
Table of Contents

Skin - Tanning, Acne and More	1
Hair	2
Funny Bones	4
Bone Structure	5
Joints	7
Muscles and Movement	9
Contracting and Relaxing	11
The Digestive System	13
The Stomach	14
The Liver	16
The Small Intestine	17
The Large Intestine	19
Respiration	20
The Nose, Throat and Trachea	21
The Lungs	23
Respiratory Illnesses	25
How the Heart Works	27
The Blood	28
The Heart and Medical Conditions	29
Heart Facts	31
The Urination Process	33
The Nervous System	35
The Spinal Cord and Neurons	36
The Cerebellum and Brain Stem	37
The Cerebrum	39
Balance	41
How Eyes Give You Vision	43
How Ears Let You Hear	44
Growth	46
Human Reproduction	48
Puberty	50
Male Reproduction	52
Female Reproduction	53
Creation and Development	55
Answer Key	57

About This Book

The purpose of *The Human Body* is to provide accurate information to students about their bodies. Each page lists questions that, when answered, will fit into one of five types of puzzle activities. The questions are not obscure, but students will have to do some searching. The research process will lead them to additional information, including illustrations, that will provide a deeper understanding of the workings of the human body and the care they should give to their bodies.

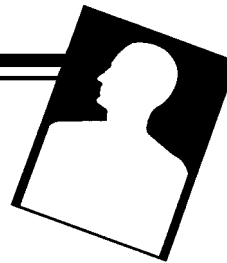
Not all of the information on each part of the human body can be included in this book, of course. It is hoped, though, that enough information about each body system is included to give students an accurate overview of how the body systems work together. The information has been chosen to appeal to the interests of young people. However, the teacher or parent must choose those topics that are appropriate to the age and maturity of the students.

Students might enjoy doing extensions of this book, such as the following:

- They might like to make up their own questions, puzzles and answers for additional health topics that are of interest to them. They could exchange their puzzles with other students.
- With the help of a friend, their own body shape could be traced and cut out of a piece of butcher paper. Body organs, skeleton, circulation etc. could be drawn on this life-size body shape. The activity would help students realise that these body parts are not abstract information to learn from a health book but, rather, are parts of their own bodies that must be cared for.
- They could research ways to stay healthy, such as learning more about nutrition, safety, and reasons to avoid substance abuse.
- They may wish to interview medical personnel as a career awareness activity.

It is hoped that students will enjoy the challenge of the research needed to solve the puzzles, will learn accurate information about the human body, and will be motivated to learn even more.

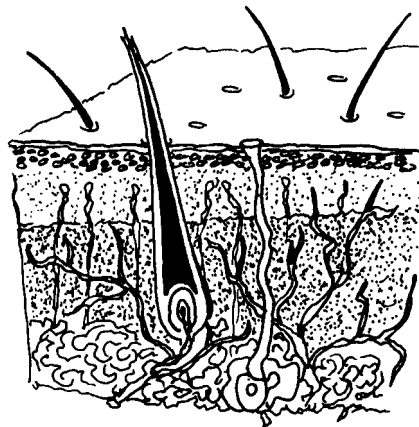
Skin - Tanning, Acne and More



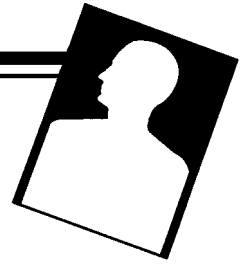
Fill in the blanks in the following statements; then locate the words in the word search.

1. There is a colouring chemical, or _____, in your skin called *melanin*. If you have a lot of it your skin is brown or black. If you do not have much, your skin is light coloured.
2. When you are in the sun, more melanin flows, causing tanning. Sunscreen is a lotion that helps protect skin cells from being burned by _____ light.
3. During a sunburn, high doses of ultraviolet light may damage genes in skin cells. In later life, skin cells may divide out of control and become skin _____.
4. Goosebumps are caused by muscles for each _____. They are one way your body tries to keep you warm. One of the body's responses to cold is to cause body hairs to stand on end, to trap an insulating layer of air.
5. Adults have about 2 square metres of skin which makes it the largest _____ in the human body.
6. The skin also accounts for about 5% of your total body _____. The skin weighs about 4 kilograms.
7. If you sit in water for a long time, the soles of your feet and your palms _____. This happens because these areas lack the glands that produce a fatty substance which prevents the skin from absorbing water.
8. You can only receive a skin graft from another part of your own body or from the body of your identical _____.
9. As bodies change into adults, more hair is grown and the oil _____ secrete more oil. The result is often acne. Oil is made faster than it can ooze out and the hair follicle gets plugged.
10. If _____ are living in the hair follicle oil, they might cause a swollen, red, painful pus-filled infection called a pimple. The body tries to contain this infection by surrounding it with a fibrous bag, or pimple. Popping a pimple shoots bacteria out beneath the skin to all the hair follicles nearby.

P T E L O I V A R T L U
 T I C E L L S O K S U E
 H S G L A N D S R A I R
 G K I M O L E E A G R H
 I I C E E S C E N T A E
 E N W R I N K L E I N N
 W O I L A S T A R O W O
 F B A C T E R I A F A T



Funny Bones



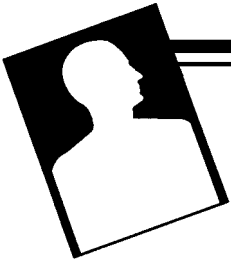
Write the letter from Column B that most correctly answers the description found in Column A.

Column A

- _____ 1. The longest bone in your body is your thighbone, which accounts for over $\frac{1}{4}$ of your height. The smallest bones are in your ears. These are called the _____ because of their shape. They are less than one centimetre long.
- _____ 2. Every year as much as ten percent of your bone is replaced with new bone. A bone may change its shape, thickening here, thinning there, and adjusting its strength to the _____ that are placed on it.
- _____ 3. Putting a load on bones causes them to thicken. A runner's legs become thicker because they are pounded during exercise. When the load is taken off bones, they slim down. A person sick in bed for weeks _____ bone.
- _____ 4. The horse has one _____ bone on average than humans, but it can easily carry a person on its back.
- _____ 5. The cartilage in the spinal column gets squashed when you are upright and _____ when you lie down. In the morning you are about half a centimetre taller than the night before.
- _____ 6. Bone is amazingly strong for its weight. A medium size adult taking a walk puts about 850 _____ per square centimetre on his or her thighbone with every step.
- _____ 7. _____ people often develop a slight curve in the spine. Right-handed people curve right and left-handed people curve left.
- _____ 8. Bone shapes fit into four groups. 'Long bones' are skinny and slightly curved like legs. 'Short bones' are the chunky bones found in your feet. 'Flat bones' are plate-like like your _____. Irregular bones like ear bones do not fit in any other group.
- _____ 9. When you knock your 'funny bone', the part affected is a nerve running over the end of the _____, one of the forearm bones.
- _____ 10. Bone growth during childhood, which is controlled mainly by _____, may be altered by disease, illness or a poor diet, affecting a person's height.

Column B

- A. Grams
- B. Anvil
- C. Cartilage
- D. Younger
- E. Ribs
- F. Less
- G. Femur
- H. Minerals
- I. Ulna
- J. Pressures
- K. Kilograms
- L. Collagen
- M. Hormones
- N. Gains
- O. Marrow
- P. Stirrups
- Q. Vertebrae
- R. Expands
- S. Older
- T. Humerus
- U. More
- V. Nerves
- W. Shrinks
- X. Loses
- Y. Hammer
- Z. Calcium



Joints

Fill in the blanks in the following statements. Then place the letters in the blanks on the following page. A few clues are given.

1. Joints occur where bones _____. Joints protect the ends of bones and determine the directions bones can move. There are many kinds of joints.
2. Some joints move freely and some move only slightly. In movable joints, _____ hold the ends of the bones together and prevent bones from slipping out of place. Some joints do not move at all. Skull bones are designed not to move. They are fused together along interlocking, zig-zag joints. Your face is made of many bones fused together and so is your lower jaw.
3. The hinge joint is one kind of movable joint. Joints in your fingers work like door hinges, letting your fingers bend and extend. This _____ makes it possible to reach out, pull, and lift objects.
4. The pivot joint lets bones twist around. It allows you to move your head from side to side. Your elbow is both a _____ joint and a pivot joint.
5. You can swing your arm in any direction. That motion is possible because the end of your upper arm bone is ball-shaped. It fits into a _____ in your shoulder bone. The ball-and-socket joint allows the greatest freedom of movement of any joint.
6. _____ joints let your knees bend, extend, and rotate slightly. This action allows you to sit down, to stand up, and to walk smoothly.
7. Ellipsoid joints let your wrists pivot up and down and _____. They aid your hands in doing a variety of jobs.
8. _____ joints enable bones in your feet and toes to slide forward, backward and sideways. They help your feet balance your body.
9. _____ joints allow you to lean forward and backward at the ankles. In your thumbs, these joints give you a tight grip on small objects.
10. Write the letters found in the squares on the next page. Unscramble these letters until they provide the missing information: Joints are protected in several ways. _____ caps the ends of bones at moving joints. It allows bones to slide against each other. It also softens the force when bone bumps bone when you exercise. A thick fluid produced in the joints keeps them well lubricated. It lets the bones move smoothly like a well-oiled machine.