 **Lab Report 1:**

**Comparing Plant and Animal Cells**

***Question:***

How do plant cells differ from animal cells?

***Hypothesis:*** [**1**]

***Materials:***

Onion Light Microscope

Tweezers Safety Goggles

Microscope Slide Rubber Gloves

Medicine Dropper Food Colouring

Water Paper Towel

Cover Slip Lens Paper

Human Epithelium Cells

***Procedure:***

1. Using a knife, remove a small section from an onion. Use tweezers to remove a single layer from the inner side of the onion section. If the layer you removed is not translucent to light, then try again.
2. Place the onion skin in the centre of a slide. Make sure the skin does not fold over. Place two drops of water on the onion skin. Gently lower a cover slip over the onion skin allowing the air to escape. This is called a wet mount. Gently tap the slide with the eraser end of a pencil to remove any air bubbles.
3. Place the slide on the stage and focus with the low-power objective lens in place. Rotate the nosepiece of the microscope to the medium-power objective lens and use the fine-adjustment knob to bring the cells into focus.
4. Switch to low power and remove the slide. Put on rubber gloves and goggles. Place a drop of food colouring at one edge of the cover slip. Touch the opposite edge of the cover slip with paper towel to draw the stain under the slip. View the cells under medium and high power.
5. Switch to low power. Remove the slide containing plant cells. Dispose of the onion cells. Clean the slide and cover slip with lens paper.
6. Place the prepared slide of human epithelial cells on the stage. Using the coarse-adjustment knob, locate and focus on a group of the cells. Switch to medium and high power and focus using the fine-adjustment knob.

***Observations:***

1. Draw and describe what you see under the low-, medium-, and high-power of the microscope for both the plant cells and animal cells. **(6)**
2. Label the structures you see. **(2)**
3. Estimate the size of one cell for both a plant cell and an animal cell. **(1)**
4. Is the arrangement of plant and animal cells different? Explain. **(3)**

***Analysis:***

1. In what ways do the onion skin cells differ from the human skin cells? **(2)**
2. Why is it a good idea to stain cells? **(2)**
3. Predict the function of the onion cells that you observed under the microscope. What prominent cell structures would justify your prediction? **(2)**
4. Explain why the cells of an onion bulb do not appear to have any chloroplasts. (Don’t all plant cells have chloroplasts?) **(2)**
5. A student viewing onion cells sees just large, dark circles. What might have caused the dark circles? Did anyone in your class experience that difficulty? **(2)**

***Conclusion:***

How do plant cells differ from animal cells? **(2)**

***Evaluation:***

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| **Category** | **Level 4** | **Level 3** | **Level 2** | **Level 1** | **%** |
| **Observations** | The relationship between the procedure and what was observed is discussed in detail. All information is accurate. | The relationship between the procedure and what was observed is discussed. Most information is accurate. |  |  | 25 |
| **Diagrams** | Clear, accurate diagrams are included and make the experiment easier to understand. Diagrams are labeled neatly and accurately. | Diagrams are included and labeled neatly and accurately. |  |  | 25 |
| **Analysis** | The patterns in the observations are discussed and logically analyzed. Predictions are made about what might happen if part of the lab were changed or how the experimental design could be changed. | The patterns in the observations are discussed and logically analyzed. Some predictions are made. |  |  | 25 |
| **Conclusion** | Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment. | Conclusion includes whether the findings supported the hypothesis and what was learned from the experiment. |  |  | 25 |