Biology Laboratory Safety

General Practices to avoid Lab accidents:

1) **READ the laboratory safety guidelines in your lab manual,** and that are provided **with specific equipment and reagents.**
2) **LISTEN to your professor** and our lab technicians when they give **specific instructions** for **proper handling and disposal** of lab chemicals and equipment**.**
3) **Be CLEAN and ORGANIZED:**
   a) **WASH HANDS and LAB BENCH as soon as you enter, and before you leave the Lab Room.**
   b) Keep your **lab bench uncluttered** – only Manual/Notebook, and NECESSARY reagents and equipment/instruments
   c) Keep the **floor unobstructed** (chairs in and backpacks stored)
   d) Turn OFF Bunsen burners as soon as you stop using it. Even for a few minutes!
   e) DO NOT TOUCH your face or put ANYTHING in your mouth while in the Laboratory!!
      - **Don't Chew pens, use makeup or chapstick, NO food or drink.**

Areas of Greatest Safety Concerns in the Lab:

1) Fire

- Bunsen burners, electrical, hot plates, water baths ….
- Actions: Extinguisher, shower, water faucet, smother

2) Chemical

- Acids, Bases, Solvents, Dyes, oxidizers ….
- Actions: Goggles, gloves, coats, hood, containment

Areas of Greatest Safety Concerns in the Lab:

3) Biohazard

- Any human or other animal tissues/fluids, bacteria, water samples, protistans ….
- Action: Prevention. Washing, proper protection.

4) Sharps

- Broken glass (slides, pipettes, cover slips, beakers), scalpels, razor blades, skewers, needles ….
- Action: Preventative. Careful and proper disposal.

BIOL 230 LAB Requirements:

1. **Pre-Lab Writeup EVERY Monday:**
   a) Summary and goals: **What**? **How**? **Why**? Are we doing in lab?
   b) Propose a SCIENTIFIC **QUESTION**, and a possible ANSWER (**HYPOTHESIS**!!) and predicted result to the Question: "If _____, then _____." format.
2. **Be ON TIME at 2:10PM!!**
3. **Complete ALL Data, Calculations, Drawings and other Observations before leaving the laboratory each day.**
   a) Check with your instructor!
   b) Keep a COMPLETE and detailed LAB MANUAL / NOTEBOOK!!
4. **Thoroughly clean up** your lab bench and all shared areas before leaving lab every day. Return ALL SUPPLIES to their proper place!!

MICROSCOPY

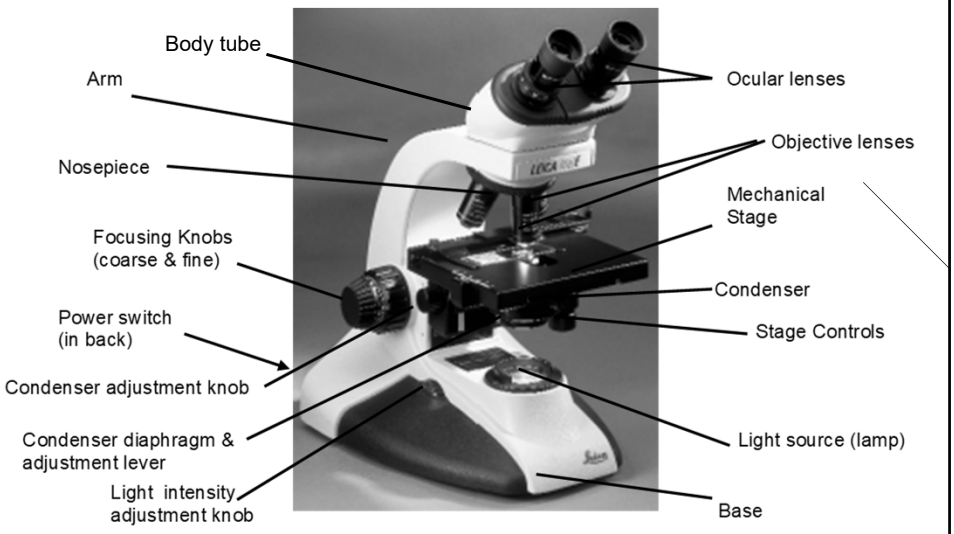

Figure 1. Compound Bright Field Light Microscope (Leica CME)

***** Proper handling and setup!! ……..***

Key Steps in Setting up your Microscope:

1. Set **objective** lenses to low power. CLICK into position.
2. Put slide between **stage clips**, with specimen centered over the condenser & under the objective.
3. Turn on and adjust **lamp** to your comfort level.
4. Turn **Coarse Focus** knob to bring stage to top, then ½ turn DOWN to get specimen close to focused.
5. Use ONLY **FINE Focus** after this point, and ONLY with 40X and 100X lenses.
6. Adjust (close) **CONDENSER DIAPHRAGM** to increase contrast! (see more details!)
7. Keep specimen CENTERED before changing to higher power! (or else your image/specimen will be lost.)
8. Lower stage and switch to low power, and turn lamp to low, before turning off microscope and removing slide.

Important MICROSCOPY Concepts and Terms:

1) **Parfocal lens mounting**
2) **Magnification (compound)**
3) **Resolution**
4) **Refractive index**
5) **Immersion oil**
6) **Field of view (width; centered)**
7) **Stereoscopic**
8) **Depth of Field (focal plane)**
9) **Condenser diaphragm – when and why to use.**
10) **Fine vs. coarse focus (Bright Field)**

<u>Biology Lab Scavenger Hunt:</u> Find the following and write a brief description where it is in the lab (or label a diagram of the lab)?

1) **Fire extinguisher**
2) **Biohazard waste bins**
3) **Biohazard sharps containers**
4) **3 large sinks**
5) **Fixed-temperature incubators**
6) **Chemical/fire shower**
7) **Chemical eye wash**
8) **Chemical fume hood**
9) **First Aid Kit**
10) **Laptop computer cart**
11) **Slide-wash jars**
12) **Distilled (nanopure) water carboy**
13) ***<u>EC:</u>* Large, high-speed Centrifuge**