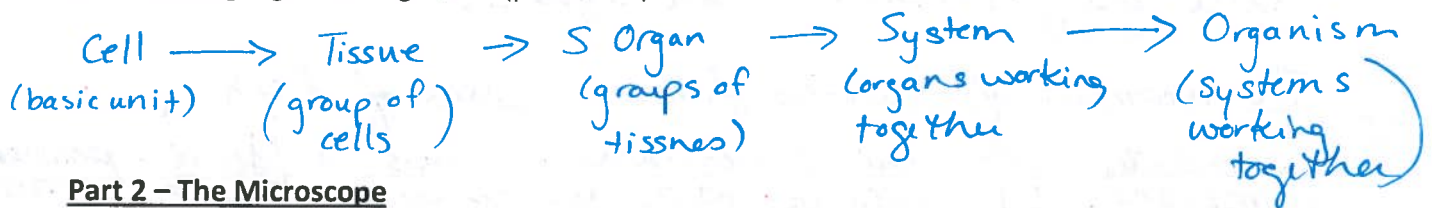


Unit 2 – Cells and System Review Pack

Part 1 – Characteristics of Living Things

What are the basic functions of all living things, and what are the structures that enable organisms to perform those functions? (p. 98)

Energy : structures enable organism to get food. Environment - structures enable organism to respond to stimuli. Reproduction - structures allow organisms to produce offspring. Growth - structures allow organism to change its size. Waste - structures enable organisms to expel unneeded material.
How are living organisms organized? (p. 100-101)



Part 2 – The Microscope

Describe changes that took place in the development of the microscope over time

Leeuwenhoek invented microscopes with small lenses.

Today we use compound light microscopes which use two lenses. Also, we have electron microscopes which use beams of electrons which are enlarged onto a television screen or photographic plate.

What are the main parts of the microscope? (p.107)

Eye piece / Ocular lens

Tube

Coarse - adjustment knob

Fine - adjustment knob.

Arm

Revolving nose piece

Objective lenses

Stage

Condenser lens

Diaphragm

Light Source

Part 3 – Cells

Identify the main component parts of the animal cell

Cell Membrane

Golgi Apparatus

Cytoplasm

Mitochondria

Nucleus

Vacuole

Identify the main component parts of the plant cell

Cell Wall

Cytoplasm

Vacuole

Golgi Apparatus

Cell Membrane

Nucleus

Chloroplast

Mitochondria

Part 4 – Cell Processes

What is a selectively permeable membrane? (p.128)

1 ✓ A membrane which blocks some molecules from passing through, but allows others to pass through.

Describe diffusion. (p.129)

1/2 The movement of particles from an area of high concentration to low concentration. It continues until the concentrations are equal.

Describe osmosis. (p.130)

2 The movement of particles from an area of high concentration to low concentration across a semi-permeable membrane. It continues until the concentrations are equal.

What is transpiration? (p.135)

1/2 The movement of water and minerals from the root of the plant through the shoot system.

Explain how a plant transports fluids, from the roots to the leaves.

1. Water enters the roots through osmosis. 2. It then travels upward through the plant in the xylem tissue. 3. Water then leaves the leaves of the plant through the stomata by evaporation.

Part 5 – Cell Specialization

Identify and describe the differences between different specialized cells. (p.138)

1	2	2	2
<p>Muscle</p> <ul style="list-style-type: none"> Elongated & tapered Moves the parts of the body. 	<p>Nerve</p> <ul style="list-style-type: none"> Long branched fibres running from main part of the cell Carries nerve signals from one part of the body to another. 	<p>Skin (epithelial)</p> <ul style="list-style-type: none"> Flat & thin, brick shaped or honeycomb Forms a continuous protective layer around the body. 	<p>Bone (connective)</p> <ul style="list-style-type: none"> Thick mineral matrix Provides support to the body.

What are the primary advantages of multi-cellular organisms (compared to unicellular organisms)?

- 1/5
1. Live in a wide variety of environments.
 2. Grow very large.
 3. Obtain their energy from a wide variety of foods.
 4. Have complex bodies
 5. Specialize functions: work in harmony with other cells.

Describe the levels of cellular organization in a multi-cellular organism. (p.140)

1. Cells: Specialized to perform specific functions.
2. Tissues: A group of specialized cells.
3. Organs: " " " " tissues.
4. System: " " " " organs
5. Organism: A group of systems working together.

Part 6 - Body Systems

Identify the important parts (structures) of each of the body systems and describe how each body system has a particular function. (p.153)

Body System	Structures (Parts)	Function of System
Respiratory	<u>larynx</u> <u>trachea</u> <u>bronchus</u> <u>bronchioles</u> <u>alveolus</u> <u>lungs</u> <u>diaphragm</u>	<u>Breathing in, (inhaling), fills the lungs with air. The lungs, (alveolus) allow gas exchange, [CO₂ ; O₂], so that when exhaling occurs CO₂ is expelled.</u>
Digestive	<u>mouth</u> <u>esophagus</u> <u>stomach</u> <u>gallbladder</u> <u>intestines (small/large)</u> <u>pancreas</u> <u>liver</u> <u>rectum</u>	<u>Food enters through mouth. It is broken down by the stomach and small intestine. Nutrients pass into the blood stream; waste is expelled through the large intestine.</u>
Nervous	<u>Brain</u> <u>Spinal Cord</u> <u>Nerves</u>	<u>Allows the body to respond to stimuli. Signals are sent back and forth from the brain as stimuli are encountered.</u>

Excretory	<u>Kidneys (Two)</u>	<u>Filters waste material from the blood.</u>
Skeletal	<u>Bones Tendons</u> <u>Cartilage ligaments</u>	<u>Provides support for the body</u> <u>& protects delicate organs</u>

How do the different body systems work together? Give specific examples.

Respiratory & Circulatory - The alveoli^(respiratory) are surrounded by capillaries. oxygen moves from the alveoli into the blood stream_{via capillaries} to be circulated.

Circulatory & Digestive - Villi, (digestive), have blood vessels, (circulatory) inside of them so nutrients can pass from the small intestine into the blood stream to be circulated.

Part 7 - A healthy life style leads to a healthy body

How can you keep each of your body systems healthy?

Provide your system with its essential needs: clean air, clean water, nutritious foods, exercise and adequate sleep.

What disorders are common in each of the body systems?

Respiratory Bronchitis, Emphysema, Asthma, Lung Cancer

Digestive Colon Cancer, Ulcer, indigestion

Nervous Multiple Sclerosis, Alzheimer's disease, Parkinson's disease, Epilepsy

Excretory Kidney failure, Kidney Stones, Urinary Tract Infection

Skeletal osteoporosis, arthritis, fracture

Muscular muscular dystrophy, atrophy, cramp, muscle fatigue.

What life style choices should be made if we want healthy bodies?

Choose nutritious foods, get adequate exercise, limit the amount of toxins that enter the body