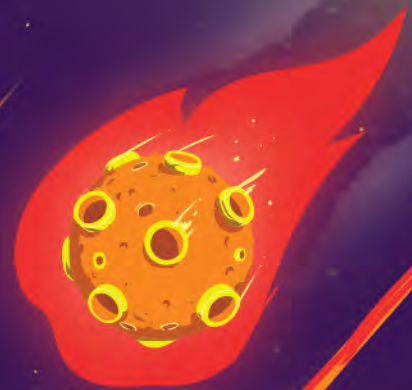


# SPECTRUM Science

3

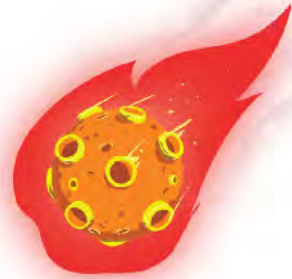
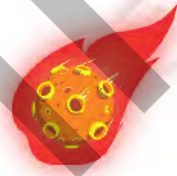


بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

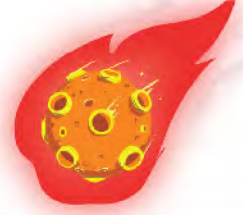
In the Name of Allah, the Most Gracious, the Most Merciful

# SPECTRUM Science

3

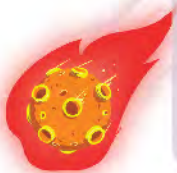
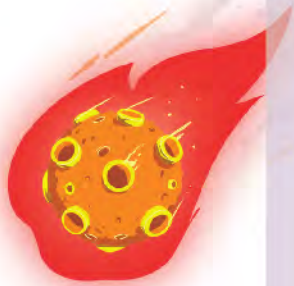






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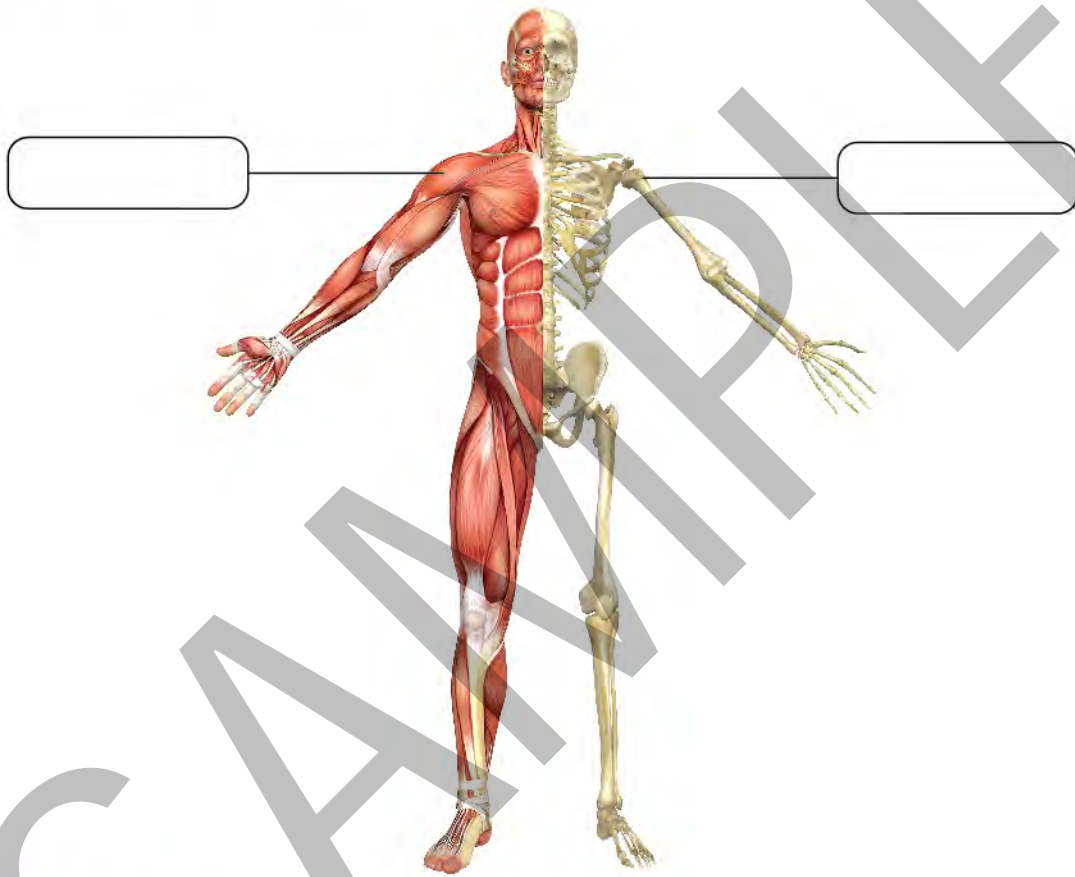


# UNIT 1

## Bones, Joints and Muscles



Look at the picture below. Label the two sides of the human body as either muscles or bones.



### EXPLORE

Touch your tongue, eyelid and earlobe. Are there any bones there?

#### Proud to Know

Allah said in the Holy Quran,  
"Surely We have created humans in the best form."



(Surah Al-Teen: 4)





We are different from each other in height, weight, size and shape. Some of us are tall and some are short. Some of us are thin and some others are fat.

Everyone has a different body structure. **Bones, muscles** and **joints** make up the structure of the body. They help us do work.

## Bones

An adult human body has 206 bones. These bones make up our skeleton.

The skeleton helps us stand and move.

It also protects the internal organs. The **rib cage** protects our heart and lungs. The skull protects the brain.



Human babies are born with more than 300 bones. Many of the bones fuse with growth.

## Joints

A **joint** is a place where two bones meet. Most joints can move freely. They let you move, twist and bend. They are called **moving joints**.

Some joints do not move. They are called **fixed joints**. Most skull joints are fixed.

Bones do not move on their own. They move with the help of **muscles** and joints.



## Muscles

Muscles are attached to the bones. There are more than 600 muscles in our body. They help our body work.

They are present under the skin. When we press our skin on the arm or the cheek, we can feel that the soft part under our skin are muscles.



## Caring for Bones, Joints and Muscles

In order to care for our bones, joints and muscles, we must:

- Eat meat, dairy foods and vegetables.
- Eat fish and eggs.
- Take sunlight exposure every day.
- Exercise regularly to keep healthy.
- Maintain a healthy body weight.

If we do not eat properly, our bones may become weak, our muscles may lose their strength and joints may ache.

### Points to Remember

- The human body has a number of bones, joints and muscles.
- All the bones together make up the skeleton.
- Bones move with the help of muscles and joints.
- A joint is the place where two bones meet.
- Different joints allow different types of movement.
- Muscles are attached to the bones.
- We can take care of our bones, joints and muscles by eating a balanced diet and regular exercise.





## Glossary

- **Skeleton:** the framework of bones in the body
- **Ribcage:** the bony structure of our chest that consists of the ribs and the tissues
- **Skull:** the bony part of the head around the brain
- **Dairy:** milk products

## EXERCISE

01 Answer the following questions.

- I What is a skeleton?
- II Name any three joints in our body.
- III What is the function of the joints?
- IV What are the kinds of joints?
- V How can we take care of our bones and muscles?

02 Write 'T' for a true and 'F' for a false statement.

- I All the bones together make up the skeleton.
- II An adult human body has 300 bones.
- III Muscles are attached to the bones.
- IV Fixed joints allow us to twist, bend and move.
- V The skull has some moving joints.



03

**Choose the correct option.**

- i \_\_\_\_\_ are responsible for the body movement.  
(a) Bones, joints and muscles  
(b) Muscles  
(c) Rib cage
- ii A human body has more than \_\_\_\_\_ muscles.  
(a) 400  
(b) 500  
(c) 600
- iii \_\_\_\_\_ and exercise keep our bones strong.  
(a) Milk  
(b) Coffee  
(c) Cold drink
- iv Most skull joints are \_\_\_\_\_.  
(a) fixed  
(b) moveable  
(c) none of the above
- v The rib cage protects the \_\_\_\_\_.  
(a) eyes  
(b) hearts and lungs  
(c) brain

04

**Identify moveable joints and fixed joints.**





1. Stretch your arm straight out. Now take something eatable in your hand. Can you bring it up to your mouth without bending your arm?

Answer: \_\_\_\_\_

2. Locate a few bones of the body and list them down.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

SAMPLE

# SPECTRUM Science

In simple words, Science can be defined as the knowledge about the natural world that is based on facts learnt through experiments and observation. Spectrum Science is the reflection of this basic definition for the young, curious and enthusiastic learners.

The series triggers children's intellect to ask why and how about the everyday phenomenon around them. The colourful layout of the books attracts children. Easy language, interesting colourful illustrations and hand-on activities in each chapter engage their enquiring minds. Concepts of Biology, Chemistry, Physics and Space Sciences progress from one level to the next in a very logical and rational manner.

Besides the curriculum, a window to further knowledge is opened through the information under the heading of "Do You Know?". There is an exercise section at the end of each chapter to assess what a child has learnt and gained from the knowledge shared in the chapter.

**Spectrum Science** follows the Pakistan National Curriculum for Science and also keeps in view the recommendations of some international curricula for Science.