

CLASS 11

BIOLOGY

NCERT SOLUTIONS

NCERT Solutions for Class 11 Biology Chapter 17: Locomotion and Movement – Free PDF Download

Chapter 17 of Class 11 Biology is Locomotion and Movement. It covers the types of movement, the human skeletal and muscular systems, and the sliding filament mechanism of muscle contraction. These Class 11 Biology Chapter 17 solutions are also useful as quick revision notes before exams.

Contents

Types of Movement

Types of Muscle

Muscle Contraction: Sliding Filament Theory

Human Skeletal System

Joints

Disorders

Class 11 Biology Chapter 17 – Notes and Extra Questions

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Types of Movement

Amoeboid (via pseudopodia, e.g. WBCs), **ciliary** (via cilia, e.g. respiratory tract lining), and **muscular** (via muscle contraction, e.g. limb movement) movement.

Types of Muscle

Skeletal (striated): voluntary, attached to bones. **Smooth (unstriated)**: involuntary, in internal organs. **Cardiac**: involuntary, striated, only in heart.

Muscle Contraction: Sliding Filament Theory

A muscle fibre contains **myofibrils** made of thick (myosin) and thin (actin) filaments arranged in repeating units called **sarcomeres**. During contraction, myosin heads bind actin (forming cross-bridges) and pull thin filaments inward, sliding them past thick filaments, shortening the sarcomere — without the filaments themselves changing length. Requires **Ca²⁺**, **ATP**, and the regulatory proteins troponin and tropomyosin.

Human Skeletal System

206 bones, divided into **axial skeleton** (skull, vertebral column, ribs, sternum — 80 bones) and **appendicular skeleton** (limb bones and girdles — 126 bones).

Joints

Fibrous joints (immovable, e.g. skull sutures), **cartilaginous joints** (slightly movable, e.g. between vertebrae), **synovial joints** (freely movable, e.g. ball-and-socket at hip/shoulder, hinge at knee/elbow).

Disorders

Myasthenia gravis (autoimmune, affects neuromuscular junction), **tetany** (rapid muscle spasms from low Ca²⁺), **arthritis** (joint inflammation), **osteoporosis** (age-related bone density loss).

Class 11 Biology Chapter 17 – Notes and Extra Questions

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