



## SECOND TERM E-LEARNING NOTE

**SUBJECT: BIOLOGY**

**CLASS: SS 2**

### SCHEME OF WORK

#### WEEK TOPIC

1. Tissue and Supporting System
2. Tissue and Supporting System (cont'd)
3. Mammalian Teeth
4. Digestive System
5. Digestive System (cont'd)
6. Transport System
7. Circulatory System
8. Transport System in Higher Plants
9. Respiratory System
10. Respiratory System (cont'd)

#### REFERENCES

- Modern Biology for Senior Secondary Schools by S.T. Ramalingam
- Essential Biology by M.C Michael
- New School Biology by H. Stone and Cozen
- SSCE Past Questions and Answers
- New System Biology by Lam and Kwan
- College Biology by IdodoUmeh
- UTME and Cambridge Past Questions and Answers
- Biology Practical Textbook

#### WEEK ONE & TWO

##### TISSUE AND SUPPORTING SYSTEM

##### Contents

- Introduction
- Forms of Skeleton
- Types of Skeleton
- Functions of Skeleton
- Support in Vertebrates
- Axial and Appendicular Skeleton
- Supporting Tissues in Plants

#### INTRODUCTION

To carry out life processes, all organisms (plants and animals) need tissues. Tissues are group of similar cells that carry out specific functions. Skeleton is the framework of the body which provides support, shape



and protection to the soft tissues and organs in animals. It forms the central core of human body and it is covered by muscles and blood vessels and skin.

### FORMS OF SKELETAL MATERIALS

There are 3 forms of skeletal materials found in animals .These are

1. Chitin
2. Cartilage
3. Bones

### CHITIN

It is a tough non-living material present in arthropods (invertebrates). It acts as a hard outer covering to the animal and is made up of series of plates covering or surrounding organisms. Chitin is very tough, light and flexible. However, it can be strengthened by impregnation with 'tanned' proteins and particularly in the aquatic crustaceans like crabs, by calcium carbonate.

### CARTILAGE

This is a tissue present in skeleton of complex vertebrates. Cartilage consists of a hard matrix penetrated by numerous connective tissue fibres. The matrix is secreted by living cells called **chondroblasts**. These later become enclosed in spaces (lacunae) scattered throughout the matrix. In this condition the cells are termed **chondrocytes**. It acts as a shock absorber in between bones during movement because it is tough and flexible with a great tensile strength. It is found predominantly in mammals and cartilaginous fishes e.g. shark.

### EVALUATION

1. What is skeleton?
2. (a) State two main components of skeleton. (b) Differentiate between cartilage and chitin.

### TYPES OF CARTILAGE

Cartilages are of three main types in mammals and they are

#### HYALINE CARTILAGE

This contains a dense meshwork is the most common type and can be found on surface of moveable joint, trachea and bronchi (for ease of respiration) and also in protruding parts of the nose.

#### WHITE FIBROUS CARTILAGE

Tougher than the...