



General Microbiology

140 MIC

Lab 1 :



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المواضيع Outlines

- General Lab. instruction
- Laboratory safety common symbols
- First aid
- Common laboratory apparatus
- Topics for this semester
- Marks division
- The examination timetable

The way a microbiologist look!



What you should 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.



How you should act?

- 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 description

Clean, clean , and clean!

- Clean your equipment and area before leaving lab or you will be marked down.
- Do the staining steps near the sink then open the water until the whole stain is removed.
- Never throw 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.



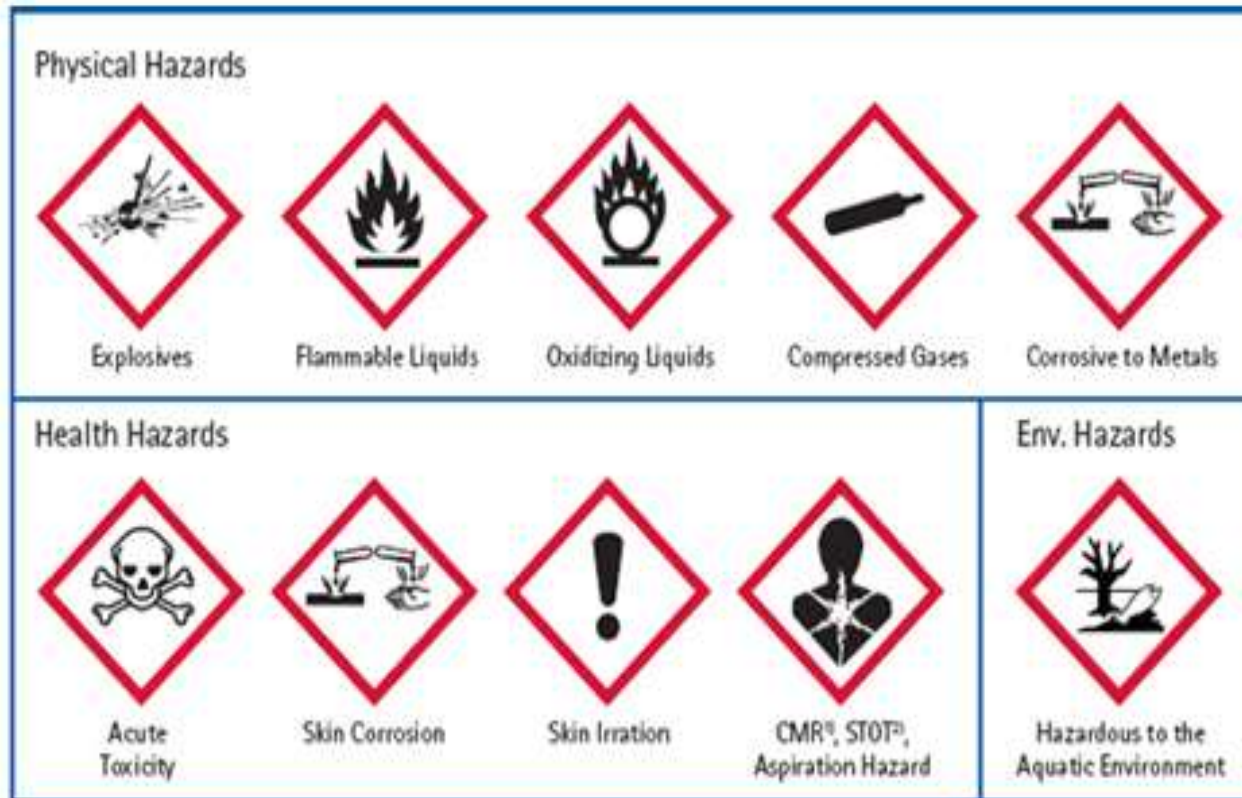
Laboratory safety common hazard symbols:

- Old hazard symbols:



Laboratory safety common hazard symbols (cont`)

New hazard symbols:



First Aid Protocol

○ 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 sensation after 20 minutes, flush the area again with flowing water for 10 to 15 minutes.



Report



Topics will be covered during this the semester (syllabus)

- Proper using of binocular microscope.
- Preparation of Culture Media.
- Isolation of Microorganisms from Different Sources.
- Purification techniques.
- Identification:
 - ✓ Studying Culture Characteristics to identify the microorganisms.
 - ✓ Microscopic Observation.
 - ✓ Staining Techniques.
- Examples of the different microorganisms (on slides).
- Dilution technique to quantify bacterial cells in a given sample.

Marks division

- 2 marks for Quiz 1
- 2 marks for Quiz 2
- 2 marks for Activity
- 7 marks for Report
- 5 marks for Final Practical
- 12 marks for Final

Microbiology

What is Microbiology?

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

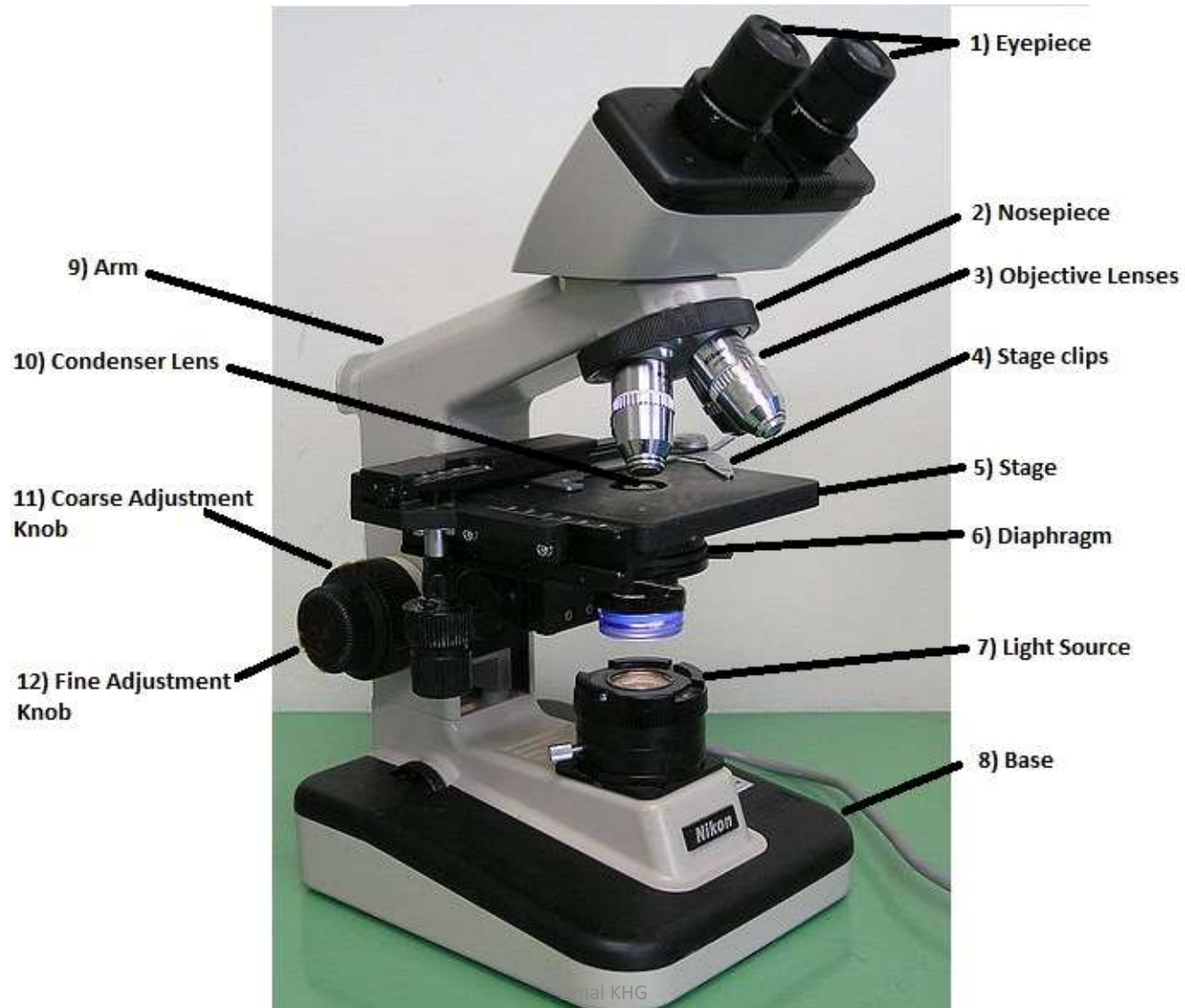
The science that study's microorganisms.

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 The Compound Microscope



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

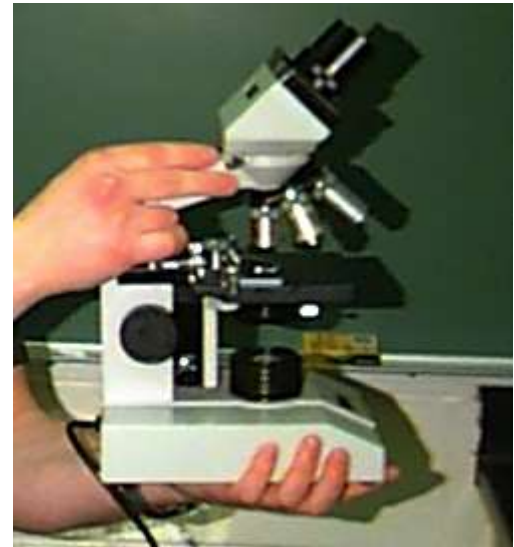
- **Microscopic Field** - this is the area one can observe while looking through the oculars. As the magnification increases this will also decrease. When you look through the ocular you will see a lighted circle. This is known as the field of view or the field.
- **Parfocality** - this refers to the 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 tuning knob** only when originally finding and focusing the specimen.
- Once the original focus is made, the only adjustment should be with the **fine tuning knob** as the magnification is increased.

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.

How to properly care and carry the microscope?

- Microscopes should always be carried with one hand under the base and the other hand holding the arm of the scope securely, keeping the cord out of the way of feet.
- The lenses should always be wiped down with lens paper and the cord should be kept out of the way of the working area.



Thanks...

