

Grade 8 Science Unit 4

Cells, Tissues, Organs and Systems

Describe four characteristics common to living things. Include:

- (i) growth
- (ii) movement
- (iii) response to stimuli
- (iv) reproduction

Define a cell and explain that it is a living system and it exhibits the four characteristics of life

State the cell theory

Identify the major parts of the compound microscope.

- (i) eyepiece
- (ii) objective lenses
- (iii) stage
- (iv) coarse adjustment knob
- (v) fine adjustment knob
- (vi) light source/lamp
- (vii) iris diaphragm
- (viii) base
- (ix) barrel (or tube)
- (x) arm
- (xi) revolving nosepiece

Describe the proper use of a light microscope to produce a clear image.

Examine and explain the role of the following organelles:

- (i) cell wall
- (i) cell membrane
- (ii) chloroplast
- (iii) cytoplasm
- (iv) nucleus
- (v) vacuole
- (vii) mitochondria

Label organelles on diagrams of typical plant and animal cells

Distinguish between typical plant and animal cells. Include:

- (i) plant cells have chloroplasts
- (ii) plant cells have cell walls, therefore they have a regular shape
- (iii) plant cells have fewer, and larger, vacuoles

Explain that growth and reproduction depend on cell division and explain the role of mitosis

Describe the levels of organization found in living things (i.e. the human body). Include:

- (i) cells
- (ii) tissues
- (iii) organs
- (iv) organ systems
- (v) organisms

Recognize that cells (basic level) and organisms (most complex level) require the same basic necessities of life and explain how these are related. Include:

- (i) oxygen
- (ii) nutrients
- (iii) waste removal

Identify the main function of the following organ systems in keeping organisms alive:

- (i) circulatory
- (ii) respiratory
- (iii) digestive
- (iv) excretory
- (v) nervous
- (vi) muscular

Explain the role that nutrition and exercise have on the functions and efficiency of the human respiratory, circulatory, muscular, digestive, excretory, and nervous systems

Describe 3 examples of the interdependence of various systems of the human body. Include:

- (i) circulatory/respiratory
- (ii) digestive/circulatory
- (iii) nervous/muscular