyes when they cry. The eye muscles would contract and the blood can not flow normally. At the same time, the children usually rub their eyes with their hands, so some fluid gathers under the eyelid. That is why the

eyelids are swollen.

## 22. Why Do the Eyelids Twitch?

The twitch of the eyelids is caused by the stimulation of eye muscles. Many reasons can cause eye twitching, such as spending a long time reading or lack of sleep. And the eyes can twitch when people have conjunctivitis or they are too tired in the daytime ;or the eyes are stimulated by strong light or chemical materials; or something goes, into the eye. So when your eye twitches, you should close your eyes and let them rest for a while or do the eye exercise. You can also use warm compresses. With these methods, the twitch will stop gradually .

## 23. Why Can't You See Clearly When You First Go into a Dark Place?

There are two kinds of cells in each person's eyes. One kind sees things in bright places, and the other sees things in the dark. The cells that see things in the light work in the daytime and under lamps, and the others work in the dark. When you enter a dark place, your eyes must adjust from using one kind of cells to the other. Also, the pupils of your eyes expand to use all of the light from the dark place. When you go back into the light, the pupils contract to keep too much light from entering the eye, and you blink to help the eye have time to adjust.

## 24. How Does the Nose Smell?

Besides breathing, the nose can also smell. At the end of the nasal cavity there are a lot of cells responsible for smelling. They work all the time and then transmit a message to the cerebrum which makes a decision about the kind of smell. That is how the nose smells.

## 25. Where Does Mucus Come From?

There is a thick layer of mucous membrane in the nostril which produces mucus, called snot. It is very useful for people's health. It moistens the food to prevent drying of the mucous membrane from dryness and also stops dirt and germs from getting into the body by sticking them in the nostril. This keeps people from getting ill too often. People can not live without mucus,

though it does not look good. When a person gets a cold, the mucous membranes swell, so he or she has more mucus.

#### 26. Why Is My Nose Stuffed up When I Get a Cold?

People need to breathe through their noses all the time. Usually the nose works well. But why is the nose stuffed up when a person gets a cold? It is the germs and viruses that are making trouble. The function of the mucous membrane is to make the cold air warm and moist to suit the needs of the body. When a person gets a cold, the mucous membrane is inflamed and swollen because of the germ and viruses. So the nostril becomes narrower and a lot of mucus is produced. In this way, the nostril becomes stuffed up and can not breathe very well.

#### 27. Why Do People's Noses Run When They Cry?

There is a lachrymal gland at the upper corner of the eye, and inside the corner of each eye there is a lachrymal duct connecting the eye and nose. When a person cries, his or her lachrymal gland produces a lot of tears. Some of the tears run down from the corner of the eye and the others go into the nasal cavity through the lachrymal ducts. When the mucous membrane is stimulated by the tears, a lot of mucus is secreted. The mucus and tears run out of the nose. That is why people have running noses when they cry.

#### 28. How Do We Breathe?

In the human body there is a respiratory tract which is composed of the nose, pharynx, throat, windpipe and bronchus. When the nose inhales the air, it goes into the lung through the throat, windpipe and bronchus. In the lung there are a lot of pulmonary alveoli on which are a lot of blood capillaries. When the air goes into the pulmonary alveoli, part of the oxygen enters into the blood capillaries. Then the oxygen is taken to the other parts of the body by the blood, to meet the needs of the body. At the same time, the blood capillaries, the waste air back to the pulmonary alveoli, and it is then exhaled by the respiratory tract.

#### 29. Why Do People Yawn?

Why do people yawn excessively when they are very tired? People live by inhaling oxygen and exhaling carbon dioxide. After

a long time of Study or work, both body and brain are very tired and, at the same time, more carbon dioxide is produced. If the carbon dioxide is not exhaled in time, it MU harm people's health. Yawning is a kind of deep breathing. It exhales carbon dioxide and inhales oxygen. So yawning is good for your health.

### 30. Why Do People Sneeze?

There are many sensitive cells in the mucous membrane. When spicy smells or some other small irritants go into the nostril, the cells tell the brain immediately. The brain gives an order for the lung to take a deep breath and then to contract the chest muscle suddenly. And at last the air spurts out quickly just like a gale of wind, which pushes the things out. This is the process of sneezing. Like coughing and tearing, sneezing also protects your body.

### 31. How Do the Ears Hear?

Each person has two ears for hearing. The auricle, which looks like a megaphone, works to collect sound. Inside the earhole, which looks like a tiny cave, is a tympanic membrane. When the sound enters into the ear, the membrane is beaten and then transmits the sound to the cerebrum. in this way people can hear sounds. So you have to protect your tympanic membrane; you can not hear if the tympanic membrane is broken.

### 32. Where Does Earwax Come from?

inside the earhole there are many small "factories" called earwax glands hiding in the skin of the earhole. This gland produces a kind of oil which sticks to dead skin cells and dirt. It dries into small yellow pieces, which is earwax.

### 33. How Can the Tongue Taste Different Flavours?

On our tongue grow numerous lumps that look like little nipples through a magnifier. They are named lingual papillae. On each lingual papilla there grows something that looks like flower buds. They are called taste buds by doctors. The taste buds can tell different flavours. Some of the taste buds are in charge of bitter flavours, some of them respond to sweet flavours, some are sensitive to salty flavours, some are responsive to sour flavours, and so on. When people eat sweet food, the taste buds

in charge of sweet flavours tell the cerebrum that the food is sweet. This is how the tongue tells different flavours.

#### 34. How Do the Fingernails Grow?

Nail is not the bone tip of the finger. Like hair, nails also have their own roots that contain a lot of cells for the growth of nails. Because these cells grow fast, nails grow constantly. The part of the nails you see is not alive. It's hard so that it can protect the delicate living skin below.

#### 35. Why Don't People Feel Pain When They Cut Their Nails?

Though nails grow out of the human body, they are not like the skin which has a lot of blood vessels and nerves. Nails do not have blood vessels or nerves. So people do not feel pain when the nails are cut. But if the nails are torn or puffed below the white part, the skin underneath the nails will hurt.

#### 36. Why Is It Bad to Bite Your Nails?

We do all kinds of things with our hands. There may be roundworm eggs on people's hands, especially under the nails. When you bite your nails, the roundworm eggs will go into your stomach and then gradually grow into roundworms by taking nutrition from your body. After some time, you will feel a stomachache, grow thin and look pale. In addition, there are other germs in the nails. So if you often bite your nails -you could also have other, such as diarrhoea. When your nails grow long, you should clip them.

#### 37. What Are Fingerprints, and Why Do We Have Them?

On the finger tips there are many regular loops and whorls which form different patterns. The patterns of loops and whorls on fingers vary. No two people have the same loops and whorls on their fingers. Different names are given to different patterns, such as unshaped loops and bow-shaped loops. Some people have very special loops which do not look like anything. No matter what kind of loops a person has, the shapes of them will never change.

What is the function of the loops and whorls of the fingers? Functioning like the tread on the tyre of a bike, the loops can increase the frictional force and reduce the slipping when the hands hold things. In addition, the loops and whorls on the fingers can increase the sensitivity of the tactual sensation.

### 38. Where Does Sweat Come from?

Sweat flows out of the sweat glands which specially secrete sweat. There are a lot of sweat glands in the human body, big ones and small ones. The big sweat glands grow in the armpits, behind the knees and in the anal area, and small sweat glands grow everywhere on the human body. An adult usually has one kilogramme of sweat come out even when he or she just sits there doing nothing. On summer days, people sweat more. Sweating benefits the human body a lot. It can take a lot of useless things away from the body, and help the body give off the extra heat. If a person does not sweat he or she will be sick.

### 39. Why Do People Feel Cold When They Get Out of Water?

People feel cold and have gooseflesh all over when they get out of water after swimming. Do you know why?

The reason is that when you come out of water, your body is wet. The water evaporates quickly in the air, which takes a lot of heat. That is why you feel cold. So when you just get out of water, you should dry your body with a bath towel and then wrap your body with the towel or put on your clothes. Otherwise you will get a cold.

### 40. Why Does My Mouth Water When I See Sour Food?

There are some holes in your mouth, from which "water" flows out. These holes are the mouths of the salivary glands. When you eat, the salivary gland secretes saliva that moistens the oral cavity and helps digest the food. The amount of saliva is controlled by the cerebrum. Sour food gives strong stimulation to the salivary glands. When you eat sour food, the cerebrum gives a signal to let the salivary glands produce a lot of saliva. After some time, when you see sour food, the cerebrum is used to giving the signal to secrete saliva before eating the food. That is why your mouth waters when you see sour food.

### 41. Why Is It Bad to Eat Fast?

When you eat, the food is mixed with saliva as you chew. This makes the food easy to digest and absorb when it enters the stomach. If you eat too fast, the digestive juices of the stomach and intestine cannot fully digest the food. This can cause people to

have the problem of indigestion, or even stomach trouble. Therefore, you should remember that eating too fast is no good for your health.

#### 42. Where Does the Food Go After You Eat It?

It is impossible for every one to grow and do exercise without food. The food we eat every day is chewed carefully in the mouth and then goes into the stomach together with the saliva. After digestion in the stomach, the food goes into small intestine, where the digestive ferment breaks the food down into various nutrients for the body. These nutrients are absorbed by the small intestine and then are sent to the different organs by blood. In this way, children can grow and be full of energy. The other food, which is not absorbed, becomes excrement in the large intestine and is excreted through the anus.

#### 43. Why Do People Have Bowel Movements Every Day?

People have to eat every day because their bodies need nutrition. This nutrition lets people grow tall and have strength to work. But it is not that all the food we eat is absorbed. The part that is not absorbed is excreted, because people eat more than their bodies need. If a person has not had a bowel movement for several days successively, his or her stomach and intestines will be bloated. If this lasts too long, something bad can happen to the intestines. So people may have to take some medicine to regulate their bowels. It is better to have the good habit of having a bowel movement every day.

#### 44. Why Do People Pass Gas?

After digestion and absorption of food by the stomach and intestine, the extra food goes into the large intestine to be excreted from the body. There are a lot of colon bacilli in the large intestine that feed on the residues of food. Colon bacilli cause the food residues to ferment. During the process of fermenting, some gas is produced, which fills the large intestine. The intestine excretes the gas. That is why people pass gas. Passing gas is a normal physiological phenomenon. Sometimes when people eat food which is difficult to digest, the fermenting process takes longer. In those cases, more gas is produced. Therefore, people pass gas more frequently.

#### 45. What Does the Uvula Do?

The uvula, which plays an important role in eating, is at the back end of the oral cavity. Food enters the stomach through throat which is linked with the nasal cavity as well as the stomach. When people swallow food, the uvula blocks the way to the nasal cavity in order to prevent the food from entering. In addition, the uvula also helps make voice sound more beautiful.

#### 46. Where Is the Stomach?

The stomach is between the navel and the left rib. If the navel area is divided into four parts with the navel as the centre, the stomach would be in the upper left part. The liver is on the right and the spleen is on the left of the stomach. The upper part of the stomach is linked with oesophagus and the lower part is linked with the small intestine. When children feel pain in the upper left part because of eating too much or eating cold food, that is a stomachache.

#### 47. Why Do People Have Navels?

Each person has a navel on the abdomen. The navel is a scar left by cutting off the umbilical cord when a person was born. When a mother is pregnant, the umbilical cord supplies nutrition and oxygen for the fetus and carries away the foetal excreta and carbon dioxide. As soon as the baby is born, he or she can breathe and eat independently. The umbilical cord becomes useless and is cut by the doctors. The scar left on the abdomen is the navel.

#### 48. Why Shouldn't Children Dig Their Navels?

Some children like to dig their navels. This is a bad habit. The navel is a scar left after cutting off the umbilical cord. The skin in the navel is delicate and easy to tear. In that case, the germs on the skin or hands would reproduce there and cause an infection. Sometimes it may cause peritonitis, when the germs go into the stomach through the blood vessels. If your navel is dirty, you should wash it with water, and never dig your navel with your hands.

#### 49. Why Do People Need Salt?

Every day when mom does the cooking, she puts some salt into every dish and makes them taste nice. The cells of the human body

need salt. Salt is composed of sodium and chlorine, which are needed by the nerves, muscles and gastric juices that help digestion. They exist both inside and outside the cells of the human body. If somebody has not had salt for too long, he or she may feel weak, dizzy, and nauseated, and will not want to eat anything. At the same time, the skin becomes dry, and even muscles ache and have cramps. But be careful not to eat too much salt, or other problems may arise.

#### 50. Why Do People Drink Water?

Water plays an important role in people's health, so people cannot live without water. A greater part of the human body is water. The blood, cerebrospinal fluid, bile, saliva and gastric juices cannot exist without water. The organs of the body work all the time. The materials useful for the body are absorbed and the useless and poisonous stuffs are excreted through urine, bowel movements and sweat. Without water there would be no urine and sweat, so the waste and poisonous things could not be excreted. People would die of poisoning,

#### 51. Why Shouldn't People Have Too Many Sweet Drinks?

Some children usually do not drink plain water, only drink with juice, honey, and sugar. That is not good for the health, because when you drink too many sweet drinks, you will not want to eat very much food. If this lasts long you may become malnourished. Like chocolate and candy, sweet drinks can increase the amount of sugar in the blood. So you do not feel hungry. If you drink plain water, the blood-sugar level will not increase, so you feel hungry when it's time to eat. If you eat regularly, you will have good health. So it is better for us not to have too many sweet drinks.

#### 52. How Do People Get Roundworms?

Roundworm is a kind of parasite in the stomach. It lives on the nutrients in the intestines. Normally people do not have roundworms in their stomachs. Only when someone eats some roundworm eggs together with vegetables, fruits or impure water, do the eggs become roundworms. The roundworms ovulate and grow constantly. New eggs are excreted again together with bowel movements. They would mix with soil and water, or stick to vegetables and fruits. If people eat unclean fruits, melons and vegetables without washing their hands before eating, the