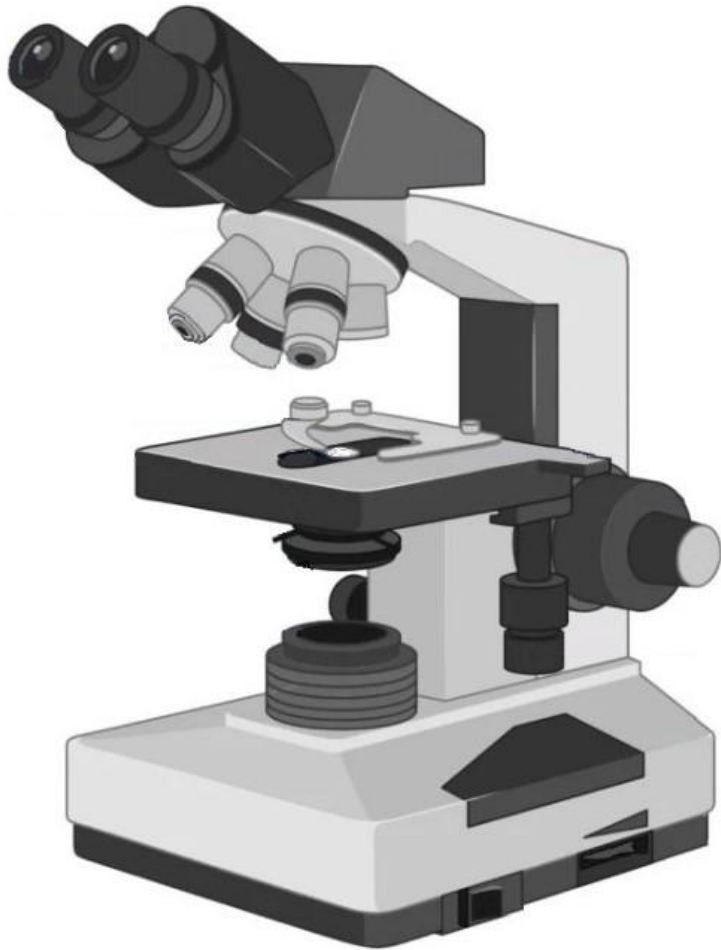


# The Microscope

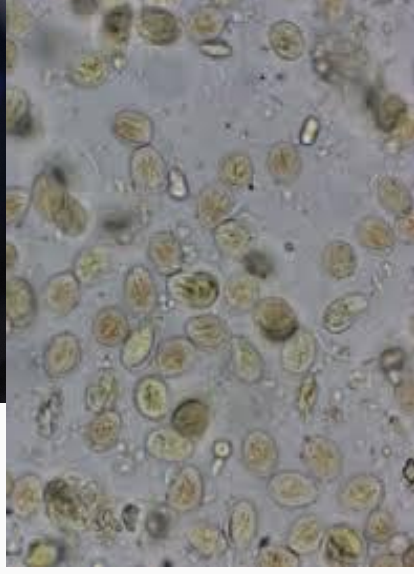
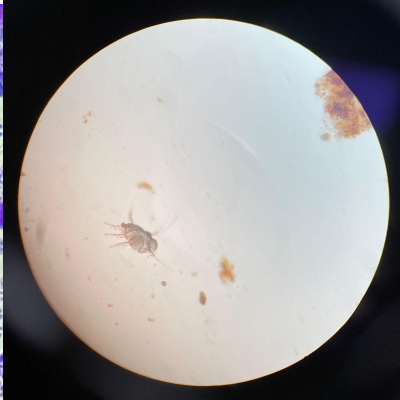
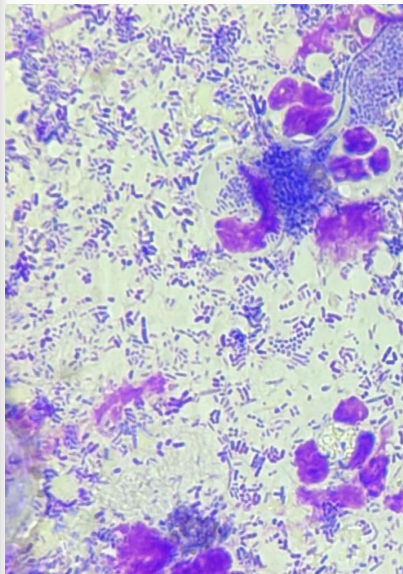
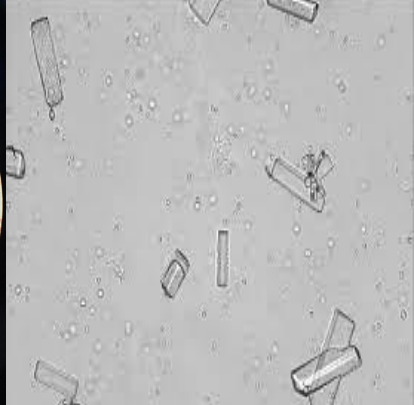
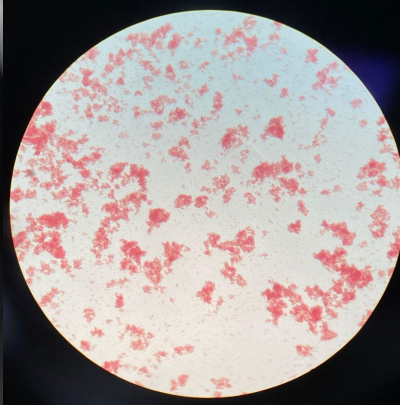
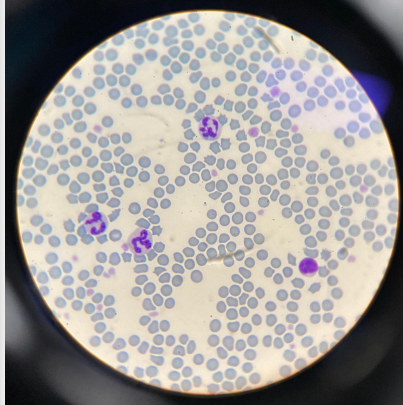




- When do we use it?
- What are its parts?
- How do you use it?

# When Do We Use It?

- CBC Differential
- Slide Agglutination
- Urine Sediment
- Ear Cytology
- Fecal (Direct, Fecal Float)
- Other\*
  - Aspirates
  - Other fluids

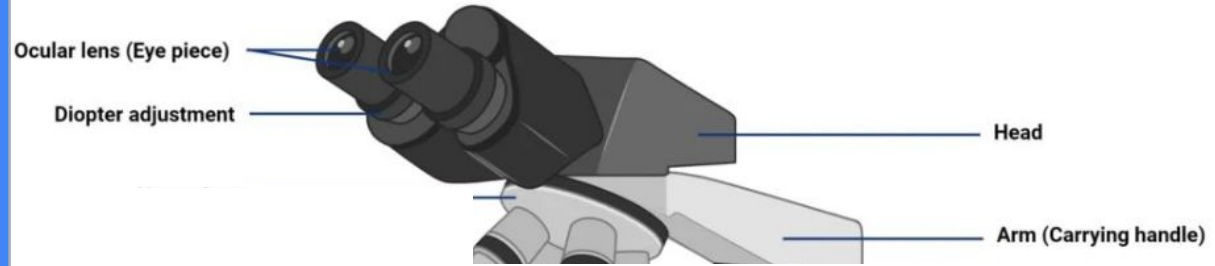


\*DVM will look at aspirates and cytologies

# What Are Its Parts?

- Ocular Lens/Eye Pieces
- Diopter Adjustment
- Head
- Arm/Carrying Handle

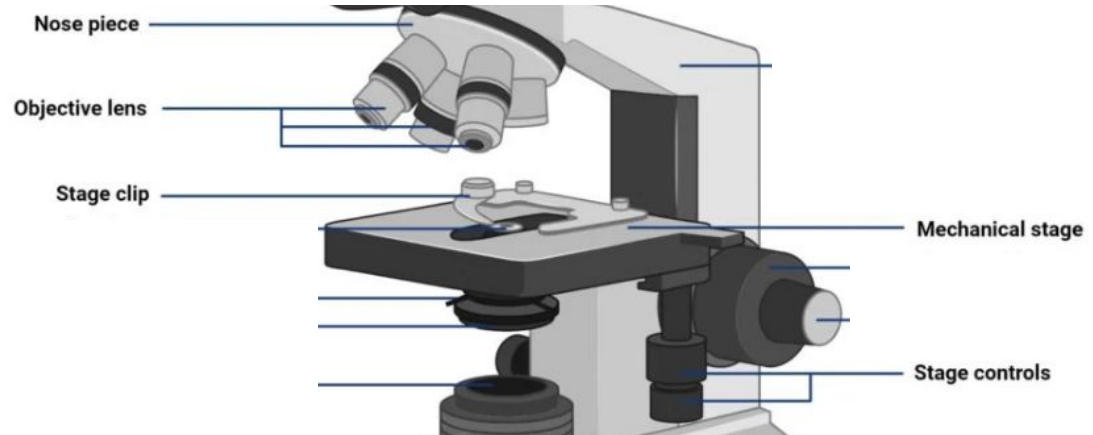
## Microscope Parts



# Microscope Parts

## What Are Its Parts?

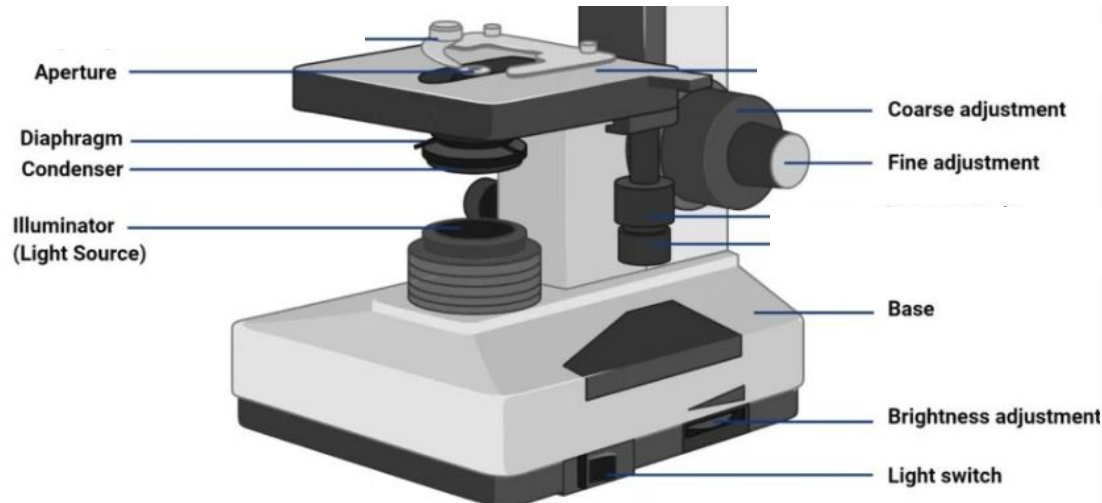
- Nose Piece
- Objective Lens
  - 4x
  - 10x
  - 40x
  - 100x/oil immersion
- Mechanical Stage
- Stage Clip
- Stage Controls



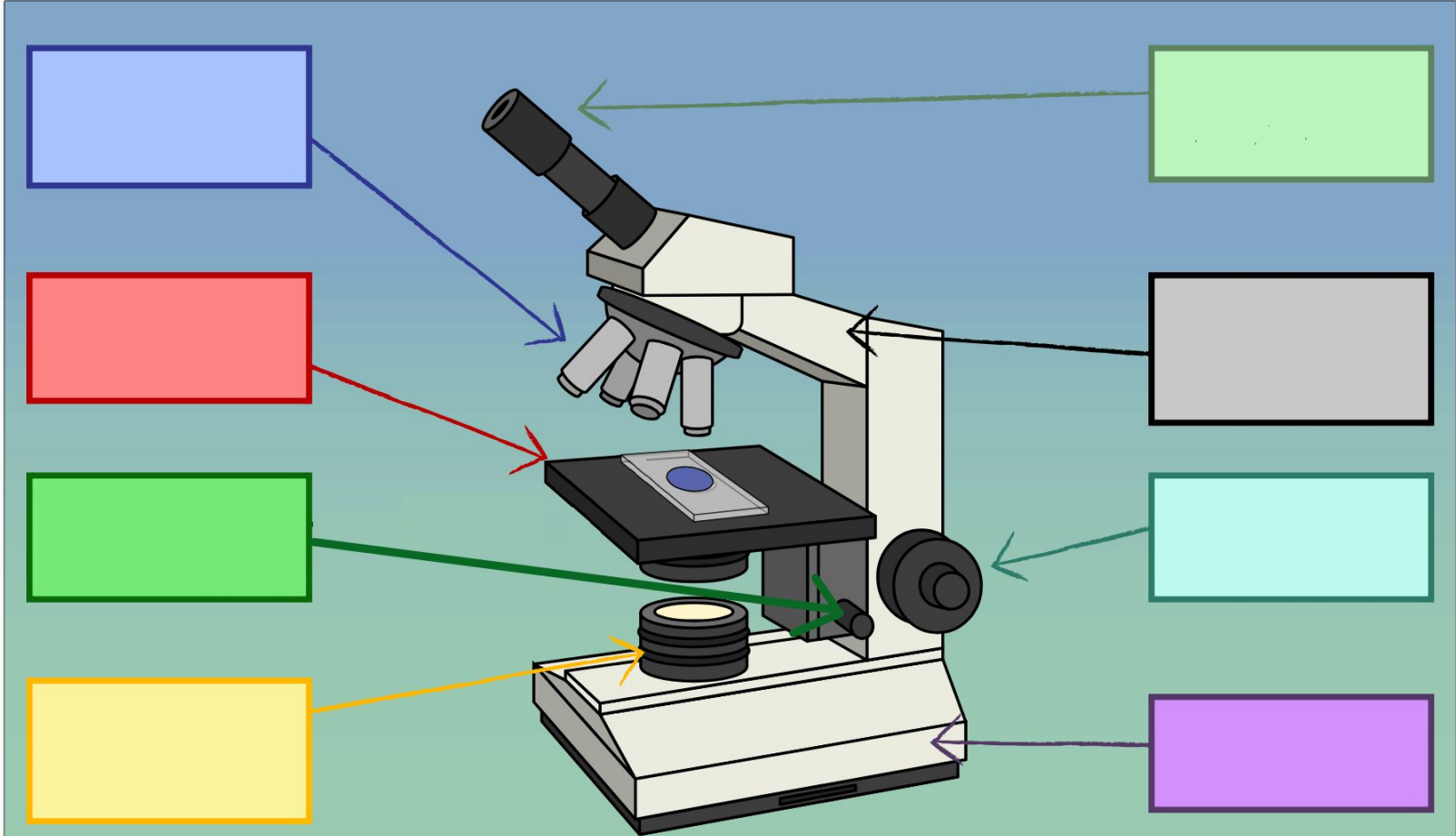
# Microscope Parts

## What Are Its Parts?

- Aperture
- Diaphragm
- Condenser
- Illuminator (Light Source)
- Light Switch
- Brightness Adjustment
  
- Coarse Adjustment
- Fine Adjustment
  
- Base



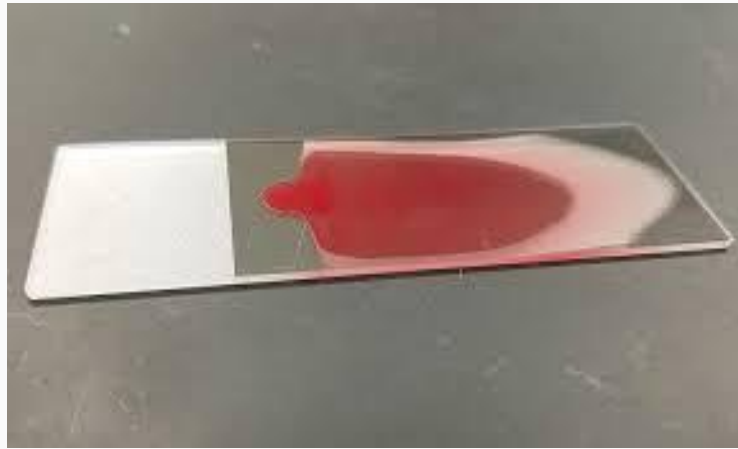
Let's Review!





# How Do You Use It?

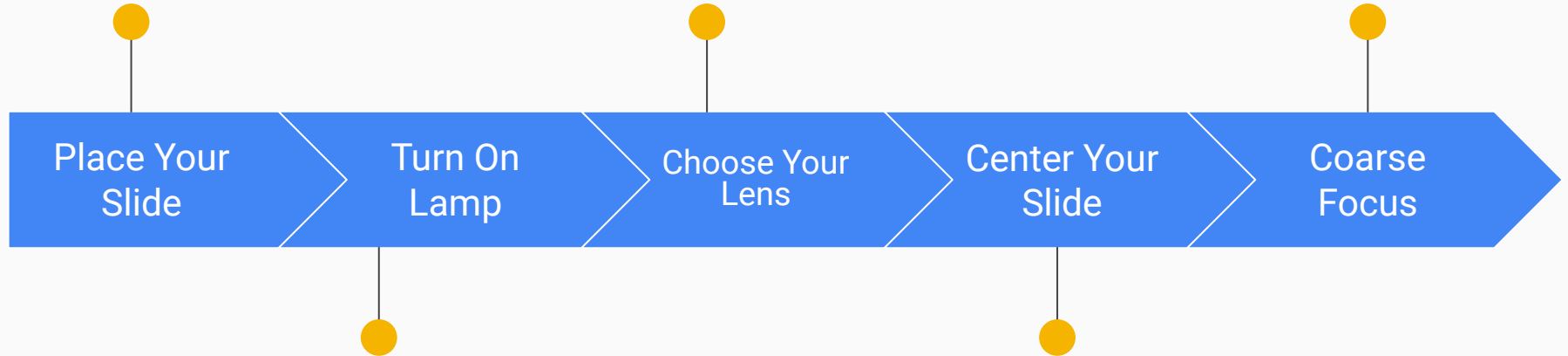
- Step by step guide
- Helps to be meticulous
- Supplies needed:
  - Prepared slide
  - Immersion Oil
  - KimWipes
- Troubleshooting



Situate the slide so that the cellular/sample side is UP, and the stage clip securely holds it in place.

Always start with the lowest magnification objective lens pointing at the slide (4x).

Look into the eye pieces and adjust the coarse focus wheel to bring the slide into focus.



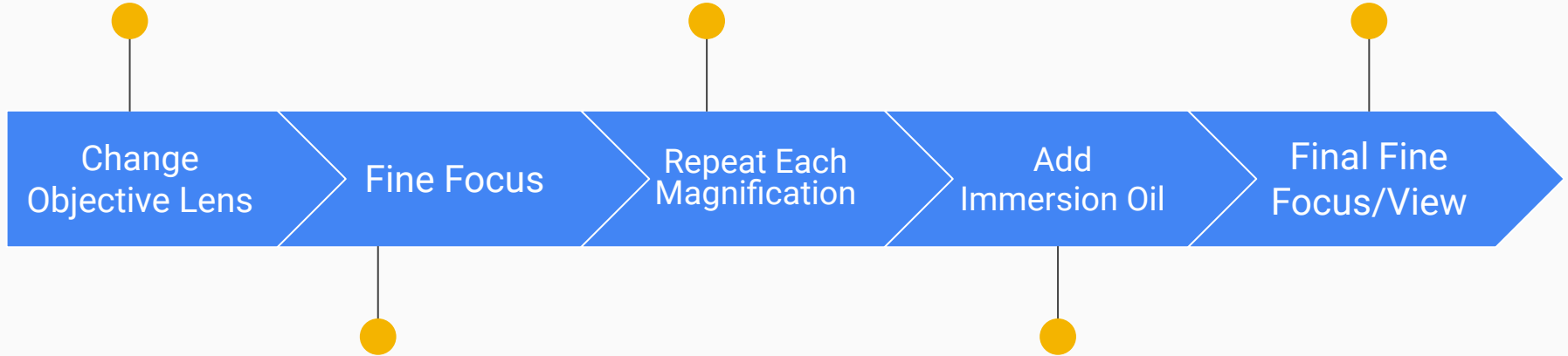
Turn on the lamp.

Use the stage controls to move the slide so that the field you want to view is in the center of the aperture.

Once in focus, turn the nose so that the next highest magnification lens is pointed at the slide.

Continue increasing your magnification lens ("zooming in") and adjusting the fine focus wheel as needed.

Rotate the highest power lens (100x) so that it touches the oil, then view your slide, fine-focusing as needed. Use the stage controls to move the slide.



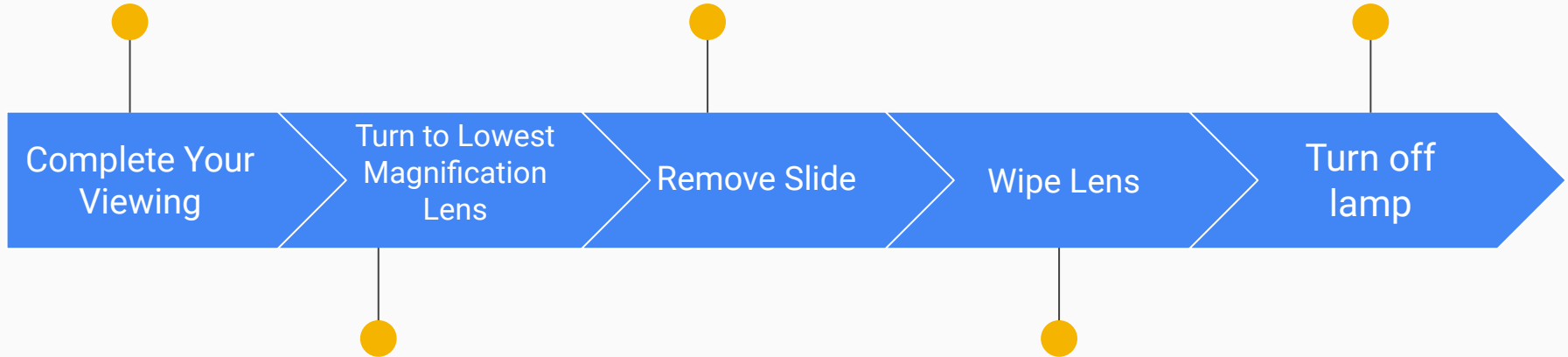
Look into the eye pieces and adjust the fine focus wheel to bring the slide into focus.

Depending on what kind of slide you are viewing, add 1-2 drops of immersion oil onto your slide (turn nose to lowest magnification lens prior).

Now that you are at the highest magnification, perform your differential or other slide review.

Open the stage clip to release your slide and dispose of it in the sharps container.

When you have completed examining your slide(s) and cleaned the microscope, turn off the light.



Turn the nose so that the lowest magnification objective lens is pointing at the slide (4x).

If you used oil immersion, gently wipe the oil off of the lens of the objective lens (100x) with a KimWipe

# Let's Review

Adjusting the stage clip will increase the magnification.

**FALSE**

Coarse adjustment should be performed only on the lowest magnification.

**TRUE**

There are four objective lenses.

**TRUE**

When carrying or moving the microscope, lift and hold it by the arm.

**FALSE**

The diaphragm regulates how much light is directed from the condenser to the slide.

**TRUE**

Immersion oil should be used on a slide for all magnifications.

**FALSE**

You should turn the illuminator off whenever the microscope is not in use.

**TRUE**

Cleaning the lenses only needs to happen once at the end of the day.

**FALSE**

# Troubleshooting

## Blurry Image, Difficulty Focusing

- Slide may be upside down
- Oil residue on objective lens (<100x)
- No oil or insufficient oil (on 100x )
- Condenser is too low

## Lamp Does Not Turn On

- Is microscope plugged in?
- Inspect and replace light bulb if needed

## Dirt/Dust/Debris in Field

- Determine location of issue
- Clean eyepieces
- Clean objective lenses
- Top of condenser or light may have debris on it

## Dark Image Despite Light On

- Adjust light brightness
- Check/open diaphragm
- Objective lens is not in correct position (click in)
- Condenser needs adjusting

## Microscope Not Staying in Focus

- Slide not adequately secured by stage clip
- Slide is not flat on stage
- Nosepiece is not fully engaged (tighten objective lens)

# Last Notes

- When cleaning the various parts of the microscope - ORDER MATTERS!
  - Ocular lenses/eyepieces  
  
SEPARATELY FROM
  - Objective lenses
    - Lowest to highest magnification  
  
OR
    - 4x, 10x, and 40x, then 100x separately
- Use KimWipes only for cleaning microscope lenses
- Always handle parts carefully and lift/move the microscope securely
- “Start LOW, Aim HIGH”
  - Begin at lowest magnification and increase incrementally
  - Less light is required at low magnification, adjust to brighter light as you increase magnification.
- Turn off lamp and clean objective lens(es) after each use
- Remember to turn nosepiece to lowest objective lens (4x) when finished
- Percussive maintenance is never the solution for microscope troubleshooting!

Thanks!