
Welcome to
Microbiology Lab

King Saud University
Dept. of Bot. & Microbiology

General Microbiology

140 MIC

Lab 1 :

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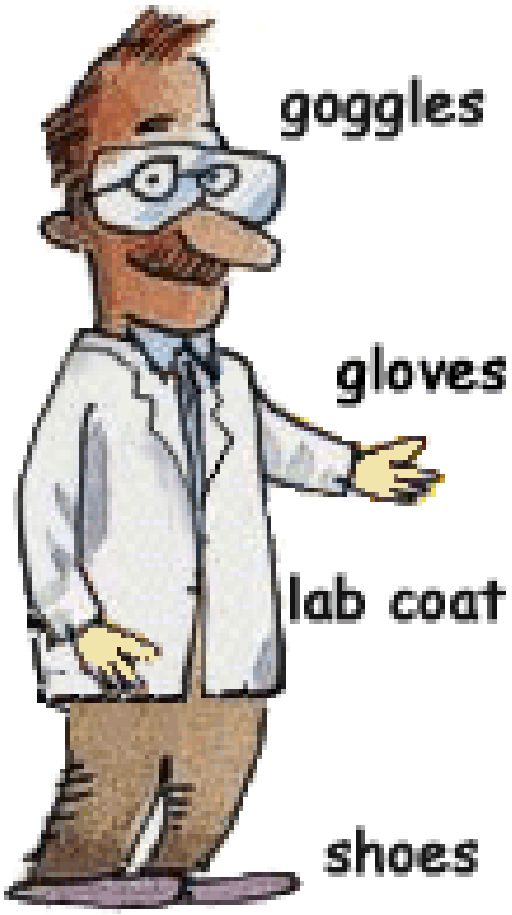
The way a microbiologist look !



What you shoold wear?

- Lab coat.
- Do not wearing the lab coat outside the lab.
- Gloves.
- Proper Clothing and closed shoes.
- Hair should be tied back.
- Contact lenses not to be worn in the laboratory.

For the safety of everyone working in the lab, it is important to following this lab rules :

- Cell phone is not allowed.
- No drink or food allowed inside the Lab.
- Do not place any personal items (bags, coats, extra books) on the lab bench.
- Chemicals take as much as the experiment need.
- Don’t open the chemical near the fire.
- Never removed any of chemical substance.
- Follow the written experiment descriptic

Clean,clean and clean !

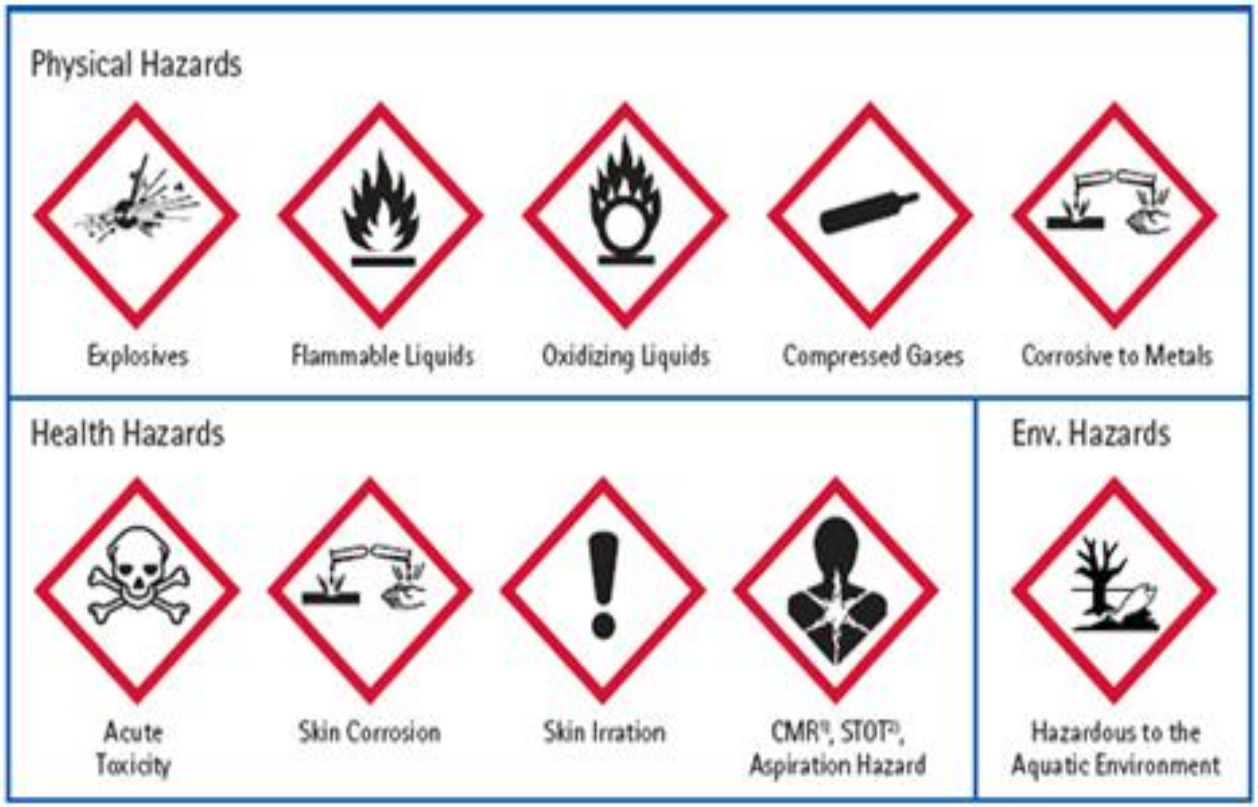
- Clean your equipment and area before leaving lab or you will marked down.
- Do the staining steps near the sink then open the water until the whole stain removed.
- Never through used matches, tissues, or cotton inside the sink!
- Washing hands.
- Disinfect the bench top with(alcohol 70% or Dettol 50%) before and after each lab.

Laboratory safety common hazard symbols:

- Old hazard symbols:

Laboratory safety common hazard symbols (cont`)

New hazard symbols:



First aid

Chemical burns rinsed with water

- Immediately rinse with a large amount of cool water.
- Flush the area for at least 20 minutes.
- Do not use a hard spray of water.
- Remove the chemical substance.
- Take off any clothing or jewelry that has the chemical on it.
- If the area still has a burning sensaion after 20 minutes, flush the area again with flowing water for 10 to 15 minutes.

Microbiology

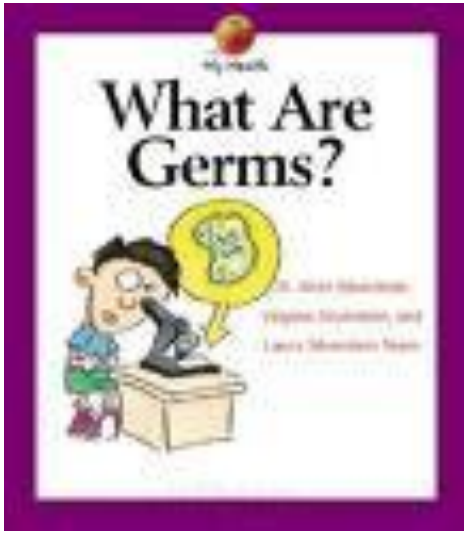
What is Microbiology?

- **Micro** - too small to be seen with the naked eye
- **Bio** - life
- **logy** - study of

(The science that studies micro-organisms)

Organisms included in the study of Microbiology

- Bacteria
- Algae
- Fungi
- Viruses
- Protozoa



Microorganisms - Microbes - Germs

The Compound Microscope

▪**A device for magnifying objects that are too small to be seen with the naked eye. Used to observe very small organisms.**

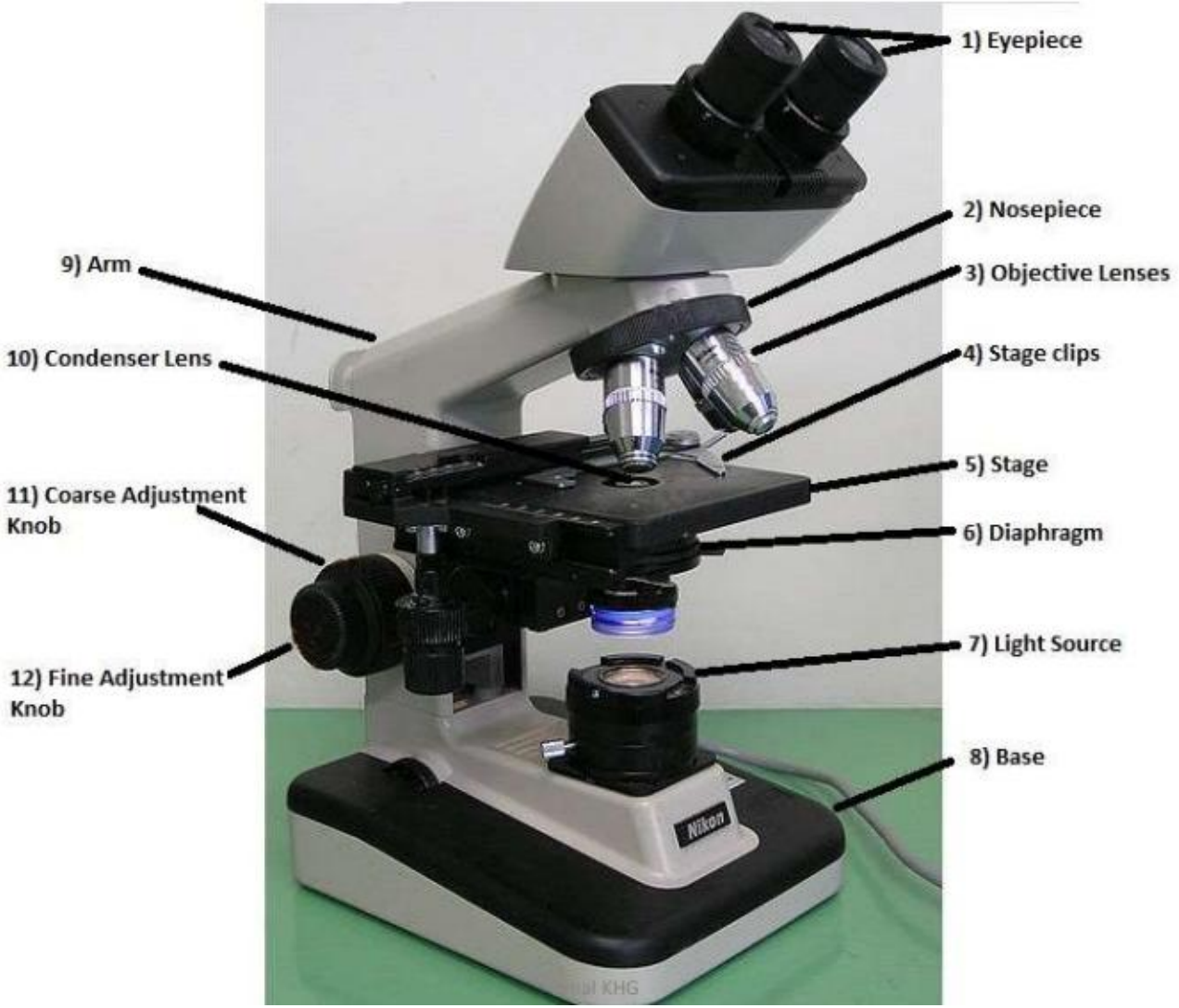
Objectives:

•Utilize all powers of magnification on the compound microscope.

• Identify all the parts of a compound microscope.

• Know the rules for proper microscope care

Parts of a Compound Microscope
Labeled Diagram and Functions



Parts of a Compound Microscope
Labeled Diagram and Functions

- **Eyepiece (Ocular) :** The lens the viewer looks through to see the specimen.
- **Nosepiece:** Holds objectives.
- **Objective lenses:** One of the most important parts of a compound microscope, as they are the lenses closest to the specimen.
- **Body tube (Head):** The body tube connects the eyepiece to the objective.
- **Stage clips:** Metal clips that hold the slide in place..
- **Stage:** The flat platform where the slide is placed.
- **Diaphragm:** Adjusts the amount of light that reaches the specimen.
- **Light source(illuminator):** The light source for a microscope.
- **Base**: The base supports the microscope and it's where illuminator is located
- **Condenser lens**: Gathers and focuses light from the illuminator onto the specimen being viewed.
- **Coarse adjustment knob**: Brings the specimen into general focus.
- **Fine adjustment knob**: Fine tunes the focus and increases the detail of the specimen.
- **Stage height adjustment (Stage Control)**: These knobs move the stage left and right.

Calculation of magnification

Total magnification =

(Objective magnification)(Ocular magnification; which is typically 10x).

i.e. (4X objective) (10X ocular) = 40X total magnification.

Immersion oil, which has the ability to bend light equivalent to that of glass, allows more light to be gathered and allows a greater amount of resolution.

If the stage is a great distance away from the objective when the higher powers are used, the microscope has been adjusted incorrectly.

Examining the specimen

Microscopic Field - this is the area one can observe while looking through the oculars. As the magnification increases this will also decrease. When you look through the ocular you will see a lighted circle. This is known as the field of view or the field.

•Parfocality - this refers to the ability of a microscope to need only minor focusing adjustments after the specimen is found and focused using the lowest power.

- **A microscopist should use the coarse adjustment knob only when originally finding and focusing the specimen.**
- **•Once the original focus is made, the only adjustment should be with the fine adjustment knob as the magnification is increased.**

With a binocular microscope, adjust oculars for both eyes!

Don't shut one eye while observing under the microscope!

Using the Microscope

- The scope should be on the lowest power with the stage raised as high as it will go.
- The slide should be placed between the stage clips and all placement of slide and stage objectives should be done BEFORE looking into the oculars.
- Once all placement is ready, adjustment should be done while looking through the ocular.
- Adjustment should begin with the coarse adjustment.
- once the specimen is spotted then the fine tuning adjustment can be used.


The End