# UNIT 10 BONES

**1. Try to answer the following questions.**
Spróbuj odpowiedzieć na poniższe pytania.

1 How many bones are there in the human body?
2 Why is synovial fluid important?
3 What are cartilages and what is their role?
4 What are tendons and what are they responsible for?
5 What are ligaments and what are they responsible for?
6 What must happen for movement to be possible?
7 How many different types of bones are there? What are they?
8 Which bones vary in number and location?

16 **2. Read the text and check your answers to the questions in exercise 1.**
Przeczytaj tekst i sprawdź swoje odpowiedzi na pytania z ćwiczenia 1.

**GLOSSARY**

**compressive** – sprężający, uciskający
**connective tissue** – tkanka łączna
**contract** – kurczyć się
**cube** – kostka, sześcian
**dense** – gęsty
**embedded** – osadzony
**facilitate** – ułatwiać
**flat** – płaski
**friction** – tarcie
**protect** – chronić
**red bone marrow** – czerwony szpik kostny
**resemble** – przypominać
**sesamoid bone** – kości trzeszczki
**shaft** – trzon
**store** – przechowywać
**surround** – otaczać
**synovial fluid** – maź stawowa
**tendon** – ścięgno



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## BONES

The human body is made up of bones and joints. Bones make up most of the skeleton, the bony framework of the body. The skeleton:

- **facilitates** movement,
- supports the body,
- **protects** internal organs,
- produces blood cells (**red bone marrow**),
- **stores** minerals (calcium).

The skeleton of an adult human is made up of 206 bones. Bone is a hard and **dense connective tissue**. Joints provide a connection between bones. **Synovial fluid** lubricates joints and reduces **friction**. Cartilage is a connective tissue found at the ends of bones. Its purpose it to reduce friction and absorb shock. Cartilages, unlike other types of tissue, do not have a blood supply. If they are damaged, they do not repair themselves as quickly as a bone does.

**Tendons** are dense, fibrous connective tissue found in joints. Tendons connect muscles to bones. When skeletal muscles **contract**, tendons make it possible for bones to move.

Ligaments are similar to tendons, but they connect bones to bones at a joint. They make it possible for bones to move within a safe range of motion by stabilising joints they **surround**.

A stimulus from the brain is required to make ligaments, tendons, bones and muscles work together and for movement to be possible.

Bones are divided into five categories based on their shape:

- **long bones**
  Long bones are longer than they are wide. They consist of the main part, called a **shaft** (diaphysis) and extremities (epiphysis) on one or both ends. Long bones support the weight of the body, provide structural support and facilitate movement.

  Examples: humerus, metacarpals (fingers)

- **short bones**
  Short bones look like **cubes**. They are more or less equal in length and width. Short bones provide support and stability. They allow for more movement than long bones do.

  Examples: wrist and ankle bones


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- **flat bones**
  **Flat** bones protect internal organs such as the heart, brain or pelvic organs. Flat bones are thin and broad, often with curves. They have large surfaces for muscle attachments.

  Examples: ribs, skull, pelvic bones, sternum

- **sesamoid bones**
  **Sesamoid bones** are small and round bones which are **embedded** in tendons. Their shape **resembles** a sesame seed. Sesamoid bones protect tendons from **compressive** forces and physical stress. Their quantity and location may vary across individuals.

  Examples: patella (kneecap)

- **irregular bones**
  Irregular bones have complicated and irregular shapes. Irregular bones of the vertebral column protect the spinal cord. Irregular bones of pelvis protect pelvic organs.

  Examples: vertebrae, facial bones, ischium

### 3. Match the Polish words with their English equivalents.

Dopasuj polskie słowa do ich angielskich odpowiedników.

| | | | |
|---|---|---|---|
| 1 | tkanka łączna | a | ligament |
| 2 | włóknisty | b | irregular bones |
| 3 | kości różnokształtne | c | flat bones |
| 4 | kości płaskie | d | tendon |
| 5 | szpik kostny | e | long bones |
| 6 | kości długie | f | fibrous |
| 7 | więzadło | g | connective tissue |
| 8 | ścięgno | h | bone marrow |



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**4. Complete the table with relevant information.**
Uzupełnij tabelę odpowiednimi informacjami.

| BONE | FUNCTION | EXAMPLE |
|---|---|---|
| long | | |
| short | | |
| sesamoid | | |
| flat | | |
| irregular | | |

**5. Explain the difference between ligaments, tendons and cartilages.**
Wyjaśnij, czym różnią się: więzadła, ścięgna i chrząstki.



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