

Lab Activity: Comparing Plant and Animal Cells
Total: 30 marks

Background Information:

One of the first scientists to look at cells under a microscope was an English scientist by the name of Robert Hooke. He viewed and described the appearance of cork under the microscope and decided to name the tiny box-like structures that he observed “cells” because they looked like the small chambers where monks lived.



By the early part of the 19th century, it was accepted that all living things are composed of cells. Cells come in a variety of shapes and sizes, and cells perform different functions. Although cells may appear outwardly different, they resemble each other because they share common structures. In this lab you will look at two types of cells, a human cheek cell and an onion cell and see how they are similar and how they are different.

Purpose: In this activity you will prepare slides for viewing under the compound light microscope/micro-viewer to compare plant and animals cells.

Materials:

Eye Dropper	Microscope	Cheek Cell Prepared Slide
Iodine	Onion	Microviewer
Glass Slide	Cover Slip	Gloves
Forceps		

Safety Considerations: Be sure to follow all safety rules as outlined in the lab safety rules. Also be sure to clean your work station at the end of the lab. (5 marks)

Procedure Part 1: Onion Cell (Microscope)

- 1) Place a drop of iodine on a clean slide.
- 2) Place a small piece of onion membrane into the iodine. Carefully place a cover slip to avoid air bubbles.
- 3) Observe on low power.
- 4) Now switch to medium power.
- 5) Make a proper biological diagram of the cells. Remember that you only have to draw a few cells.
- 6) Label the cell wall, nucleus and cytoplasm.

Procedure Part 2: Cheek Cell (Micro-viewer)

- 1) Use the micro-viewer to look at the Cheek Cells (900X). Be sure to read the description in the micro-viewer booklet.
- 2) Make a biological diagram of what you see. Remember that you only have to draw one or two cells.
- 3) Label the cell membrane, nucleus and cytoplasm.

Be sure to attach biological diagrams (5 marks each = 10 marks). Make sure you have followed the rules that we went over in class!!!

Analysis (15 marks)

Why is the iodine necessary in this lab? (1 mark)

The compound light microscope used in the lab is not powerful enough to view other organelles in the cells. What parts were visible and what are their functions? (4 marks)

Organelle	Function

List two organelles that were NOT visible but are in the cells? (2 marks)

How does the shape of the onion cells differ from that of the cheek cells? (2 marks)

Explain the differences between plant and animal cells. Use specific organelles in your answer. (4 marks)

Suggest why onions and humans were used as the source of cells in this activity. (2 marks)