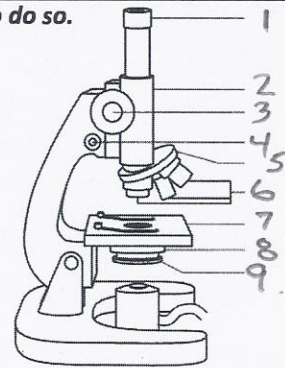


Answer the following in your notes, or on this review paper if there is room to do so.

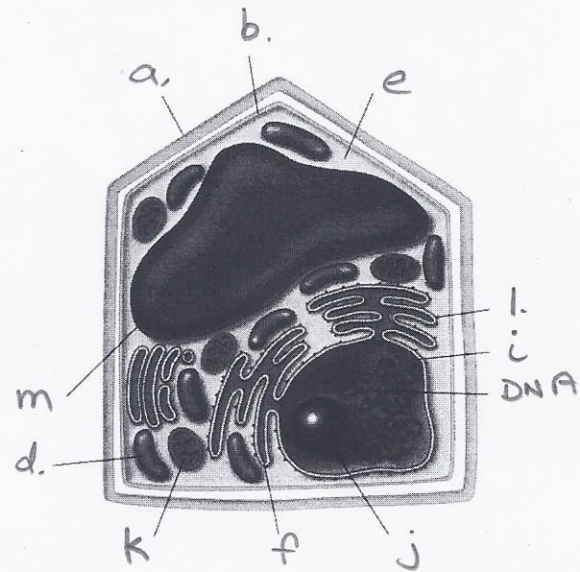
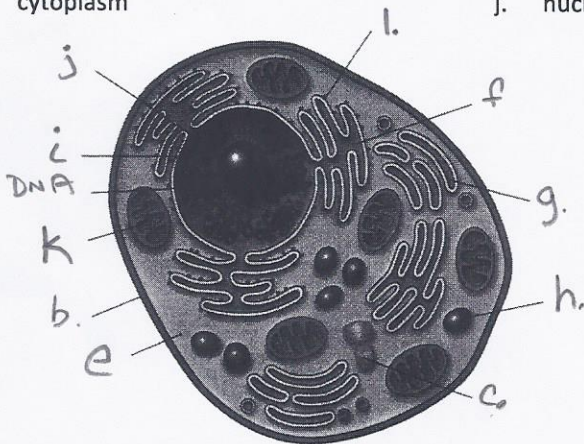
1. Label the parts of the microscope and state the function of each.

1. Objective
2. Body Tube
3. Coarse Adjustment
4. Fine Adjustment
5. Revolving Nosepiece
6. Objective
7. Platform or stage
8. Diaphragm
9. Condensor



2. Label the following parts of the cell in the diagrams below and state the function of each.

- | | | |
|------------------|--------------------------|-----------------|
| a. cell wall | f. endoplasmic reticulum | k. mitochondria |
| b. cell membrane | g. Golgi body | l. ribosome |
| c. centriole | h. Lysosome | m. vacuole |
| d. chloroplast | i. nucleus | |
| e. cytoplasm | j. nucleolus | |



3. State three differences between plant and animal cells.

Plant Cell – has a cell wall, chloroplast, large vacuole
 Animal Cell – no cell wall (membrane only), no chloroplasts; has centrioles and lysosomes,

4. DNA:

- a. What is DNA? (where do you find it, what does it look like, what is its function)
 DNA – deoxyribonucleic acid – a large molecule containing chains of nucleotides arranged in a double helix
- b. List the four nucleotides and explain how they pair.
 adenine, thymine, cytosine, guanine
 adenine pairs with thymine
 cytosine pairs with guanine
- c. What is the complementary strand to: TTGAAC → AACTTG

5. Differentiate between diffusion and osmosis.

Diffusion is the movement of molecules through a semi-permeable membrane from an area of high concentration to an area of low concentration

Osmosis is the diffusion of water molecules from an area of high concentration to an area of low concentration

6. Stages of the cell cycle:

Mitosis G1 G2 Cytokinesis DNA replication

a. Put the stages of the cell cycle in order.

G1 DNA Replication (S stage) G2 Mitosis Cytokinesis

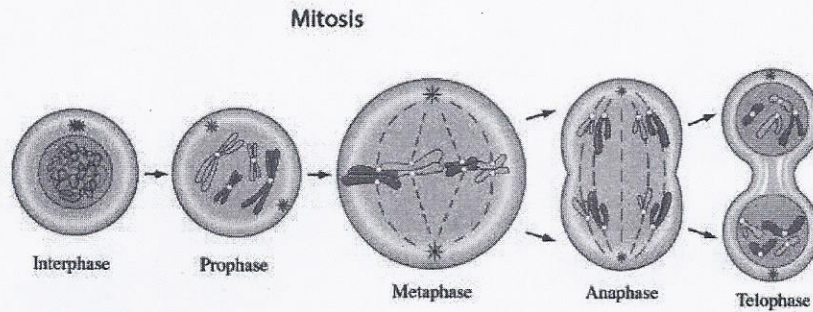
b. Explain what occurs during interphase. Refer to the stages of interphase in your explanation.

Interphase is the growth and replication phase of the cell cycle. Interphase comprises of the G1 phase (cell contents are duplicated with the exception of DNA), S phase (DNA is replicated), G2 (further growth and checks).

c. Differentiate between mitosis and cytokinesis.

Mitosis is the stage when the nucleus is duplicated within the cell, cytokinesis is when the cell divides into 2 (a new cell wall is formed in plant cells, a cell membrane pinches off to create two daughter cells in animal cells)

7. Draw diagrams to represent the four stages of mitosis and write two points about what is happening in each specific stage. Make sure to put the stages in the correct order.



8. Put the terms below in order from the smallest in size to the largest in size.

Organism Cells Organ Systems Tissues Organs

Smallest - cells, tissues, organs, organ systems, organism - **Largest**

9. Describe the four different types of tissue in the human body and give one example of each.

1. Epithelial – skin tissues
2. Muscular – bicep, heart muscle
3. Connective – bones, arteries, veins
4. Nervous – brain tissue

10. Digestive system

a. Label the following parts of the digestive system and state the function of each.

- | | | |
|---------------|--------------------|-------------|
| a. Epiglottis | d. Gall bladder | g. Liver |
| b. Esophagus | e. Large intestine | h. Pancreas |
| c. Duodenum | f. Small intestine | i. Stomach |

b. Write the correct order of food passage through the digestive system.

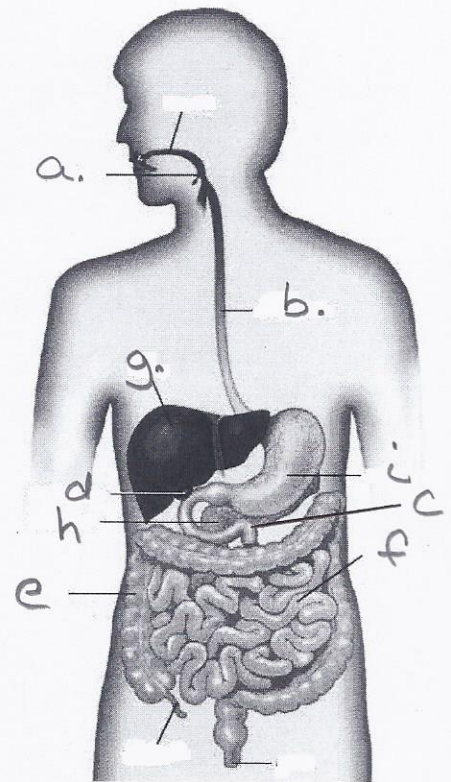
c. Name three accessory organs in the digestive system and explain why they are called accessory organs.

gall bladder
pancreas
liver

food or nutrients do pass directly through these organs

d. Describe the structure and function of villi.

Villi are small finger like structures in the small intestine. The villi helps to absorb nutrients into the walls of the small intestine by increasing the surface area of the inner lining of the intestine.



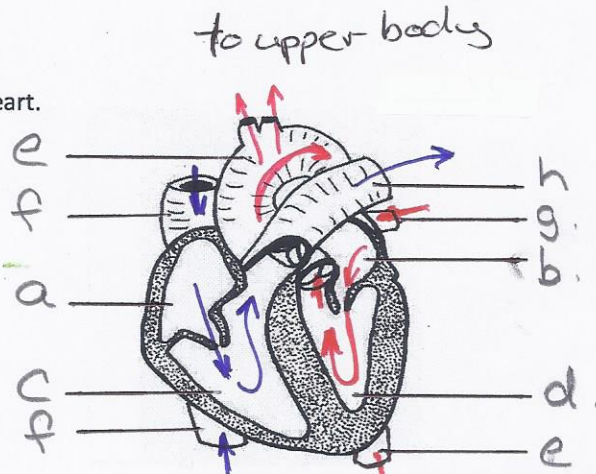
11. Circulatory System

a. State five functions of the circulatory system.

1. Delivers oxygen to body parts
2. Removes CO₂ and other toxins
3. Stabilizes body temperature and pH
4. Provides distribution to immune system
5. Maintains fluid levels in body

b. Label the following structures in the diagram of the heart.

- a. Right atrium
- b. Left atrium
- c. Right ventricle
- d. Left ventricle
- e. Aorta
- f. Vena cava
- g. Pulmonary vein
- h. Pulmonary artery



c. Show the path that the oxygenated blood takes through the heart, using arrows (choose red or blue, as appropriate). Show the path that the deoxygenated blood takes through the heart, using arrows (choose red or blue, as appropriate).

to lower body.

d. Differentiate between arteries, veins and capillaries (regarding their function and structure).

Arteries – take blood away from the heart, under high pressure

Veins – take oxygen to the heart, under lower pressure (have ribs to prevent blood from flowing backwards)

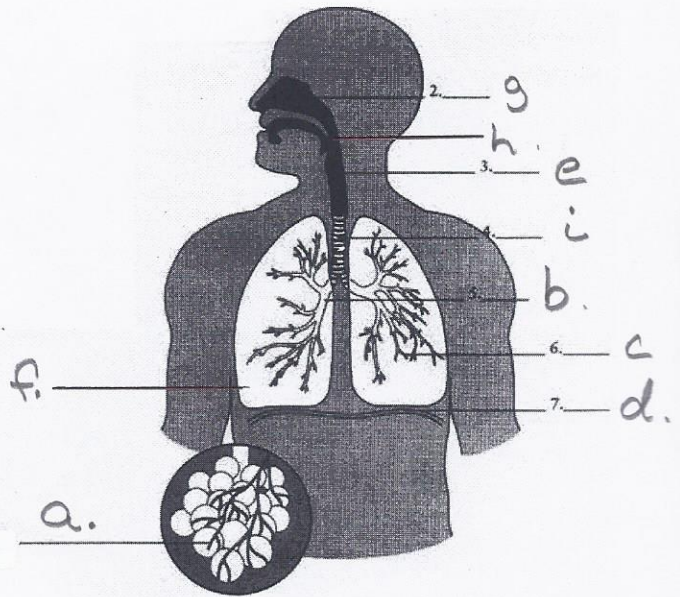
Capillaries – smallest blood vessel, between arteries and veins, used to transport nutrients and oxygen into cells of the body and remove waste molecules

e. Describe the different parts of blood (plasma, red blood cells, white blood cells and platelets), and give the function of each.

12. Respiratory System

a. Label the following parts of the respiratory system.

- a. Alveoli
- b. Bronchi
- c. Bronchioles
- d. Diaphragm
- e. Larynx
- f. Lungs
- g. Nasal cavity
- h. Pharynx
- i. Trachea



b. List the structures, in order, from outside the body to inside the body that a molecule of oxygen travels through on its way to the bloodstream.

Nasal cavity / Oral Cavity, pharynx, larynx, trachea, bronchi., bronchioles, alveolis, capillaries

c. Where in the respiratory system does the exchange of gas occur? _____

In the alveolis – the oxygen is diffused into the capillaries and taken back to the heart for circulation to the rest of the body

d. Explain how the diaphragm controls your breathing.

Expirations - as the diaphragm relaxes (moves upward) the chest volume decreases and the pressure increases forcing air out.
Inspiration – as the diaphragm contracts (lowers) the chest volume increases and the pressure decreases air flows into the lungs to equalize the pressure.

13. How do the circulatory, respiratory and digestive systems relate to each other?
(describe as many connections as you can think of, and explain in great detail the nature of that connection)

Respiration system brings in oxygen and provides this to the circulatory system

Circulatory system brings deoxygenated blood to the respiratory system to remove CO₂ and pick up O₂

The circulatory system picks up waste products from the digestive system to return to the respiratory system

The circulatory system provides O₂ to the digestive system to keep it going.

NOTES: