

Introduction to Microbiology



Laboratory Safety

- Don't eat or drink in the lab
- Always wear lab coat and gloves inside the lab
- Cover any minor cuts on your body
- Personal stuff will not be allowed on the lab bench top
- You must wear shoes not sandals
- Long hair should be tied back

- Report any accident to your supervisor
- Never take any culture out of the lab
- Never mouth-pipette
- Clean your bench after work
- Always wash your hands before leaving the lab.

Definitions

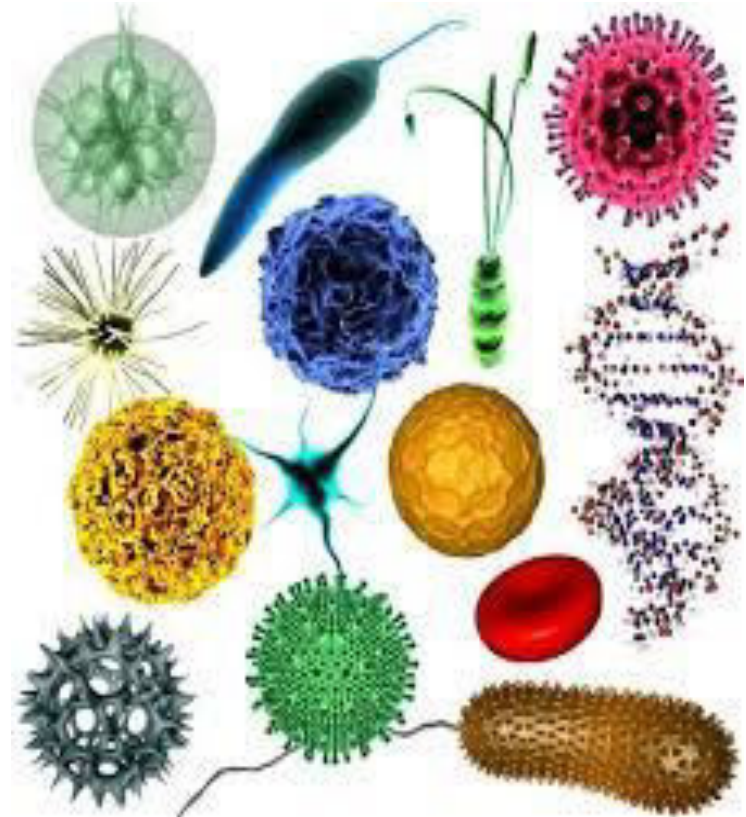
- **Microbiology**

It is a branch of biology that studies microorganisms and their effects on humans

- **Microorganisms**

a collection of organisms that share the characteristic of being visible only with a microscope

- **Microorganisms include:** Bacteria, Viruses, Fungi, and Parasites
- They found everywhere, Ex: in the air, soil, water, in & on our bodies



Common Items Used in Microbiology Lab

- **Bunsen burner (flame):**

Used to provide area almost free of organism.



- **Bacti-burner:**

Same as Bunsen burner but it is electrical.



- **Loops:**

Used to o transfer organism from one place to another (from culture to the slide).

A- Wire loop: large amount.

B- Straight loop: small amount



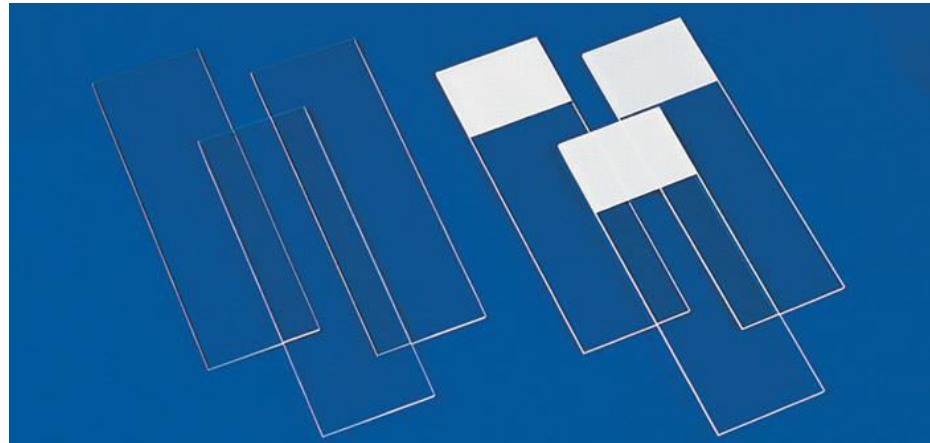
➤ The loops are made up of special material called **Nichrome**, it heats and get cool rapidly.

- **Slide:**

Used to place the organism on top of it to examine it under the microscope.

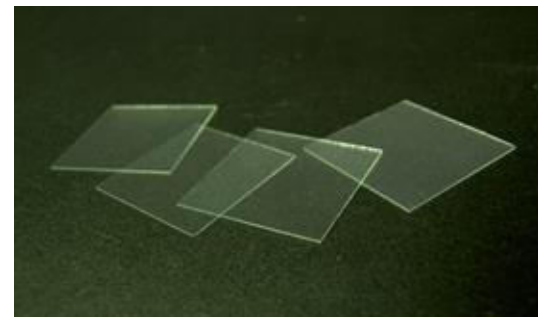
A- Plain slide.

B- Frosted end slide.



- **Cover slip:**

Used to cover the stained slide to protect it from scratching, contamination, and save it for a long time.



Pipettes:

Used to transfer solution from one place to another.

- **Graduated pipette:** to transfer specific amount of solution.
(1ml, 5ml, 10ml)
Use Bi-pump with it.
- **Pasteur pipette:** to transfer non specific amount of solution.



Container: Used to collect sample from the patient.
It should be sterile.

- **Universal container:**
(25 ml) used to collect large amount of sample, like: urine.

- **Bijou bottle:**
(5 ml) used to collect small amount of sample, like: CFS, gland fluid



Petri dish:

Use it to put media inside it for culturing.
It should be sterile.



- **Disinfectant jar:**

Used for the disposal of some used items, as:
Slides, cover slips, pipettes.

➤ **Disinfectant:**

It is a chemical substance that kill or inhibit the growth of micro organisms. Ex: Dettol, Clorox

Equipments in Microbiology Lab

- **Incubator:** is a device used to grow and maintain microbiological cultures (temperature 37° C)
- **Autoclave:** is a device used for sterilization at temperature 121°C, under pressure 15 atm for 15-20 min.

Incubator



Autoclave



Saline

- It is a solution composed of 0.9% NaCl dissolved in H₂O (0.9 g NaCl dissolved in 100 ml water)
- Used to keep the intact shape of bacterial cell by regulating the osmotic pressure

Disposal of used items

- Trash bag: for disposal of non infectious material. (Tissues, covering plastic).
- Disinfectant jar: for disposal of used pipettes, slides & cover slips.
- Autoclave bag (Made of material that tolerate high temperature): for disposal of plastic items
- Contaminated glass wears and flasks (reusable items) must be sterilized by autoclave

- Autoclave bag

