Sci 8 Name:

**Observing Plant and Animal Cells using a Compound Light Microscope**

**Question:** How do plant cells differ from animal cells?

**Hypothesis**: If a microscope is used to view them, then plant cells can be differentiated from animal cells by their structures.

**Materials:**

compound microscope onion methylene blue stain

microscope slides forceps iodine stain

cover slips cotton swab/toothpick paper towel

water eye dropper

**Procedure:**

**Part 1 Prepare a WET MOUNT slide of a Plant Cell**

1. Place a drop of water on a CLEAN microscope slide.

2. Take a piece of onion from the outer layer and carefully break it in half. As you separate the two sections, use tweezers to pull the top layer of the onion sideways as shown in your text book paged 36. This should give you a sample of onion cells called a **thin section**.

2. place the thin section in the drop of water on the slide. Your thin section should be **flat**, not folded.

3. Place cover slip onto your specimen.

4. Observe under low power. You should be able to see the cell wall, cell membrane, and cytoplasm and maybe water vacuoles.

5. Place a drop of iodine solution on one side of your slide. On the other side, place a small piece of paper towel as shown on page 37. Iodine is not toxic but it will stain your fingers.

6. Observe under medium and high power. Draw what you see in the space provided on the next page.

**Part 2 Animal Cell**

1. Place a drop of water on a CLEAN microscope slide.
2. Gently scrape the inner side of the cheek using a toothpick, which will collect some cheek cells.
3. Place the cells on the glass slide with the water drop on it.
4. Gently mix the water and the cheek cells using a toothpick and spread them.
5. Add a drop of Methylene blue solution using a dropper and add this to the mixture on the slide.
6. Remove any excess water and stain from the slide by blotting with a paper towel.
7. Take a clean cover slip and lower it carefully on the mixture using forceps (tweezers).
8. Focus under low power then draw what you see in the space provided. You should see a large number of flat and irregular-shaped cells

**Observations**

**Plant Cell**

Medium Power High Power

Magnification \_\_\_\_\_\_ Magnification \_\_\_\_\_\_

Estimated Size of one cell \_\_\_\_\_\_\_\_\_

**Animal Cell**

Medium Power High Power

Magnification \_\_\_\_\_\_ Magnification \_\_\_\_\_

Estimated Size of one cell \_\_\_\_\_\_\_\_\_

**Questions**

1. What was the most difficult part in making a wet mount slide?

2. What structures were you able to see in the onion cell?

3. What organelle became more visible in the onion cell after you stained the iodine?

4. Vacuoles tend to be larger in plant cells than in animal cells. Why do you think they are larger?

5. What differences can you observe between animal cells (cheek epithelium) and plant cells (onion epidermis)? Think of the size, shape and cellular components.

6. Write a conclusion about this activity. Include what you did, what you observed, and what you learned from this investigation.