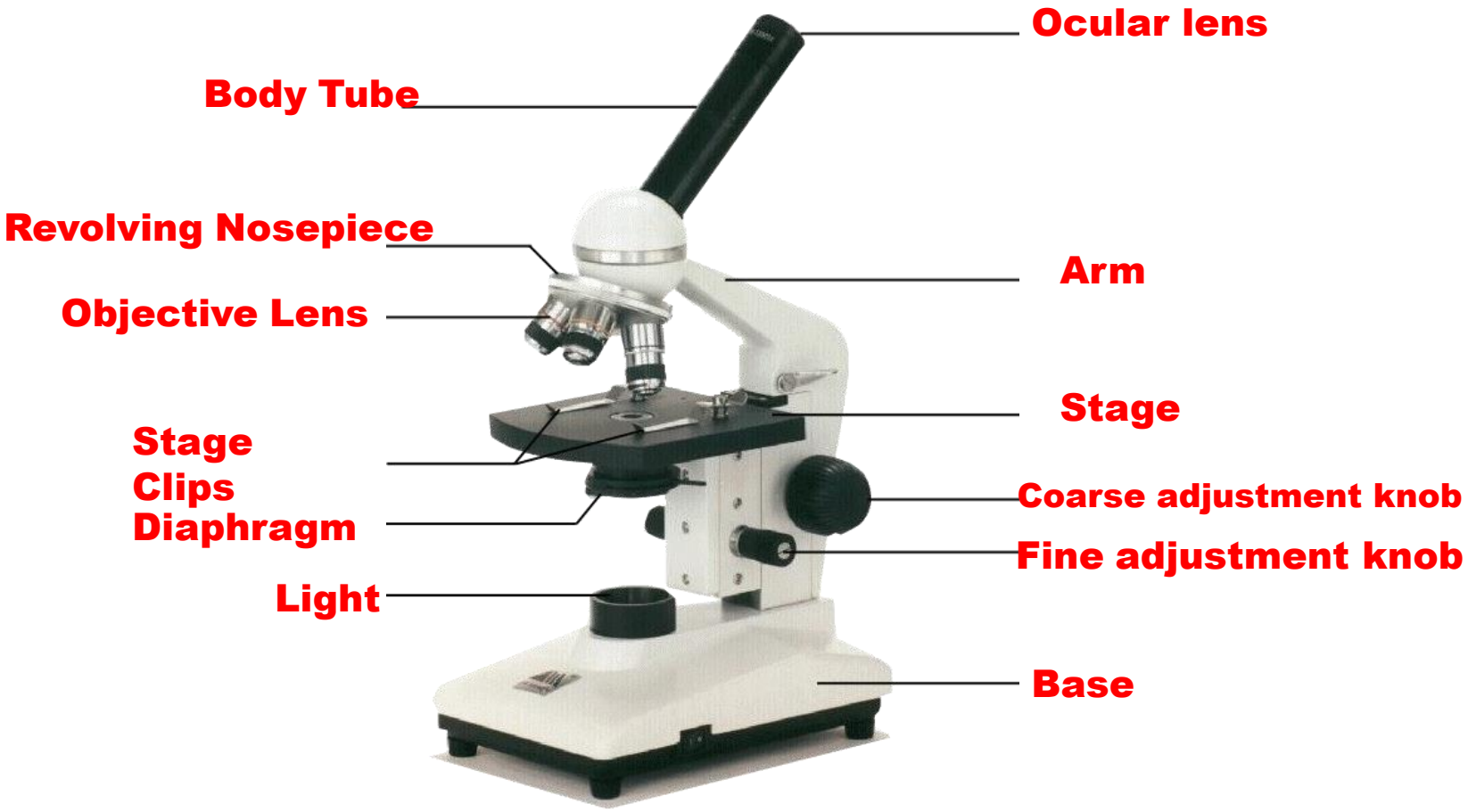
Introduction to the Microscope

Hanan Jafar BDS.MSc.PhD

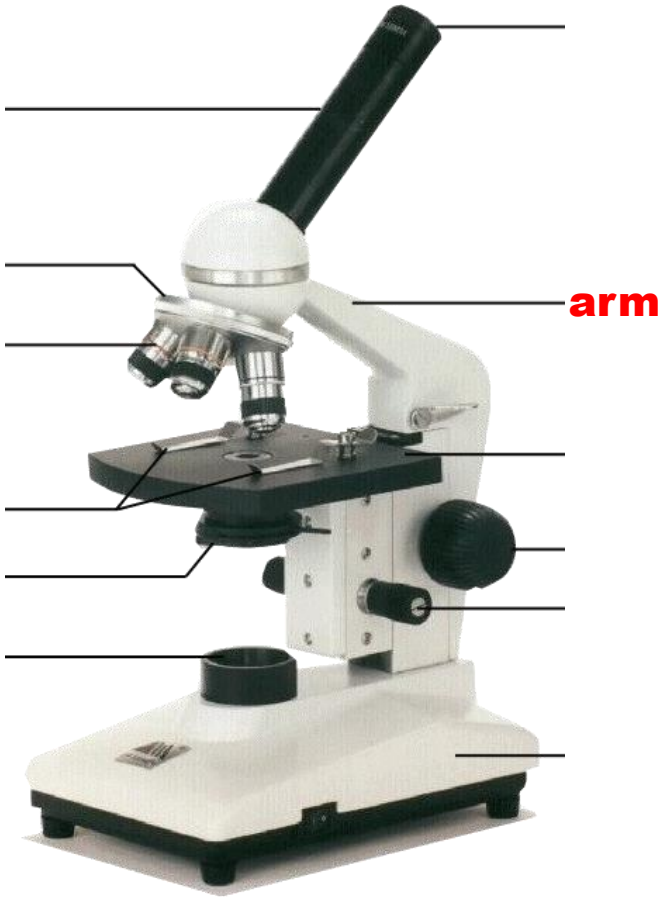
Proper care of a microscope

- **Always carry with 2 hands**
- **Never touch the lenses with your fingers.**
- **Only use lens paper for cleaning**
- **Keep objects clear of desk and cords**
- **When you finish, rotate the nosepiece so that it's on the low power objective, roll the stage down to lowest level, rubber band the cord, then replace the dust cover.**

Microscope parts

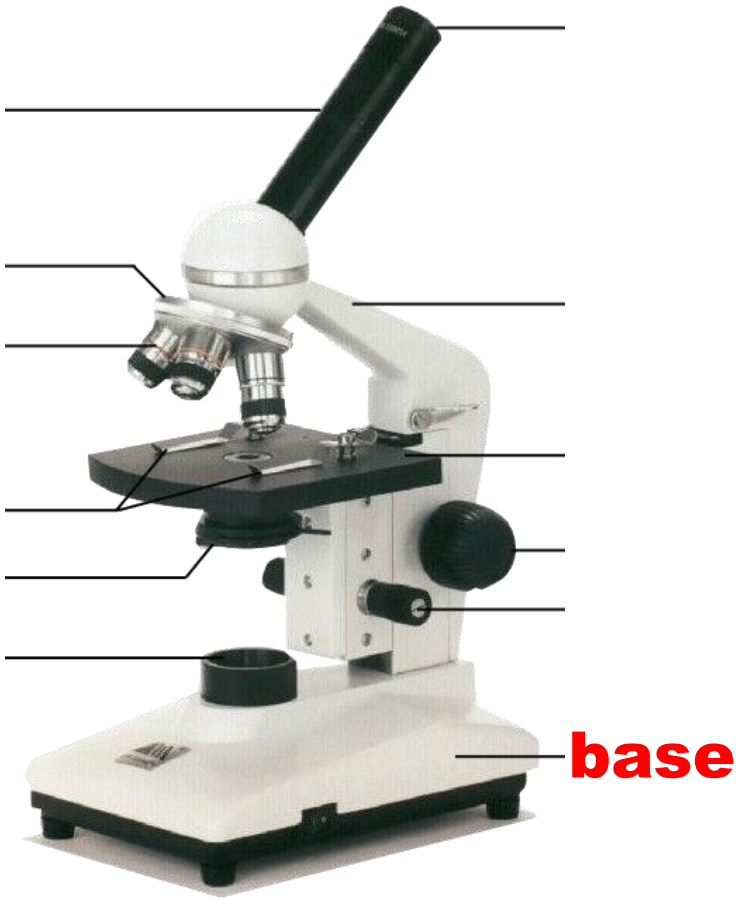


Arm



supports the tube and connects it to the base

Base



the bottom of the microscope, used for support

Always carry the microscope with one hand holding the arm and the other supporting the base

Ocular lens (eye-piece)

where you look through to see the image of your specimen.

They are usually 10X or 15X magnification power.

Stage

the flat platform where you place your slides

Coarse adjustment knob

moves stage (or body tube) up and down to enhance focus grossly

coarse adjustment knob

Fine adjustment knob

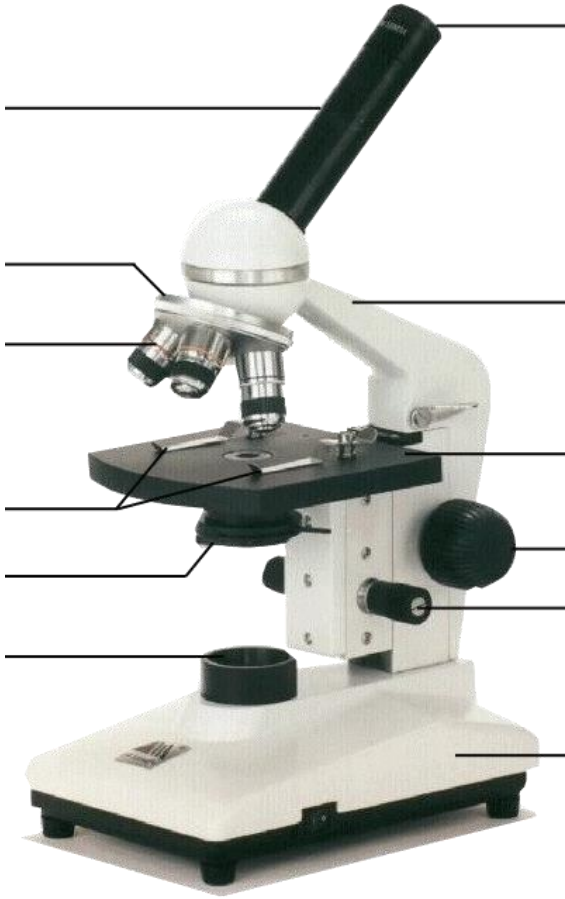
small, round knob on the side of the microscope used to fine-tune the focus of your specimen

fine adjustment knob

Sometimes found on top of the coarse adjustment knob

Tube

connects the eyepiece to the objective lenses

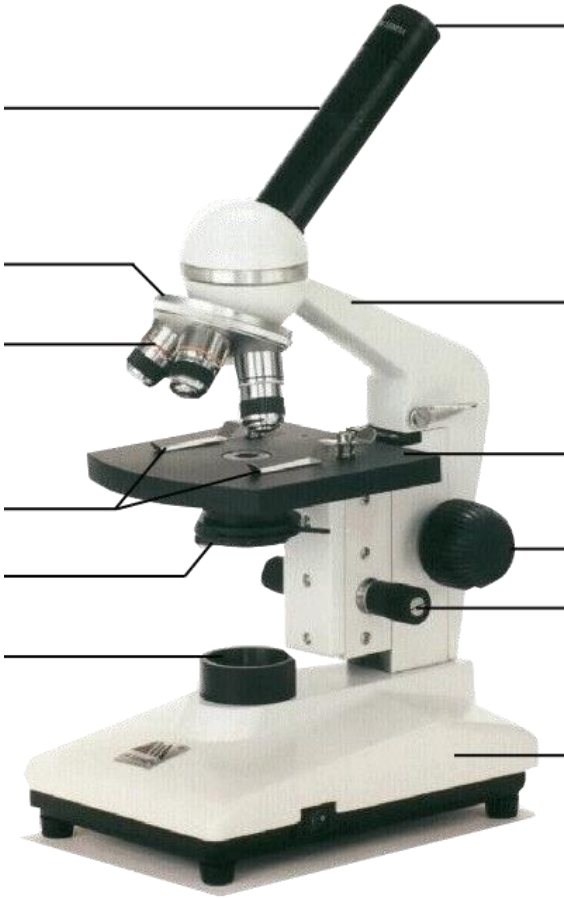


Nose-piece

the part that holds two or more objective lenses

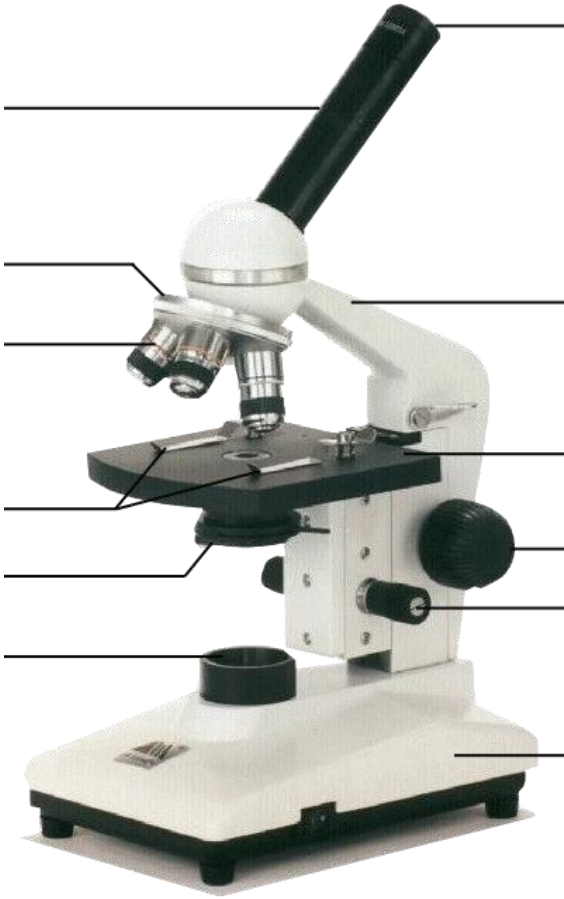
revolving nosepiece

it can be rotated to easily change power



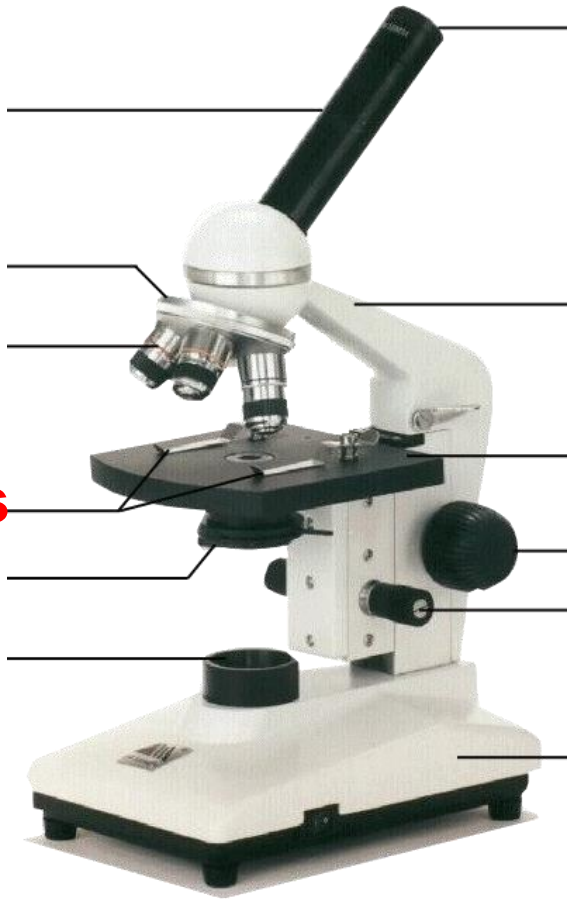
Objective lenses

- Usually you will find 3 or 4 objective lenses on a microscope.
- Common objective lenses are 4X, 10X, 40X and 100X powers.
- The shortest lens is the lowest power, the longest one is the lens with the greatest power.
- Lenses are color coded.



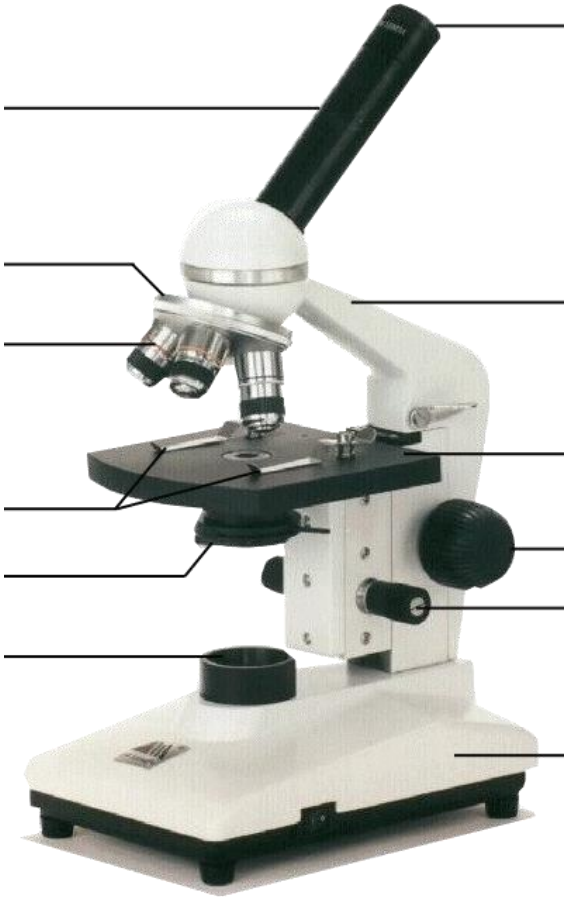
Clips

Stage clips hold the slides in place.



Diaphragm

controls the intensity of light going through the specimen



Light source

makes the specimen visible

How to use the microscope?

- The proper way to focus a microscope is to start with the lowest power objective lens first and while looking from the side, crank the lens down as close to the specimen as possible without touching it. Now, look through the eyepiece lens and **focus upward only** until the image is sharp. If you can't get it in focus, repeat the process again

- Once the image is sharp with the low power lens, you should be able to simply click in the next power lens and do minor adjustments with the focus knob. If your microscope has a fine focus adjustment, turning it a bit should be all that's necessary. Continue with subsequent objective lenses and fine focus each time.

Using high power

Rotate to 40x objective, locate desired portion of specimen in the center of the field. Refocus very carefully so that the specimen is focused as sharply as possible. *(Do not alter focus for the Following steps*)

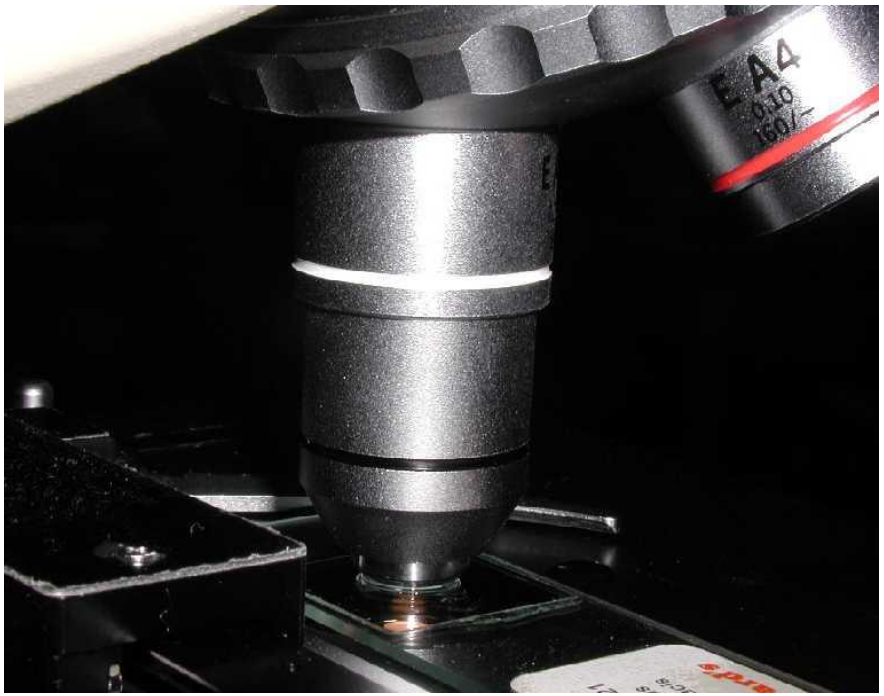
Partially rotate so that 40x close to 100x but do not place 100x yet.

Place a small drop of oil on the slide in the center of the lighted area.

Put the small drop of oil directly over the area of the specimen to be Examined.

Rotate so that the **100x oil immersion objective touches the oil** and clicks into place.

Focus **only** with fine focus. NEVER USE COARSE. Do not change focus dramatically.



Clean up! When you have finished for the day, wipe the 100x oil immersion objective carefully with lens paper to remove all oil. Wipe oil from the slide thoroughly. Cleanse stage should any oil have spilled on it. Recap the immersion oil container securely.

Practice