Review Unit B Section 2

2.0 Cells play a vital role in living things

Key Concepts:

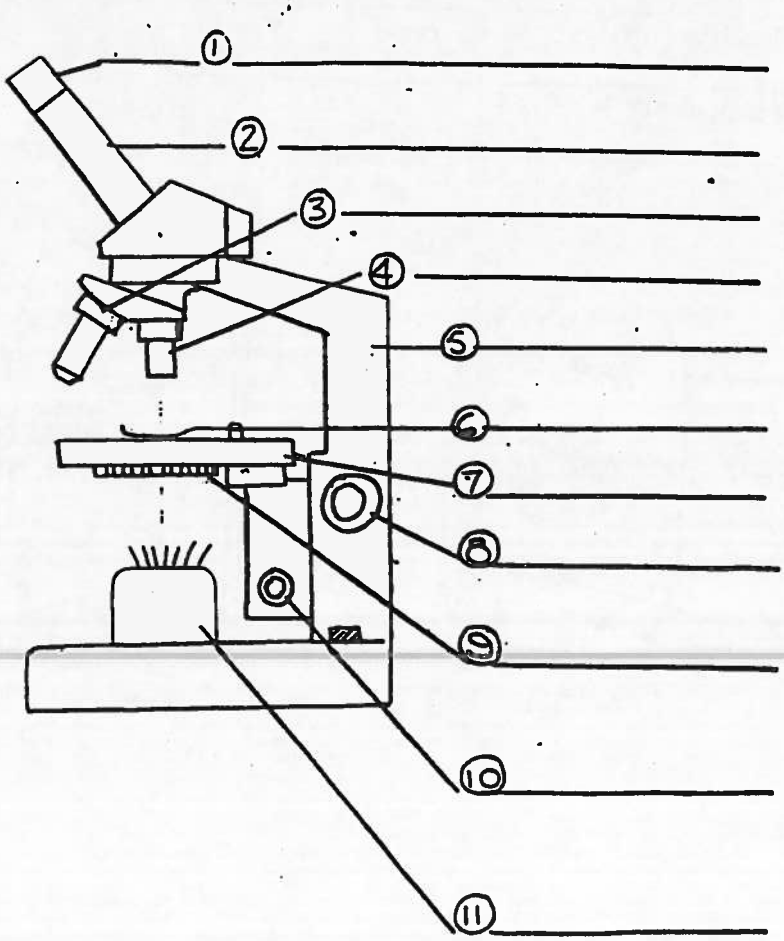
- Cells
- Tissues
- Organs
- Structure and function

Learning Outcomes:

- Explain the role of cells as a basic unit of life
- Identify plant and animal cells
- Identify the differences between one-celled and multicelled organisms
- Explain osmosis and diffusion
- Recognize the roles of cells, tissues and organs.

Vocabulary:

- **Capillaries:** tiny blood vessels that connect arteries to veins; one cell layer thick and extremely narrow.
- **Microscope:** Optical device used for viewing very small objects; has at least two lenses; the objective lens and the eyepiece lens.
- **Compound light microscope:** has 2 or more lenses and has a light source.
- **Cells:** The basic unit of life
- **Tissues:** Group of similar cells working together to perform a specific function
- **Organ:** Group of tissues that work together to perform a specific function
- **Organ system:** Group of organs that work together to perform a certain task, such as digestion or breathing.
- **Organelles:** structures in cells that perform a certain function
- **Mycoplasma:** Smallest form of microscopic organisms
- **Multicellular:** Made of move than one cell
- **Unicellular:** Made of just one cell
- **Micro-organisms:** Ususally unicellular organisms that can be seen only through a microscope
- **Psuedopods** foot-like projectors called.
- **Diffusion:** The movement of particles of a substance from an area of higher concentration (more of them) to an area of lower concentration (less of them).
- **Selectively Permeable:** Membrane with very small openings that allow particles of some substances, but not others, to pass through
- **Osmosis:** diffusion of water particles through the selectively permeable membrane.
- **Specialized Cells:** Cells that have specific structures that help them to perform particular functions.
- **Red Blood Cells:** small pliable cells that have no nucleus and are specialized for carrying oxygen to all the cells of the body.
- **Marrow** a type of connective tissue which creates red blood cells



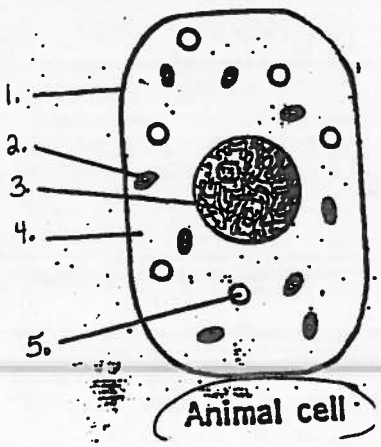
Cells - The Basic Unit of Life

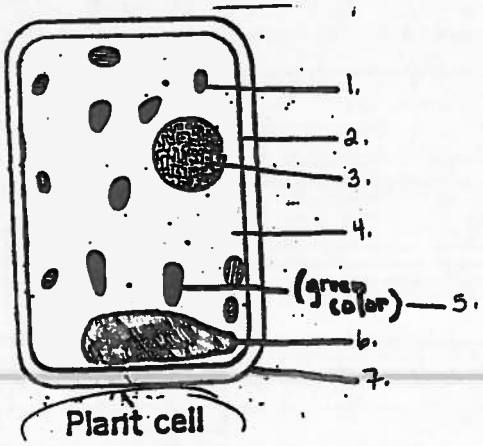
Define and describe the following terms:

1. **capillaries**
2. **tissues**
3. **organelles**

Using a ruler, create and complete the following chart:

Cell Structure	Description	Function
a) cell membrane		
b) cell wall		
c) cytoplasm		
d) nucleus		
e) vacuoles		
f) mitochondria		
g) chloraplasts		





Single Celled or Multicelled Organisms

_____ are the individual, living units that make up all living organisms. Organisms that are made of two or more cells are _____. Multicellular organisms rely on many _____ cells to perform the functions required for life. Examples of multicellular organisms are _____, _____, and _____.

If an organism is made of only one cell it is called _____. An example of a unicellular organism is the _____. A unicellular organism can perform all of the functions of a multicellular organism. Unicellular organisms _____, _____, _____, _____, and _____.

Common Unicellular Organisms

For each of the following provide a labelled diagram and a written description:

Amoeba

Paramecium

Diffusion and Osmosis

The movement of particles from an area where there is more of them to an area where there are fewer of them is called _____. Molecules move from areas of high concentration to areas of _____ concentration. Diffusion can occur in a _____ or a gas.

Diagram of diffusion:

Selectively permeable membranes only allow some particles to move across. Plant roots do not allow dirt and large particles to enter the plant.

Osmosis is the diffusion of _____ through a selectively _____ membrane. In osmosis the particles move from an area of high concentration to low concentration.

Diagram of osmosis:

2.5 Specialized Cells

A. Reproduction:

All cells produce by _____. The cell division results in _____ of each organism. Your body replaces _____ skin cells each day.

B: Multicellular Organisms Have Specialized Cells

Each specialized cell has a different _____. Your _____ _____ cells carry oxygen to all cells of your body. Red blood cells have a thin, _____ disk shape that allows them to travel through very small blood vessels. Red blood cells are made in the _____ of your bones. To reproduce the red blood cell does not divide, it _____ _____.

B. Tissue

Define/explain each of the following terms and provide an example for each:

1. **Connective tissue**
2. **Epithelial tissue**
3. **Nervous tissue**
4. **Muscle tissue**

C. Tissues in Plants

Draw, using a pencil and ruler, the following chart. Complete the chart.

Role of Specialized Tissues in Plants

Tissue Type	Stem Cells	Root Cells
Protective Tissue		
Transport Tissue		
Storage Tissue		

6 characteristics of living things
Structure
Function
Adaptation
Metabolism
Why are their spines on cactus
How do grasshoppers breathe
Largest organ
Basic unit of life
Response
Stimulus
Why are darwin's finches a good example of structure versus function