11

Name: ..... Form: .....

See **pages 24 and 25** of *The Body Book*

Bones

Bones give strength to the body and also provide new cells for blood.

Q1. What is the bone shown here?

✎ .....

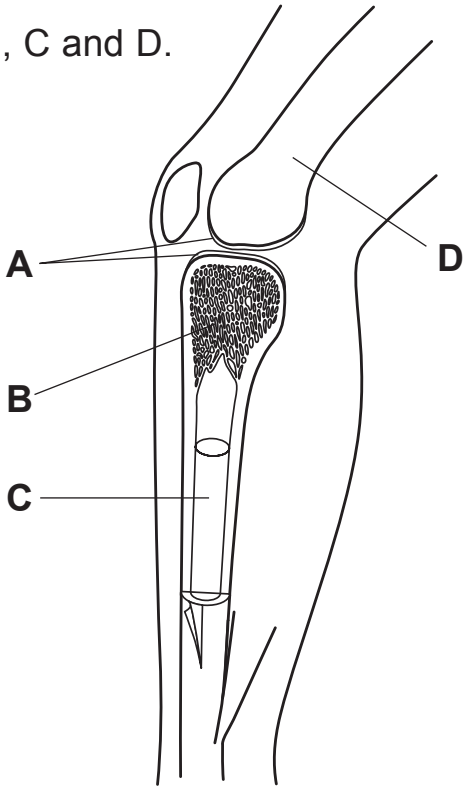
Q2. The bone in Q1 is a flat bone.
Name another place in the skeleton where there are flat bones.

✎ .....

Q3. Name two parts of the skeleton made from irregularly shaped bones.

1 ✎ ..... 2 ✎ .....

Q4. Name the parts of the bone labelled A, B, C and D.



A ✎ .....

B ✎ .....

C ✎ .....

D ✎ .....

Q5. Why are bones hollow and not solid?

✎ .....

.....

.....

11 Teacher's sheet: Comprehension

See **pages 24 and 25** of *The Body Book*

ANSWERS

Introduction

A selection of X-ray photographs would help in the introduction of the topic. The students could try to identify the bones in the X-ray photographs by reference to their own bodies or a model skeleton. After the students have read page 24 they could identify the bones in a skeleton – long, short, flat and irregular – using the page to help them.

Practical work

11A: Testing the length of 'bones'

11B: Testing the thickness of 'bones'

Integrating the practical work

You can let the students try the two practicals after they have studied the different shapes of bones on page 24. Half the class could try Practical 11A and the other half could try Practical 11B. When the students have performed their investigations, they can present their work to the whole class so all are aware of the effect of length and thickness on the strength of a bone.

Alternatively, all the class can try Practical 11A first and follow it with Practical 11B.

Extension worksheet

Pages 109 and 120.

Links

The skeleton, pages 26–27; **Joints**, pages 28–29; **Muscles**, pages 30–31; **Keeping fit**, pages 42–43.

Background

Bones are usually thought of as non-living material which remains unchanged in the body. However, bone is a living material and changes throughout life. As the human embryo develops during pregnancy, the bones form first as cartilage then take up minerals and form bone. The completion of bone formation (called ossification) continues for many years after birth. For example, the bones of the skull are not fully formed until 16 years of age, while the bones of the feet may take 12 to 22 years to fully form after birth. The sternum can take 30 years to become fully formed.

The two kinds of bone cell work together building up and breaking down bone. The shape of bones may change slightly through life due to the stresses and strains put on the skeleton. For example, in some old people the bones of the feet may become deformed.

Bone is also superbly adapted to the task it performs in supporting the body. The spongy texture in the head of long bones, and the cavity along their shafts, gives a considerable weight reduction without a loss of strength. The bones provide support but, because of their light weight, are easily pulled by the muscles and allow movement without using vast quantities of energy.

The class will be familiar with bones of other animals from their meals, so you can build on their experience by presenting them with some X-ray photograph of bones to examine.

Answers

Q1. Shoulder blade.

Q2. Skull or ribs (rib cage).

Q3. Spine, hands, feet.

Q4. A Cartilage, B Spongy bone, C Marrow (red or yellow), D Hard bone.

Q5. Hollow bones are lighter in weight than solid bones and easier for the muscles to move.