

Human skeleton

Worksheet Teacher's notes

1. Can you name the main parts of human body? Can you name any internal organs? Can you tell the class what is their function and why do we need them?

students' own answers

2. Have you ever heard a term *homo erectus*? What does it mean? Go to <http://humanorigins.si.edu/evidence/human-fossils/fossils/knm-wt-15000> and read about Turkana boy. What information can we get just from analyzing his skeleton?

Homo erectus (meaning "upright man," from the Latin *erigere*, "to put up, set upright") is an extinct species of hominin that lived throughout most of the Pleistocene, with the earliest first fossil evidence dating to around 1.9 million years ago and the most recent to around 143,000 years ago. The species originated in Africa and spread as far as Georgia, India, Sri Lanka, China and Java.

His pelvis shows he was male. His second molars had erupted, but not his third (the wisdom teeth), indicating he was not an adult. The microscopic structure of his teeth tells us how quickly his teeth grew – and thus his age: eight or nine years old. He was 1.6 m (5 ft 3 in) tall and weighed 48 kg (106 lb) when he died; if he had reached adulthood, he might have grown only a little bit taller. His vertebrae, which form the spine, were diseased, causing a subtle curvature and probably slow movement. This may have contributed to his death, although his cause of death at such a young age is unknown. Although he had a disability which hindered his movement, his body shows long legs and narrow shoulders typical of humans who live in hot, dry climate today.

3. Work in pairs complete the following tasks and find the following information:

http://www.teachpe.com/anatomy/types_of_bones.php

<http://kidshealth.org/kid/htbw/bones.html>

<http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=152&id=2523>

- ❖ What are bones made of? Why do we need our skeleton?

Almost every bone in your body is made of the same materials:

The outer surface of bone is called the periosteum (say: pare-ee-OS-tee-um). It's a thin, dense membrane that contains nerves and blood vessels that nourish the bone. The next layer is made up of compact bone. This part is smooth and very hard. It's the part you see when you look at a skeleton. Within the compact bone are many layers of cancellous (say: KAN-sell-us) bone, which looks a bit like a sponge. Cancellous bone is not quite as hard as compact bone, but it is still very strong. In many bones, the cancellous bone protects the innermost part of the bone, the bone marrow (say: MAIR-oh). Bone marrow is sort of like a thick jelly, and its job is to make blood cells.

Every single person has a skeleton made up of many bones. These bones give your body structure, let you move in many ways, protect your internal organs, and more.

- ❖ There are five types of bones, what are they?

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There are 5 types of bones in the human body. These are long bones, short bones, flat bones, irregular bones and sesmoid bones.

- ❖ How do bones grow?

When you were a baby, you had tiny hands, tiny feet, and tiny everything! Slowly, as you grew older, everything became a bit bigger, including your bones. A baby's body has about 300 bones at birth. These eventually fuse (grow together) to form the 206 bones that adults have. Some of a baby's bones are made entirely of a special material called cartilage (say: KAR-tel-ij). Other bones in a baby are partly made of cartilage. This cartilage is soft and flexible. During childhood, as you are growing, the cartilage grows and is slowly replaced by bone, with help from calcium. By the time you are about 25, this process will be complete. After this happens, there can be no more growth — the bones are as big as they will ever be. All of these bones make up a skeleton that is both very strong and very light.

- ❖ How many bones are we born with?

300

- ❖ What is *cartilage*?

a special material, soft and flexible

- ❖ When do bones stop growing?

By the time you are about 25

- ❖ What is the role of your spine?

The spine lets you twist and bend, and it holds your body upright. It also protects the spinal cord, a large bundle of nerves that sends information from your brain to the rest of your body.

- ❖ What is *vertebrae*? How many vertebrae do you have?

The spine has 26 bones which are like circles with wings on the sides and back.

- ❖ What are *discs* and what are they made of?

There are small discs made of cartilage between each vertebra. They act like shock absorbers and also stop the bones rubbing against each other.

- ❖ What are *floating ribs*?

The last 2 pairs of ribs are called the 'floating' ribs. They are not attached to the sternum but they are fastened to the spine at the back.

- ❖ What and where is the smallest bone in your body?

The smallest bone in your whole body is in your head, the stirrup bone behind your eardrum is only .1 to .13 inches (2.5 to 3.3 millimeters) long

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- ❖ How many bones are there in your hand?

54 bones

- ❖ What is *hinge joint*?

One of the main types of moving joints is called a hinge joint. Your elbows and knees each have hinge joints, which let you bend and then straighten your arms and legs. These joints are like the hinges on a door. Just as most doors can only open one way, you can only bend your arms and legs in one direction.

- ❖ Where in your body do you have a *ball and socket joint*?

Another important type of moving joint is the ball and socket joint. You can find these joints at your shoulders and hips. They are made up of the round end of one bone fitting into a small cup-like area of another bone. Ball and socket joints allow for lots of movement in every direction.

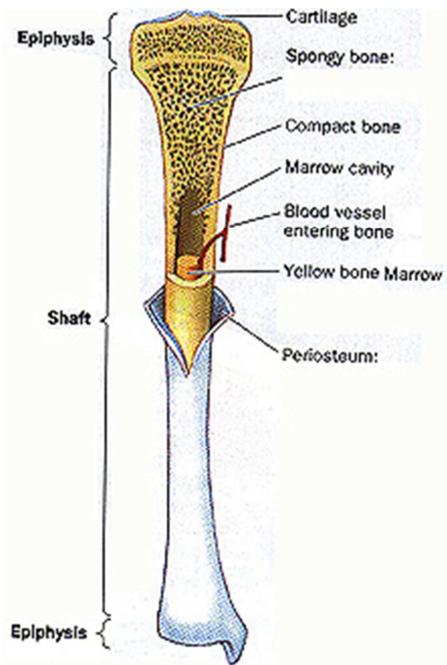
- ❖ How can we protect our bones?

Protect those skull bones (and your brain inside!) by wearing a helmet for bike riding and other sports. When you use a skateboard, in-line skates, or a scooter, be sure to add wrist supports and elbow and knee pads. Your bones in these places will thank you if you have a fall! If you play sports like football, soccer, lacrosse, or ice hockey, always wear all the right equipment. And never play on a trampoline. Many kids end up with broken bones from jumping on them. Broken bones can eventually heal, but it takes a long time and isn't much fun while you wait. Strengthen your skeleton by drinking milk and eating other dairy products (like low-fat cheese or frozen yogurt). They all contain calcium, which helps bones harden and become strong. Be active! Another way to strengthen your bones is through exercise like running, jumping, dancing, and playing sports.

4. Now go to http://kidshealth.org/kid/htbw/SSquiz.html?tracking=K_RelatedArticle and do the quiz! Good luck!
5. Draw the structure of a long bone, make sure you mark: *spongy bone, compact bone, periosteum, yellow bone marrow, and blood vessels*.

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- Listen to the song and have fun!
<http://www.youtube.com/watch?v=QKAg2oIEu9w>