

KCSE BIOLOGY SYLLABUS

FORM ONE WORK

1.0.0 INTRODUCTION

1.1.0 Specific Objectives

By the end of the topic, the learner should be able to:

- a) Define biology
- b) List branches of biology
- c) Explain the importance of biology
- d) State the characteristics of living organisms
- e) State the main differences between plants and animals

2.0.0 CLASSIFICATION

2.1.0 Specific Objectives

By the end of the topic, the learner should be able to:

- a) Use the magnifying lens to observe the external features of plants and animals
- b) Record observations of the main external characteristics of living organisms, preserved specimens and photographs
- c) State the necessity and significance of classification
- d) Name the major units of classification
- e) State the application of Binomial nomenclature in naming organisms.

3.0.0 THE CELL

3.1.0 Specific Objectives

By the end of the topic, the learner should be able to:

- a) Define the cell

- b) State the purpose of a light microscope
- c) Identify the parts of a light microscope and state their functions
- d) Use and care for the light microscope and state the magnification
- e) Identify the components of a cell as seen under the light and electron microscopes and relate their structure to functions
- f) Compare plant and animal
- g) Mount and stain temporary slides of plant cells
- h) Describe animal cells as observed from permanent
- i) Estimate cell size
- j) State the differences between cells, tissues, organs and organ systems.

4.0.0 CELL PHYSIOLOGY

4.1.0 Specific Objectives

By the end of the topic, the learner should be able to:

- a) Define cell physiology
- b) Correlate the membrane structure with cell physiology in relation to permeability
- c) Differentiate between diffusion, osmosis and active transport
- d) State and describe factors affecting diffusion, osmosis and active transport
- e) Carry out experiments on diffusion and osmosis
- f) Explain the roles of diffusion, osmosis and active transport in living organisms
- g) Explain turgor and plasmolysis in terms of osmotic pressure.

5.0.0 NUTRITION IN PLANTS AND ANIMALS

5.1.0 Specific Objectives

By the end of the topic, the learner should be able to:

- a) Define nutrition and state its importance in living organisms

- b) Differentiate various modes of feeding
- c) Describe photosynthesis and show its importance in nature
- d) Explain how the leaf is adapted to photosynthesis
- e) Explain the factors affecting photosynthesis
- f) Distinguish between carbohydrates proteins and lipids
- g) State the importance of various chemical compounds in plants and animals
- h) Explain the properties and functions of enzymes
- i) Relate various types of teeth in mammals to their feeding habits
- j) Differentiate between omnivorous, carnivorous and herbivorous modes of feeding
- k) Relate the structures of the mammalian (human) alimentary canal to their functions
- i) Explain the role of enzymes in digestion in a mammal (human)
- m) Explain the factors that determine energy requirements in humans.