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UNIVERSITI
TEKNOLOGI
MARA

BIO411

CELL BIOLOGY

LABORATORY REPORT 1, 2 AND 3

**TITLE : LAB 1 – BASIC MICROSCOPE SETUP AND CELL
LAB 2 - CELL DIFFERENTIATION
LAB 3 - FLUID MOVEMENT - OSMOSIS**

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GROUP : RAS2011B

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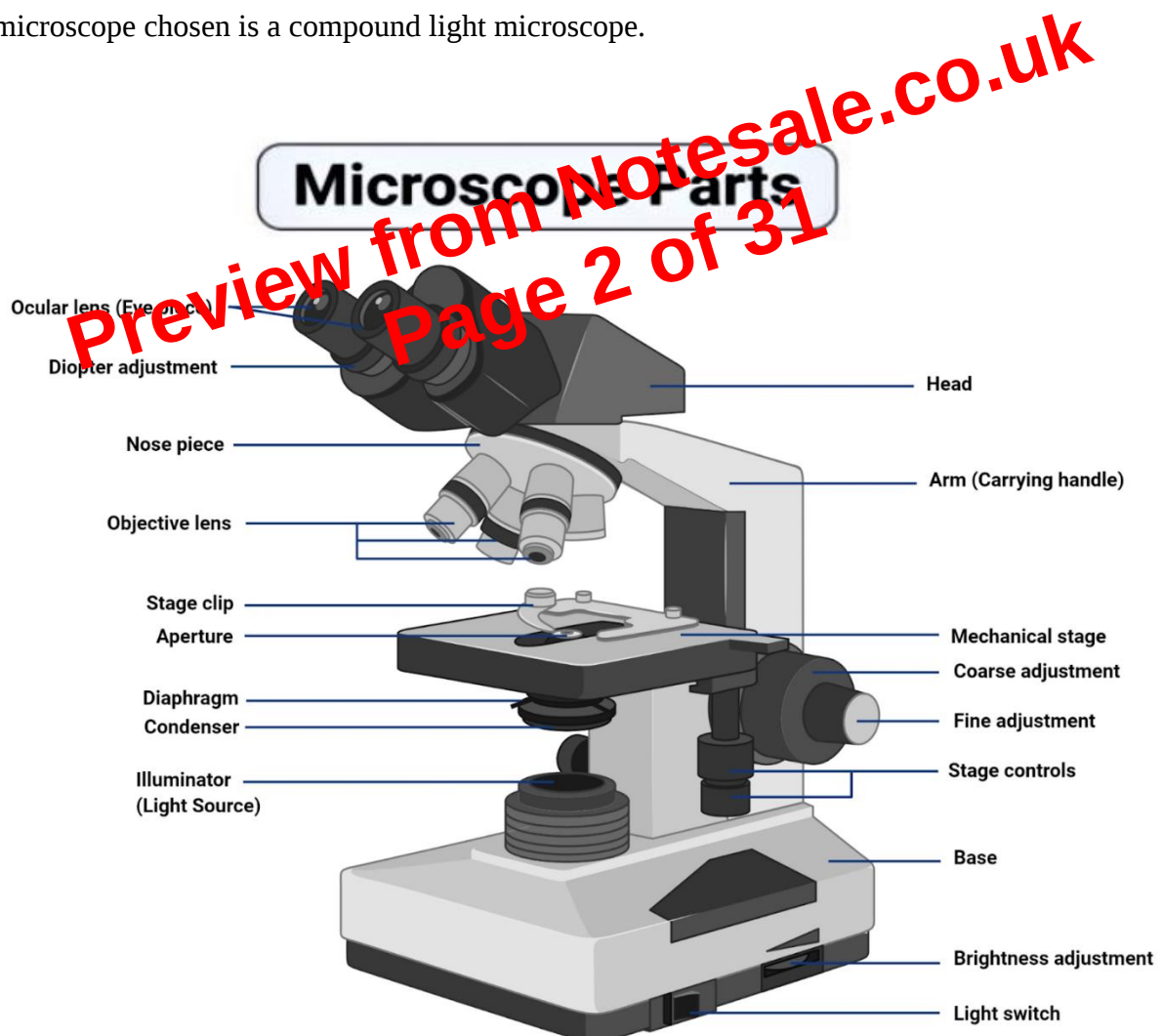
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1. INTRODUCTION

1.1. Background Lab 1

The word ‘microscope’ was introduced by Giovanni Faber in 1625 to describe an instrument invented by Galileo in 1609. The word microscope means “to see small”. Galileo invented a light microscope (Magdalena, 2017). During this experiment, the plant cells and human cells are observed.

Light microscope is the most appropriate microscope to perform an observation for plant cells (LAB 1A - Elodea and LAB 1B - Onion) and human cells (LAB 1C - cheek cells). The compound light microscope has been chosen because it uses visible light focused via two lenses, the ocular and the objective, to observe a tiny specimen clearly with high magnification (40x-1000x). Only cells that are thin enough for light to pass through will be visible in a two-dimensional image under a light microscope (Mokobi, 2021). The type of microscope chosen is a compound light microscope.



1.2.2 Objective Lab 2

1. To investigate examples of specialized cells.
2. To evaluate the principle of blood smears and Giemsa staining techniques.
3. To evaluate the proper operation of a microscope for observing the slides.
4. To evaluate with the laboratory technique to estimate a sperm concentration using a haemocytometer.
5. To determine actively dividing tissues in plant
6. To evaluate with a chromosome staining technique
7. To investigate stages of mitosis in plant cells.
8. To determine and label the structures observed.
9. To evaluate the observed technique in a written laboratory report.

1.2.2.2 Hypothesis Lab 2

Task 1:

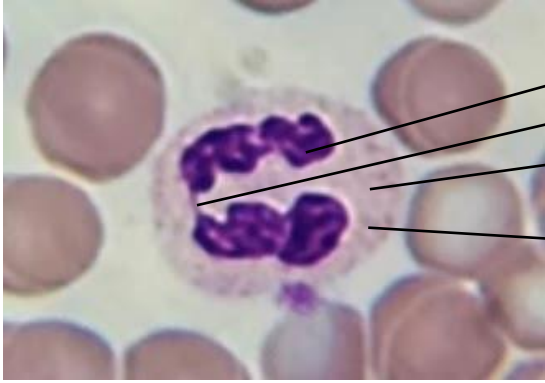
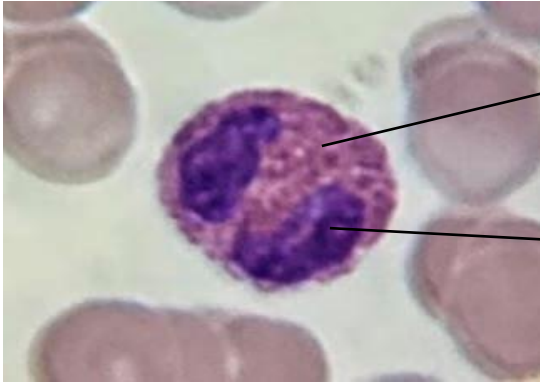
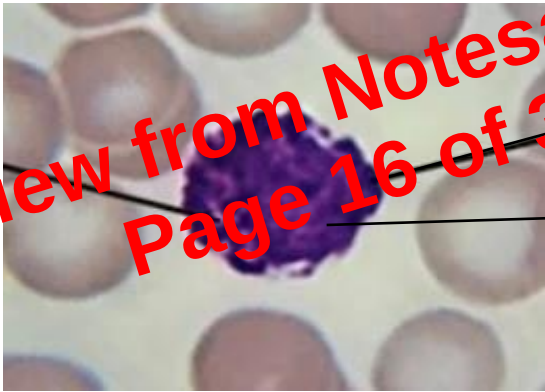
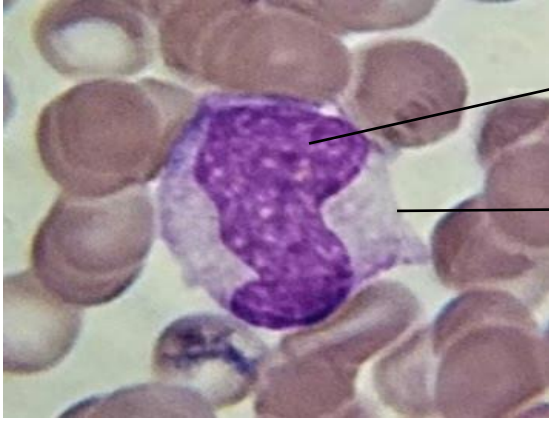
- A staining blood smear allows for detection of white blood cell, red blood cell, platelet and abnormalities.
- When Giemsa stained, red blood cells stain in pink, platelets in pale pink, cytoplasm of lymphocytes stain sky blue, cytoplasm of monocytes stain pale blue and cytoplasm of leukocytes magenta.
- When Leshman stained, a unicellular flagellated protozoa which are parasitic and leucocytes can be observed through microscope.

Task 2: The number of sperm can be counted through the chamber in a hemocytometer.

Task 3: Onion root tip will be divided into two plate cells by mitosis.

1.3 Background Lab 3

Osmosis is a biophysical phenomenon that occurs frequently in biological frameworks and involves the isolation of cells from liquid compartments by semipermeable membranes. The diffusion of a solvent through a semipermeable membrane is depicted by osmosis. The concentration difference of solutes within the arrangements isolated by the semipermeable membrane is the driving constraint of the solvent shift. Solutes cannot pass through this obstruction when differentiated to solvent. Water, which is the natural solvent in biological frameworks, transports solutes from compartments with lower concentrations to compartments with higher concentrations. When the concentration of osmotic dynamic

Neutrophil Magnification: 1000X	 Nuclear lobes Chromatin strand Cytoplasmic granules Cytoplasm stains neutral pink while nucleus deep blue
Eosinophil Magnification: 1000X	 Acidophilic cytoplasmic granules Bilobed nucleus
Basophil Magnification: 1000X	 Basophilic cytoplasmic granules Nucleus and cytoplasmic granules heavily stained deep purple by basic dye
Monocyte Magnification: 1000X	 Purple stained nucleus Monocyte

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