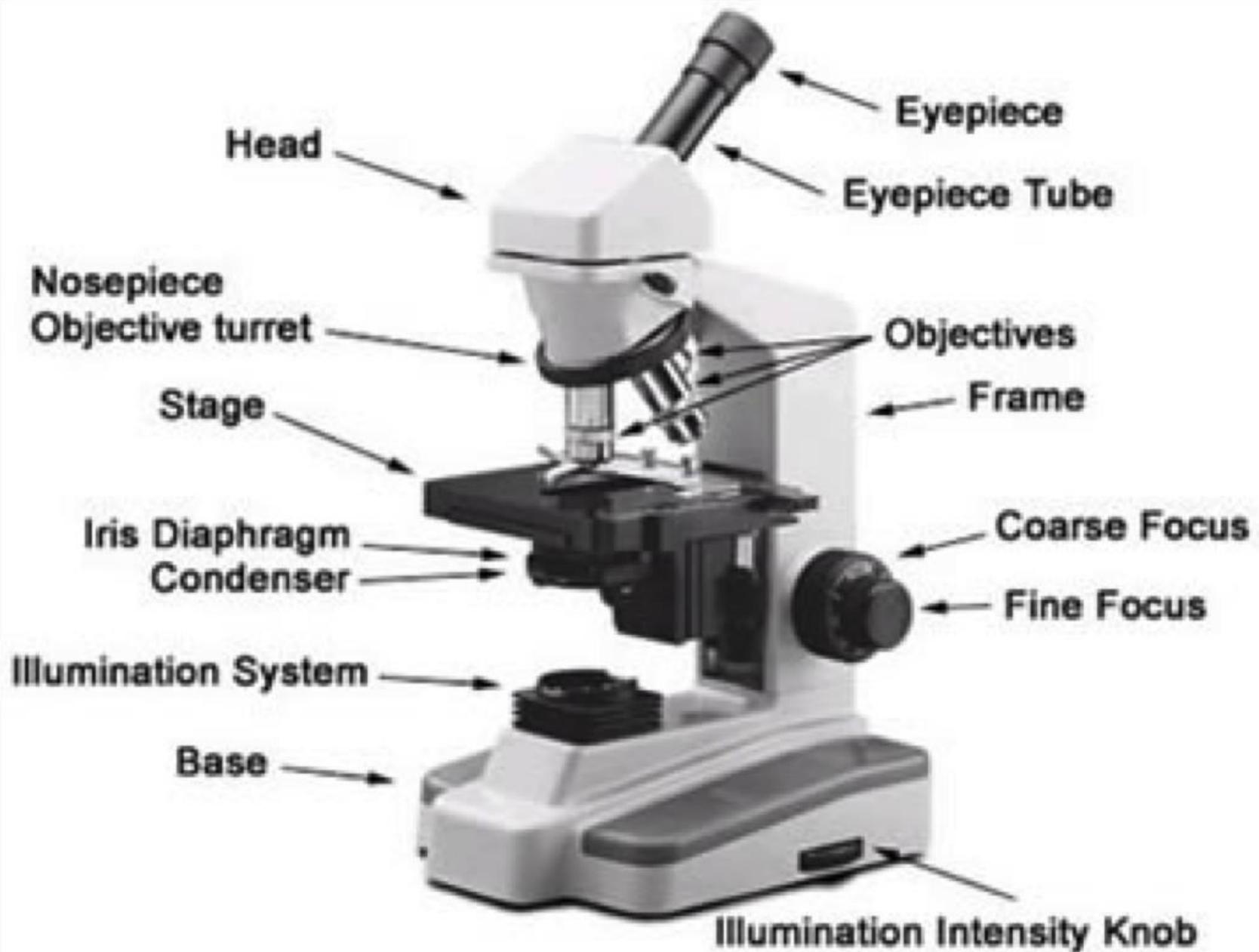


Microscope



Rules of using a microscope

- Bring with two hands
- Use lens paper for cleaning
- Do not force knobs
- Always store covered.

Parts of a microscope

- Eyepiece



Parts of a microscope

- Body tube



Parts of a microscope

- Nosepiece



Parts of a microscope

- Objectives
 - Low power (short)
 - High power (long)



Parts of a microscope



- Arm

Parts of a microscope

- Stage



Parts of a microscope

- Stage clips



Parts of a microscope

- Diaphragm



Parts of a microscope

- Coarse and fine adjustment knobs



Parts of a microscope

- Light source



Parts of a microscope

- Base



How to use a microscope

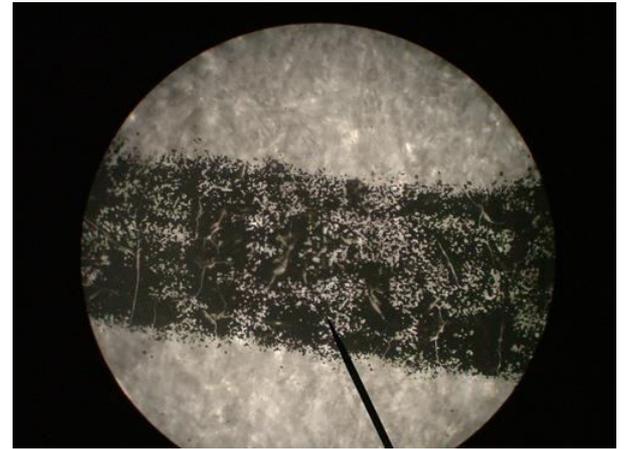
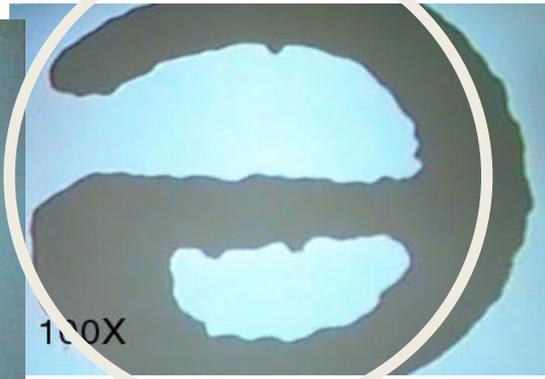
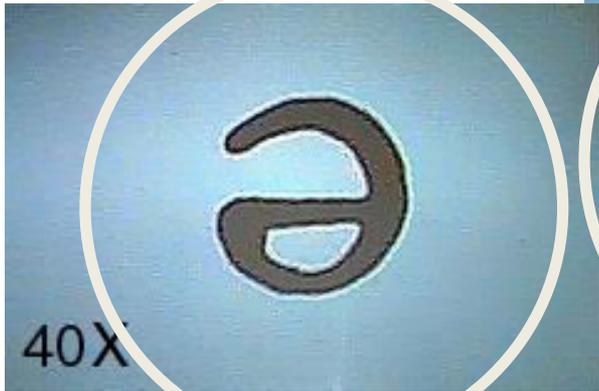
- Place the slide on the stage
- Use stage clips to secure slide
- Adjust nosepiece to lowest setting
- Look into eyepiece
- Use coarse focus knob

Properties of the microscope

- Magnification
- Field of view
- Resolution
- Depth of field
- Orientation
- Brightness

Magnification

- How many times the image is enlarged
- On a compound microscope total magnification
= mag of ocular X mag of objective



Total Magnification

- Low power
- Medium power
- High power

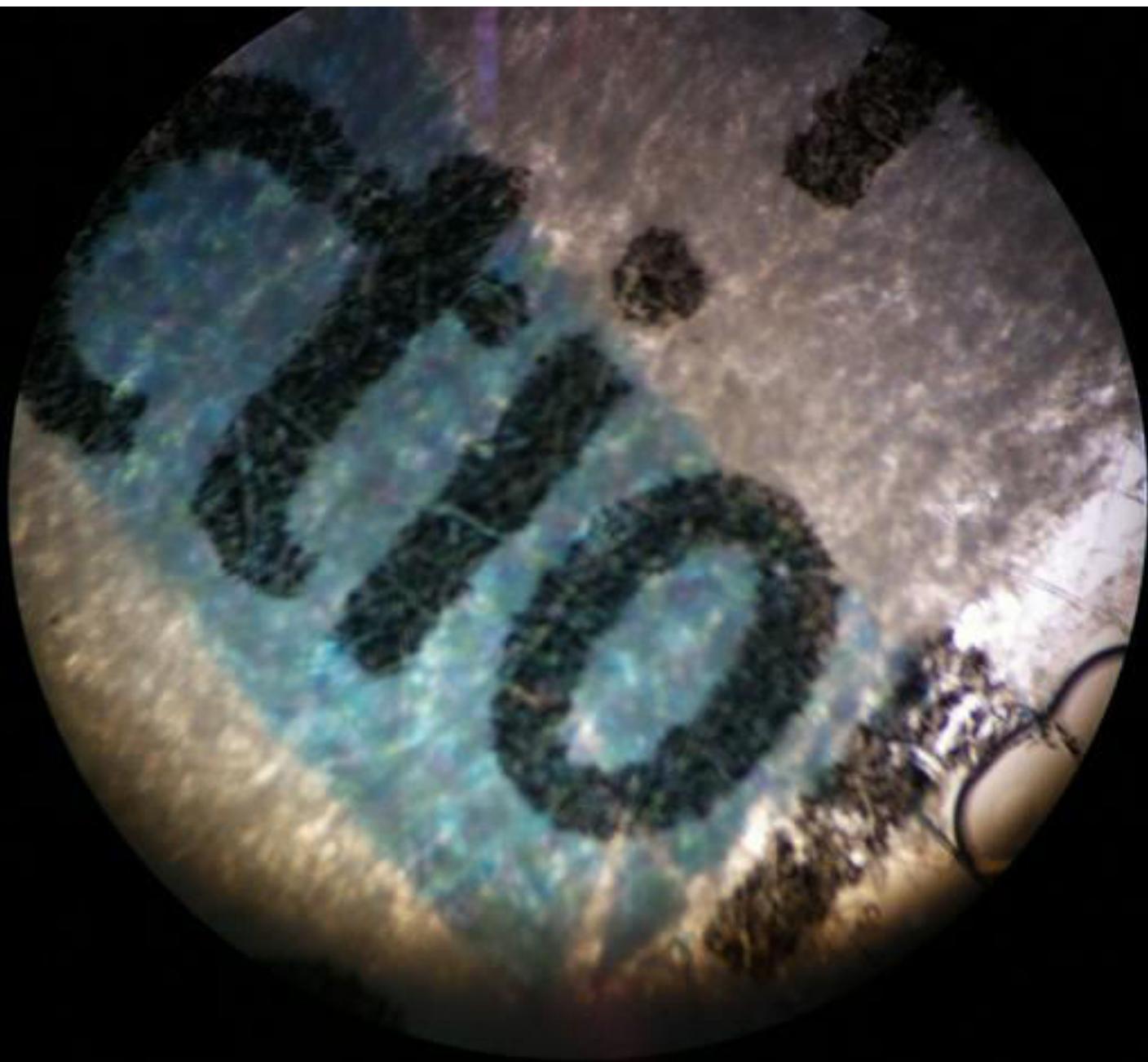
Resolution/Resolving Power

ability to see details

- Ability to determine 2 points as being separate :
- Depends mainly on magnification,
- Depends on proper focusing and lighting
- As we increase magnification, we increase resolution

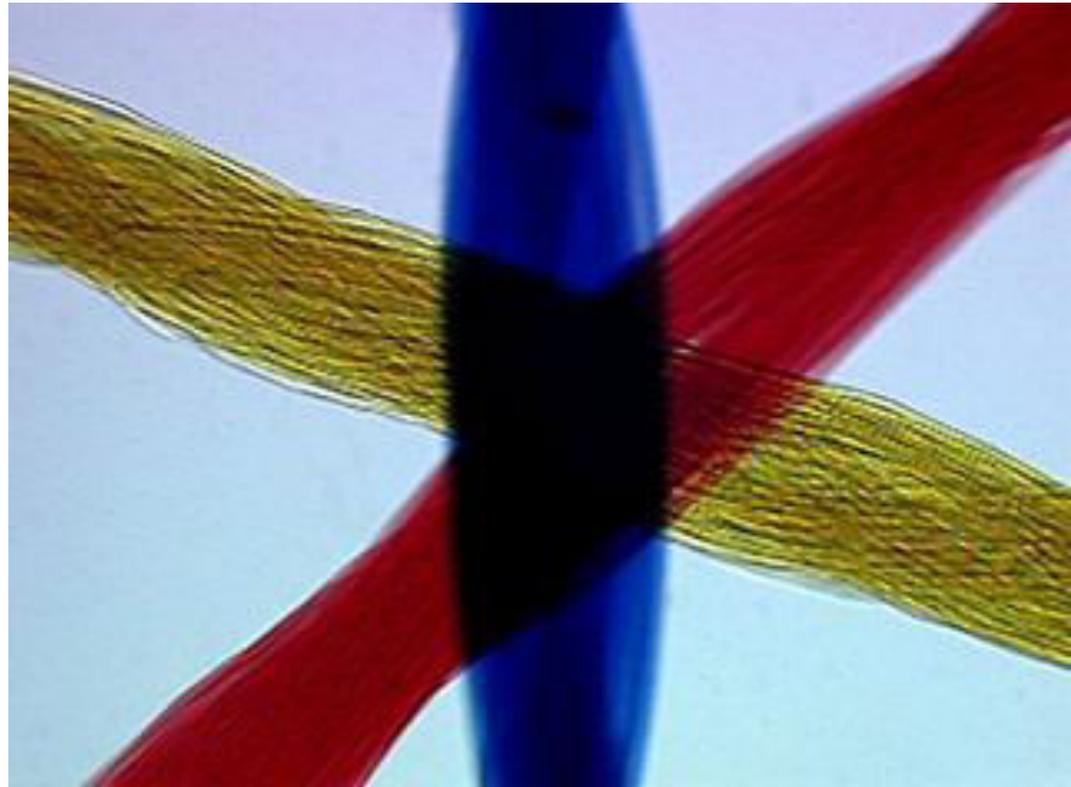
Resolution





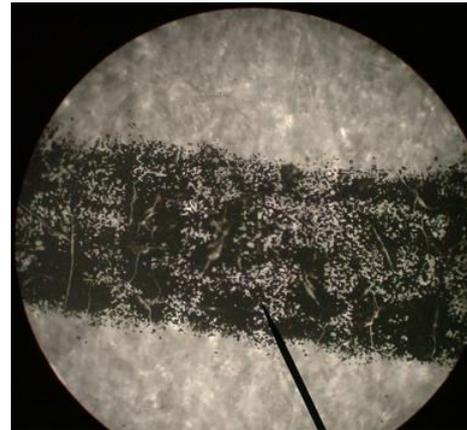
Depth of field

- Thickness of the zone that is in focus
- As magnification increases, depth of field decreases



Brightness

- As magnification increases, brightness decreases
- Adjust the diaphragm as needed
- High power needs larger diaphragm opening



Diaphragm or iris diaphragm

- Located underneath the stage
- Metal disk
- Different sized holes
- Regulates the amount of light that enters the slide
- Smaller holes= less light
- Larger holes= more light

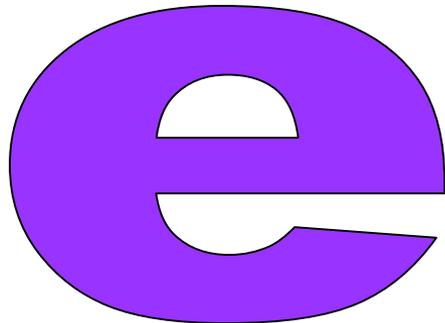


Orientation

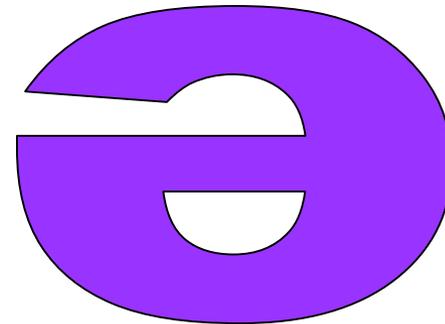
➤ Position of the image

- Compound microscopes flips image upside down and backwards.
- Image moves in the opposite direction as you move it.
- If you physically move the slide up it looks like it is moving down.
- If you physically move it left it looks like it is moving right.

Slide position

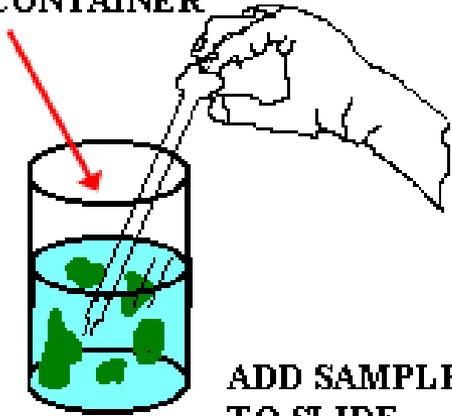


Image

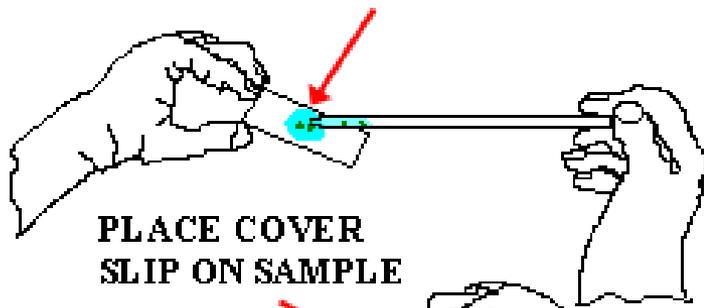


Wet Mount Slide

COLLECT SAMPLE
FROM CONTAINER



ADD SAMPLE
TO SLIDE



PLACE COVER
SLIP ON SAMPLE

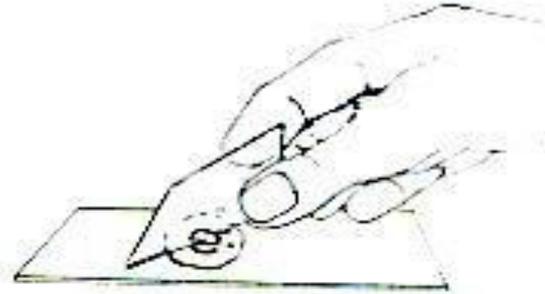
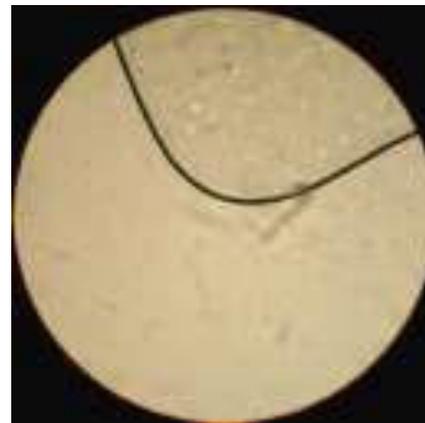


Figure 1



Making a wet mount slide

- 1- Collect sample from a container
- 2- add the specimen to your slide
- 3- Diagonally place cover slip over your sample.



1. Cut Red Onion



2. Remove an inner layer

3. Peel a thin red outer layer with tweezers or fingernail



4. Spread on a slide; use bottom illumination, 60x

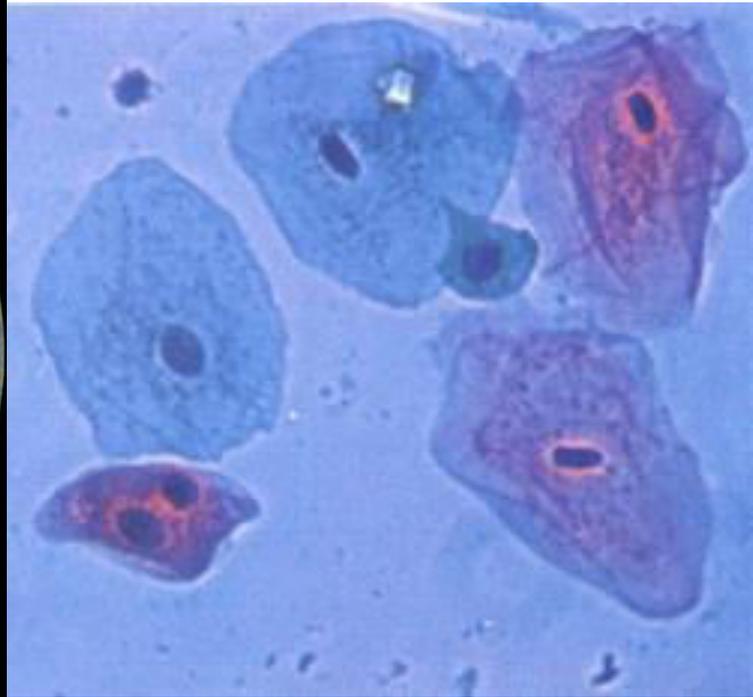
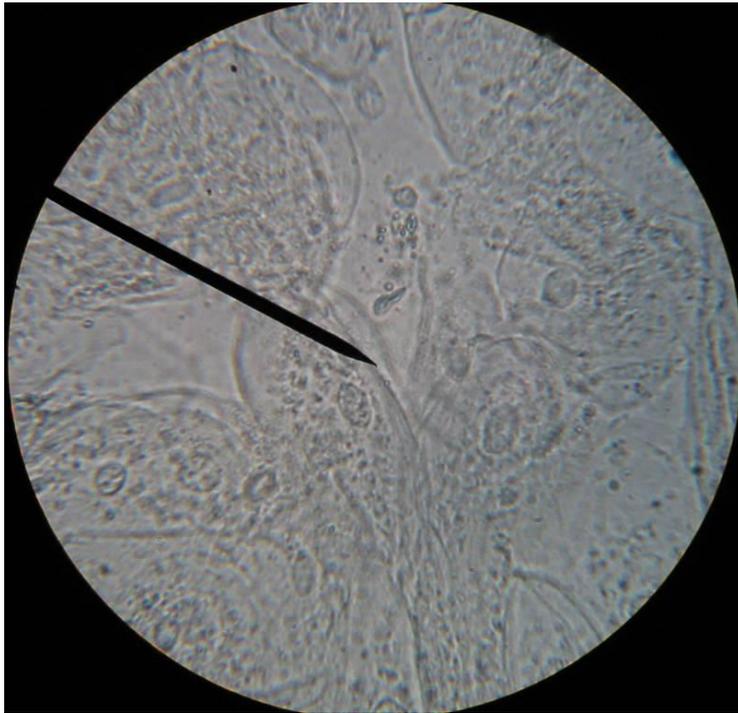


Cells will appear more clearly in this redder peel.

Prepared slide = permanent



What do you think about staining?



Unstained Cheek Cells vs. Stained Cheek Cells

Staining

- Stains are used to highlight specific features of cell structure
- Some stains may damage or kill the cells that absorb them.
- Some stains cause changes in the structure of the cell.
- Methylene blue and Lugol's Iodine Solution are frequently used to stain cells



How to Add Stain to An Existing Wet Mount Slide

1. Place a drop of stain on the slide near one end of the cover slip
2. Place a piece of absorbent paper at the opposite end of the cover slip
3. The paper will absorb water from underneath the cover slip and the stain will move under the cover slip to replace the water.

Adding Stain to Existing Wet Mount

