

L.2

Parts of the Microscope and Their Function

BY:

Dr. Noor Ali Jabbar

What is the function of microscope?

A microscope is an instrument that is used to magnify small objects. Some microscopes can even be used to observe an object at the cellular level, allowing scientists to see the shape of a cell, its nucleus, mitochondria, and other organelles.

MICROSCOPY:

Microscopy is the technical field of using microscopes to view objects and areas of objects that cannot be seen with the naked eye (objects that are not within the resolution range of the normal eye).

TYPES OF MICROSCOPE & USES

LIGHT MICROSCOPE : use sunlight or artificial light.

- A. Bright field microscope.
- B. Dark field microscope.
- C. Phase contrast microscope.
- D. Fluorescence microscope.

ELECTRON MICROSCOPE : use of electron.

- 1. Transmission electron microscope.
- 2. Scanning electron microscope.



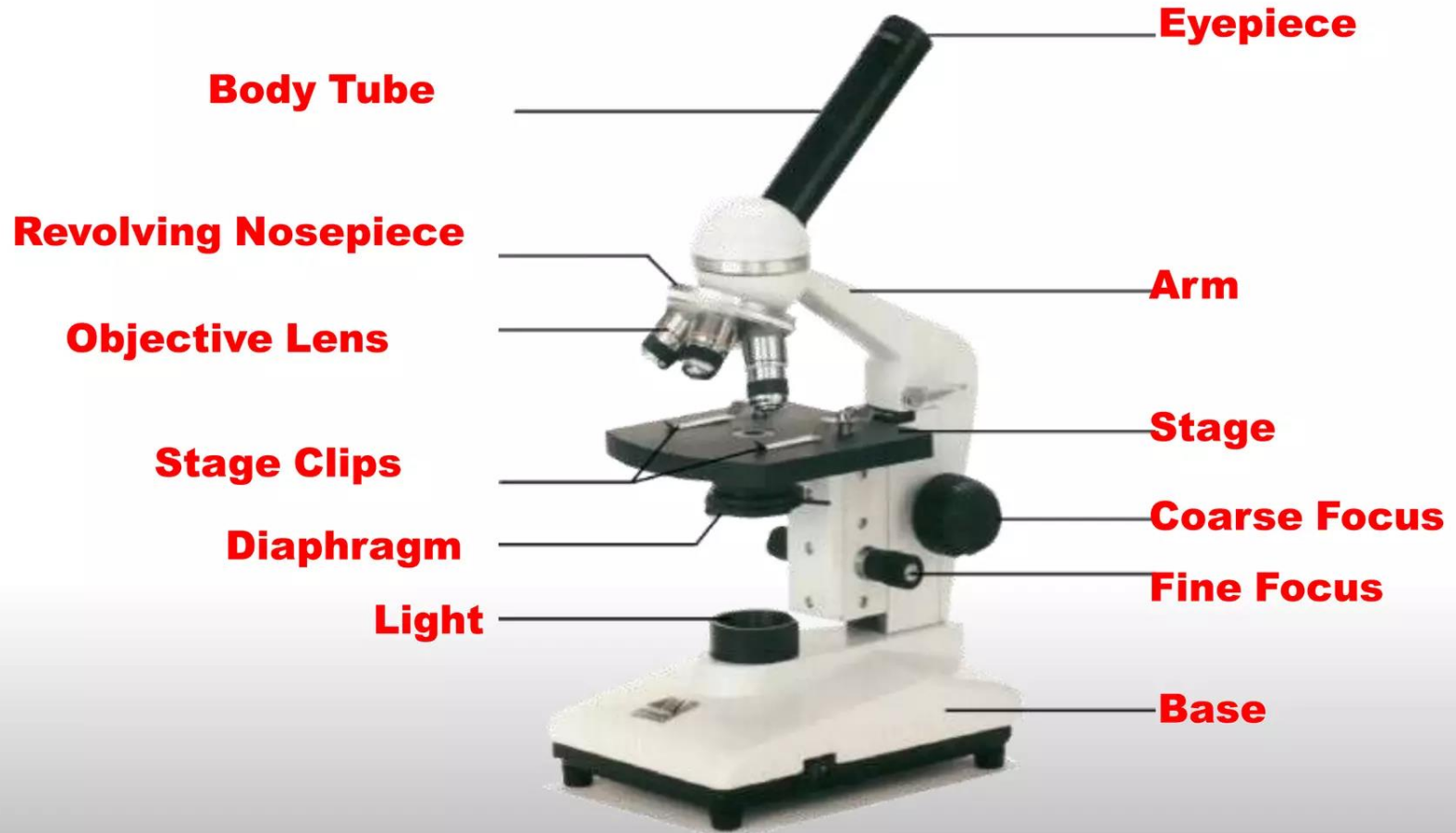
Electron Microscope



Compound Microscope

Part of the Microscope

Microscope Parts



1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

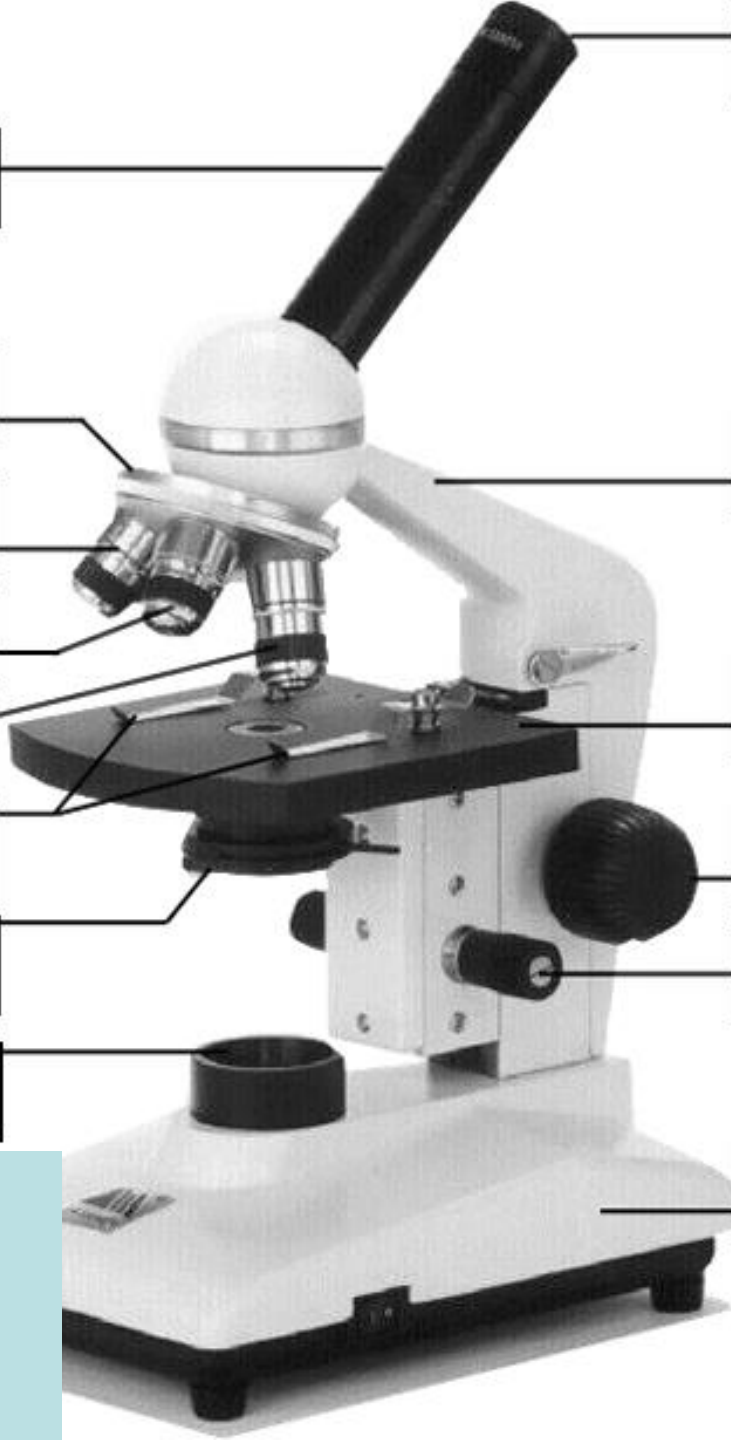
12.

13.

14.

#9 Eye Piece—The part you look at with your eye. Usually 10 X magnification.

[Click Here to Return to the Main Slide](#)



1.

2.

3.

4.

5.

6.

7.

8.

9.

#10 Arm– Used to safely transport microscope

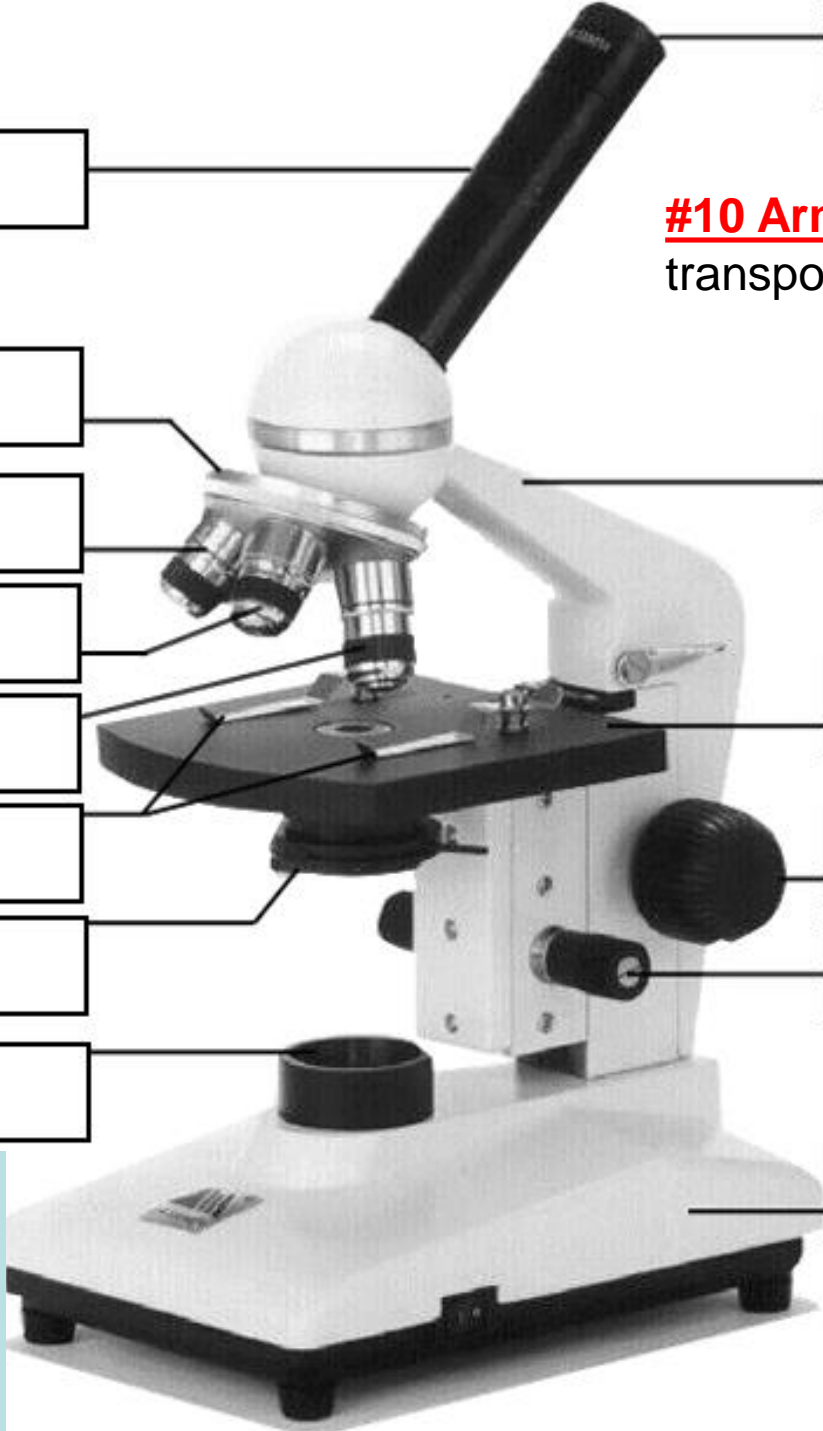
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#11 Stage – Slides are placed on this

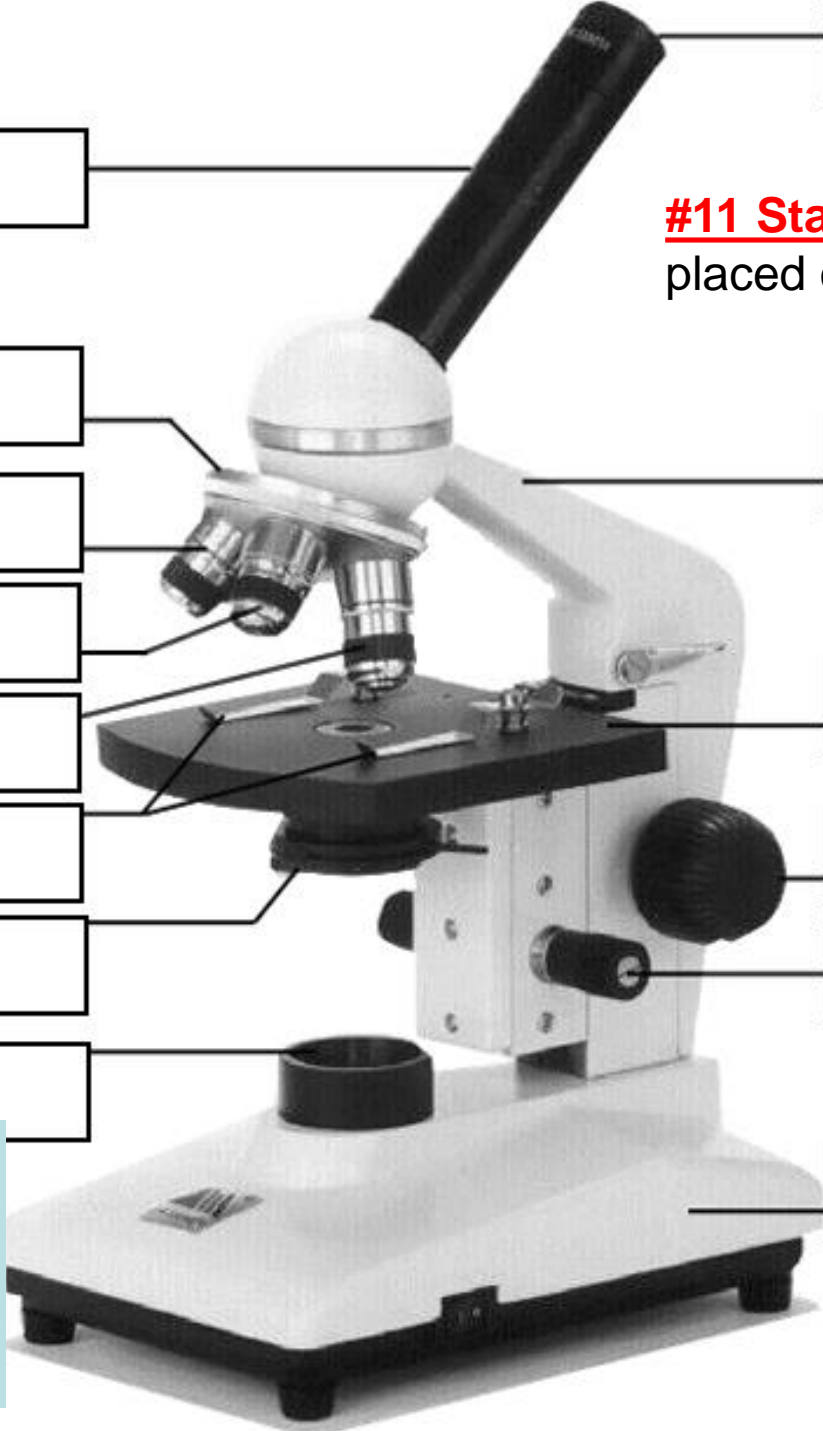
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#12 Coarse Adjustment –

Used to make large changes in focus. NOTE Never use this when viewing on high power

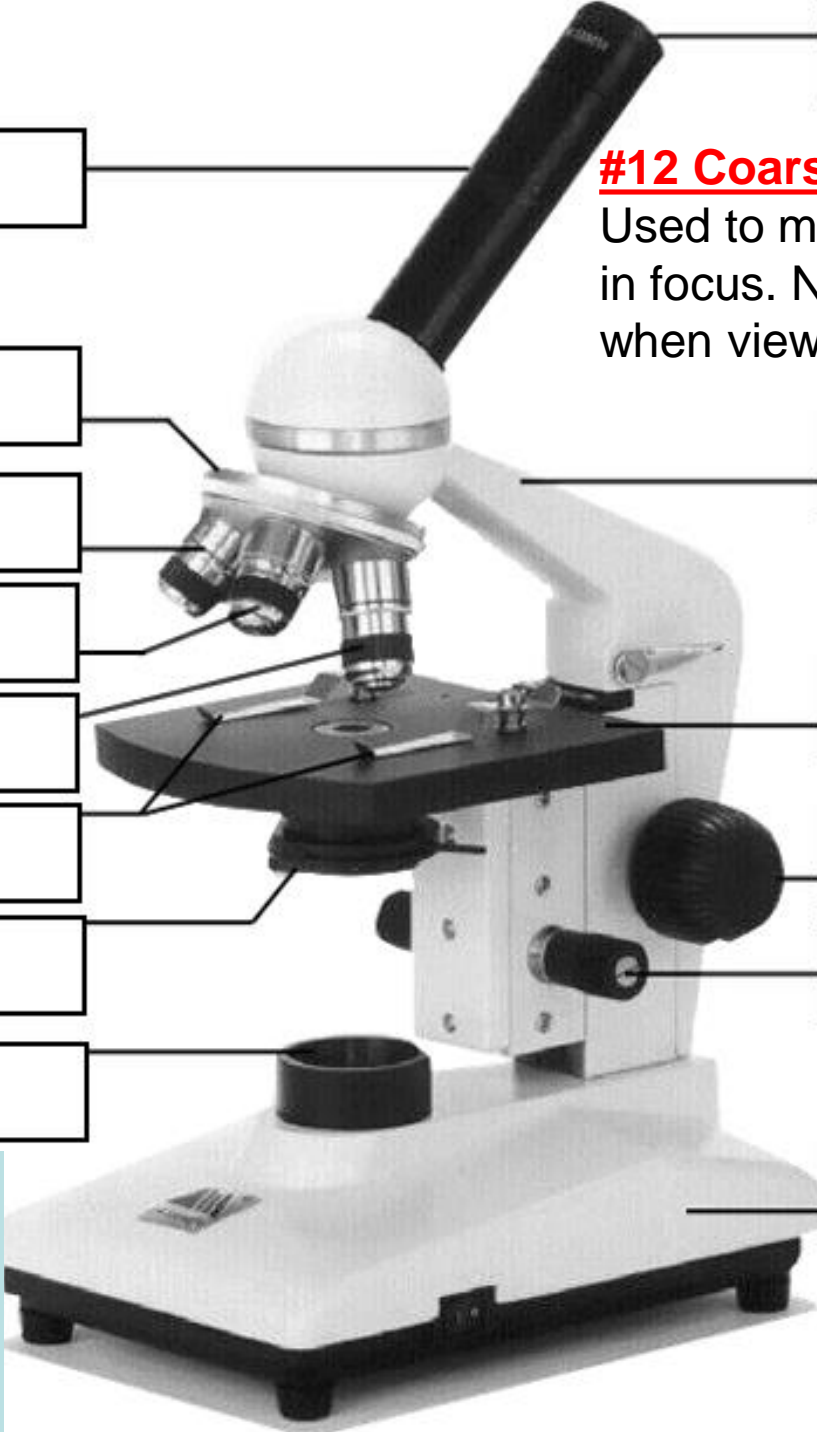
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#13 Fine Adjustment –

Used to small adjustments of focus

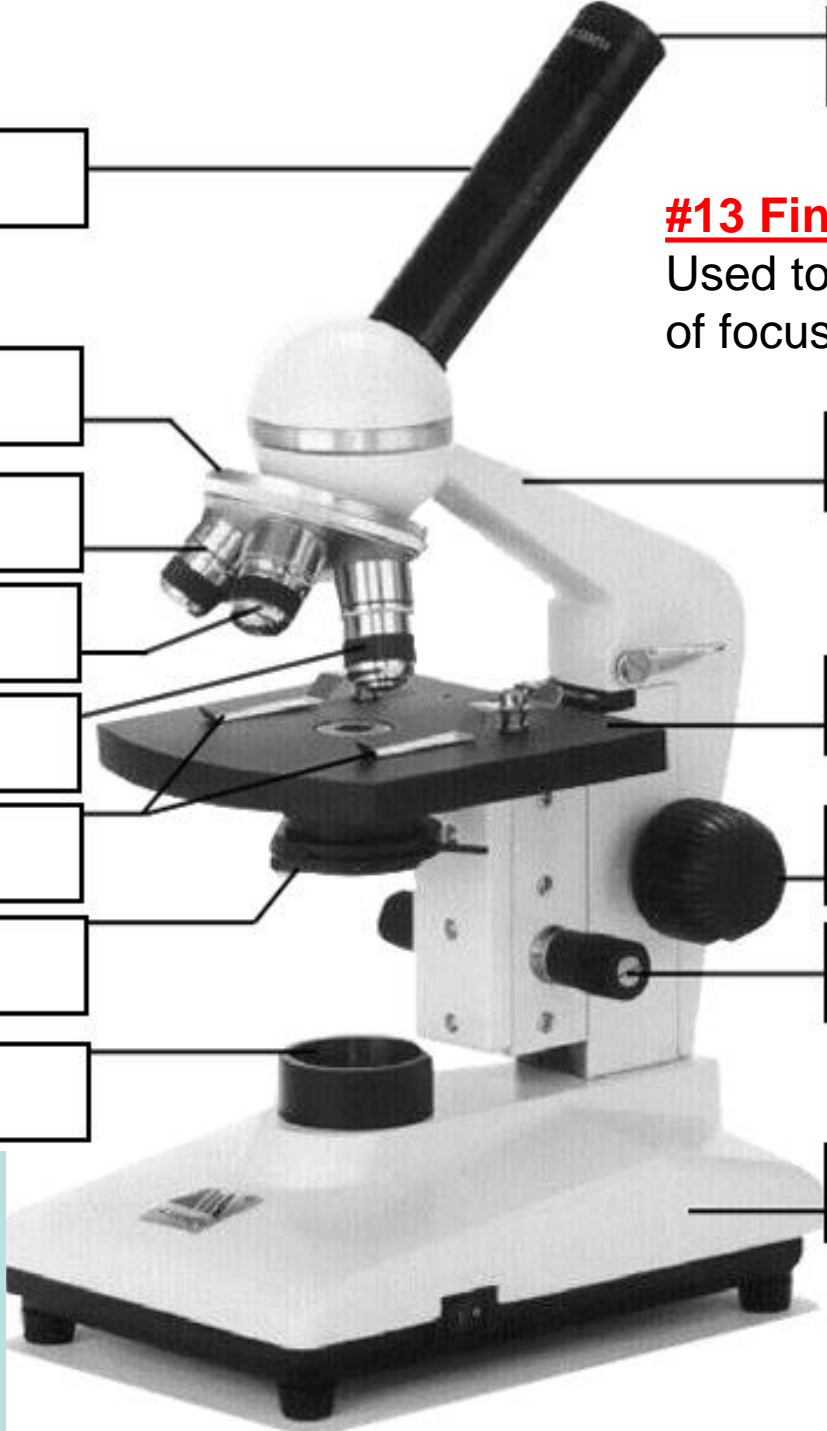
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#14 Base – Used to safely transport the microscope

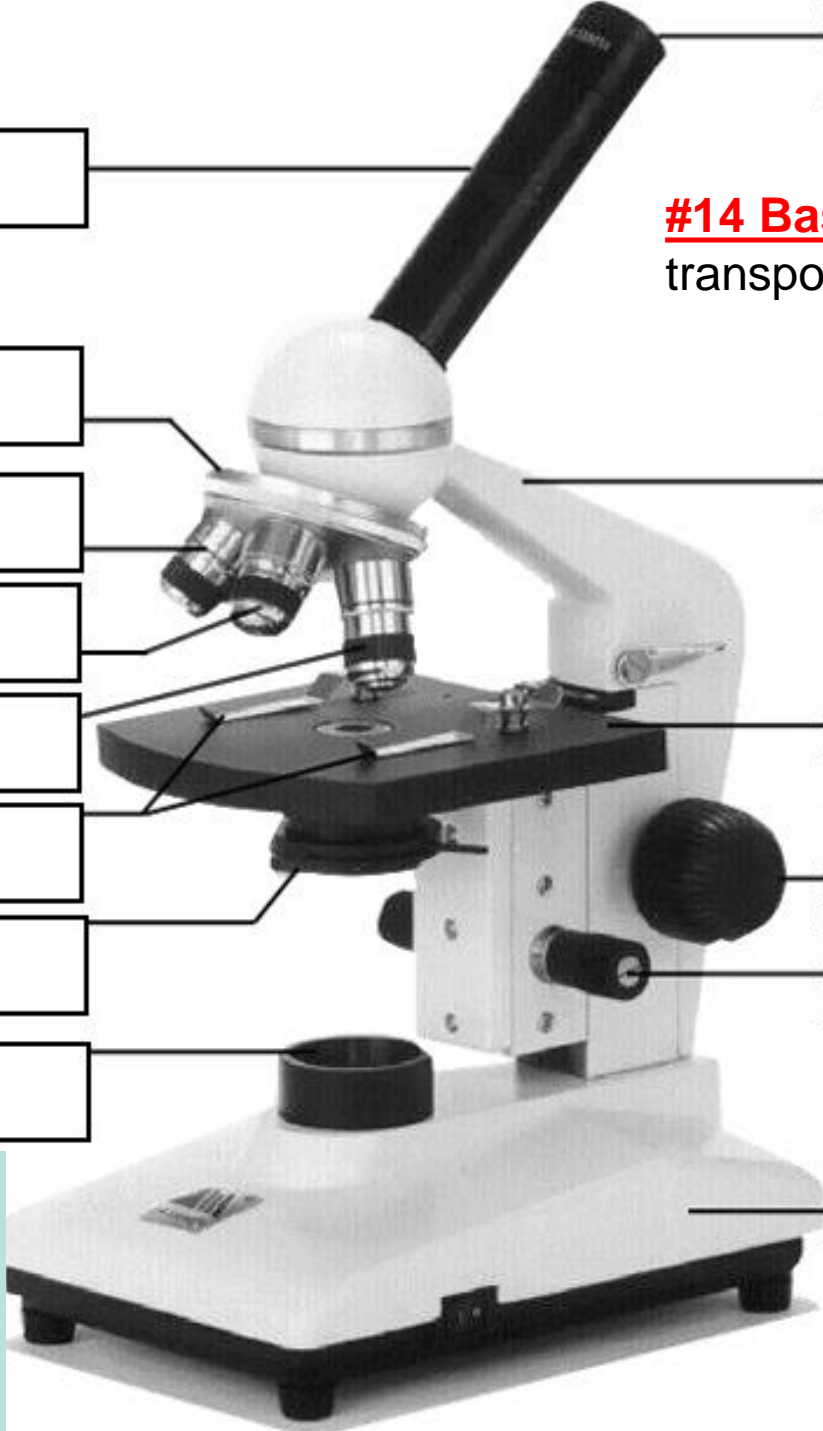
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#1 Tube – Reflects light up to the viewers eye

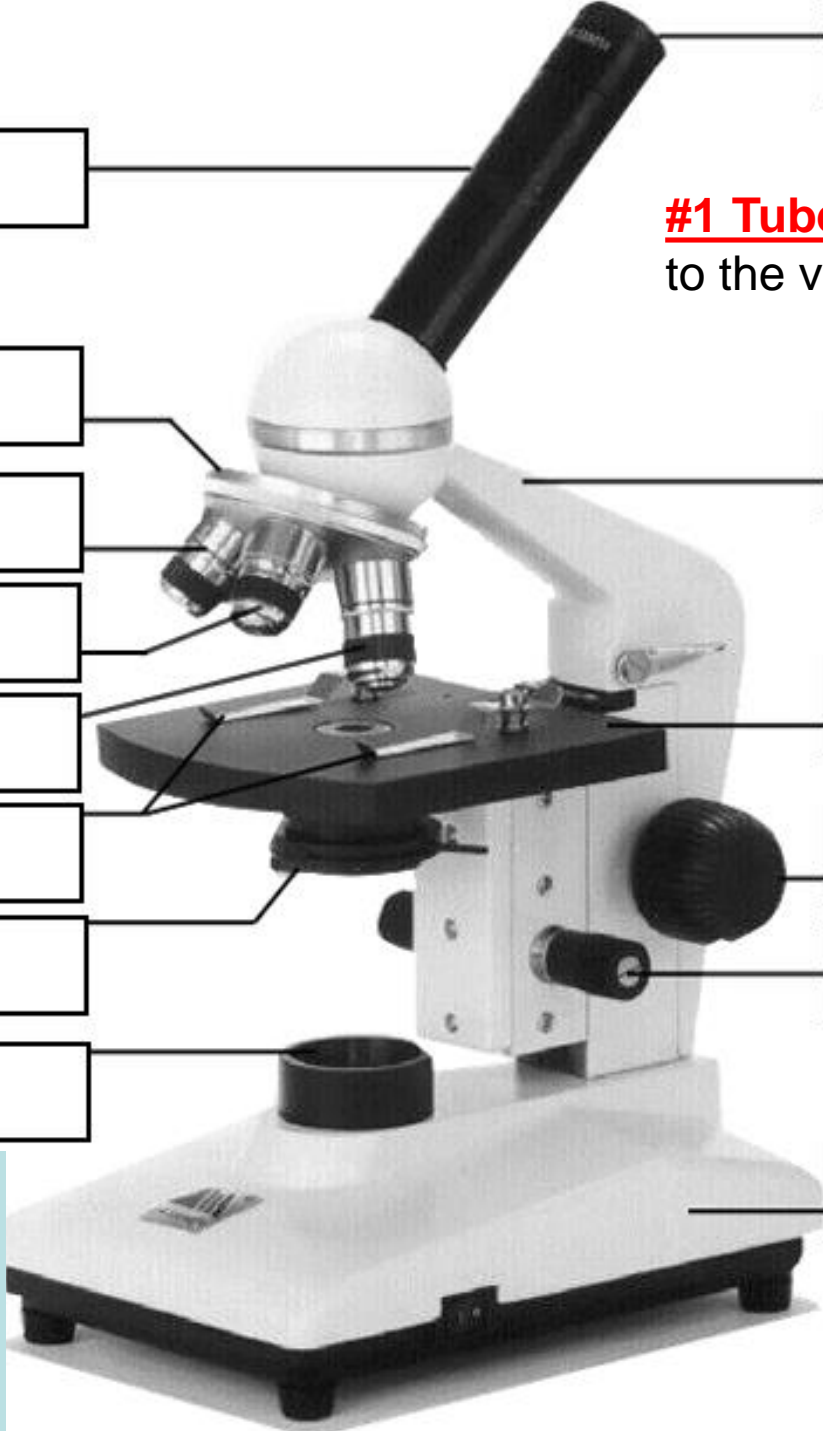
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#2 Rotating Objects –

Allows for quick change of objectives

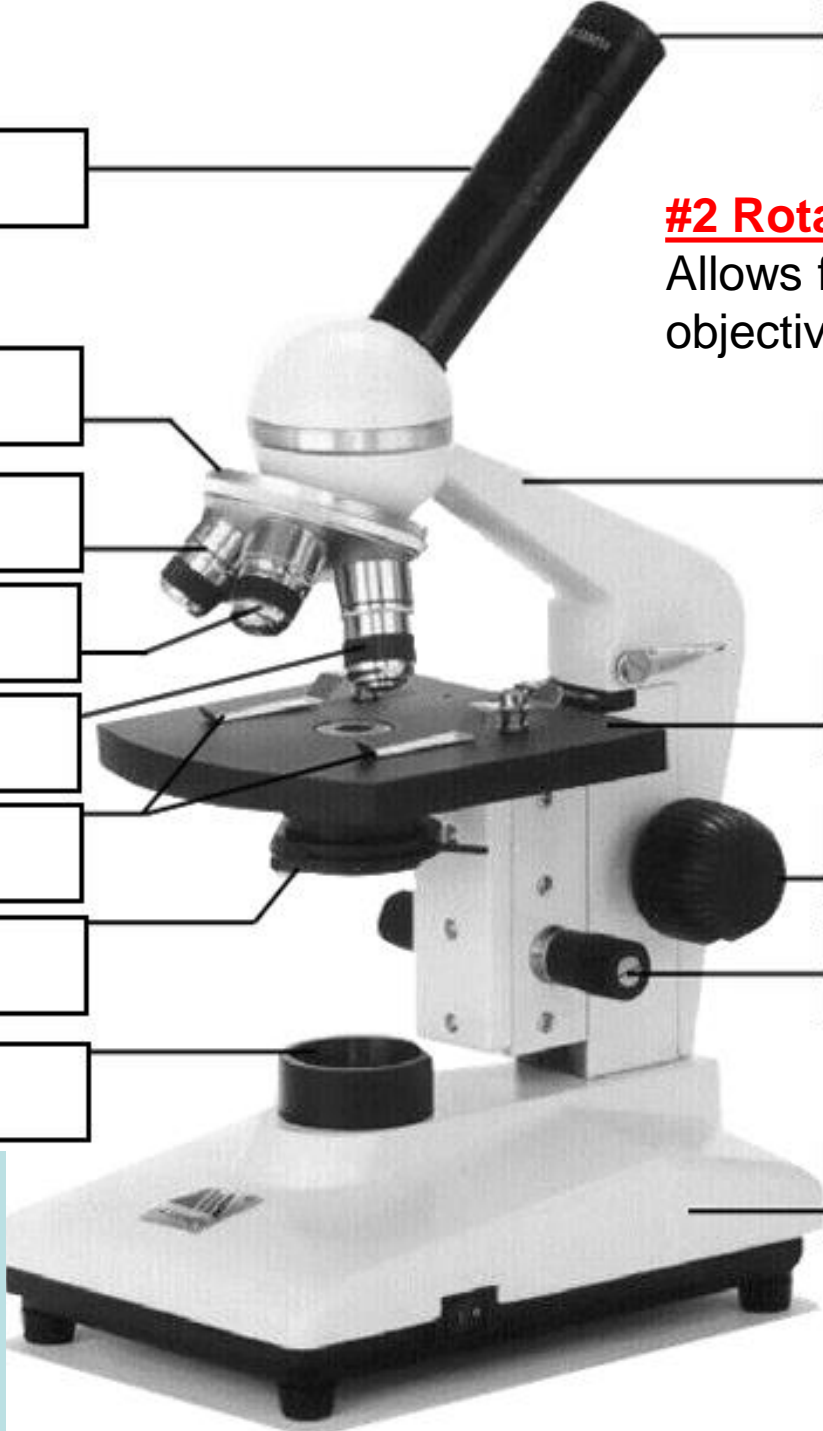
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#3 Low Power Objective

- The first lens you use when doing proper microscope work. Usually 4 X

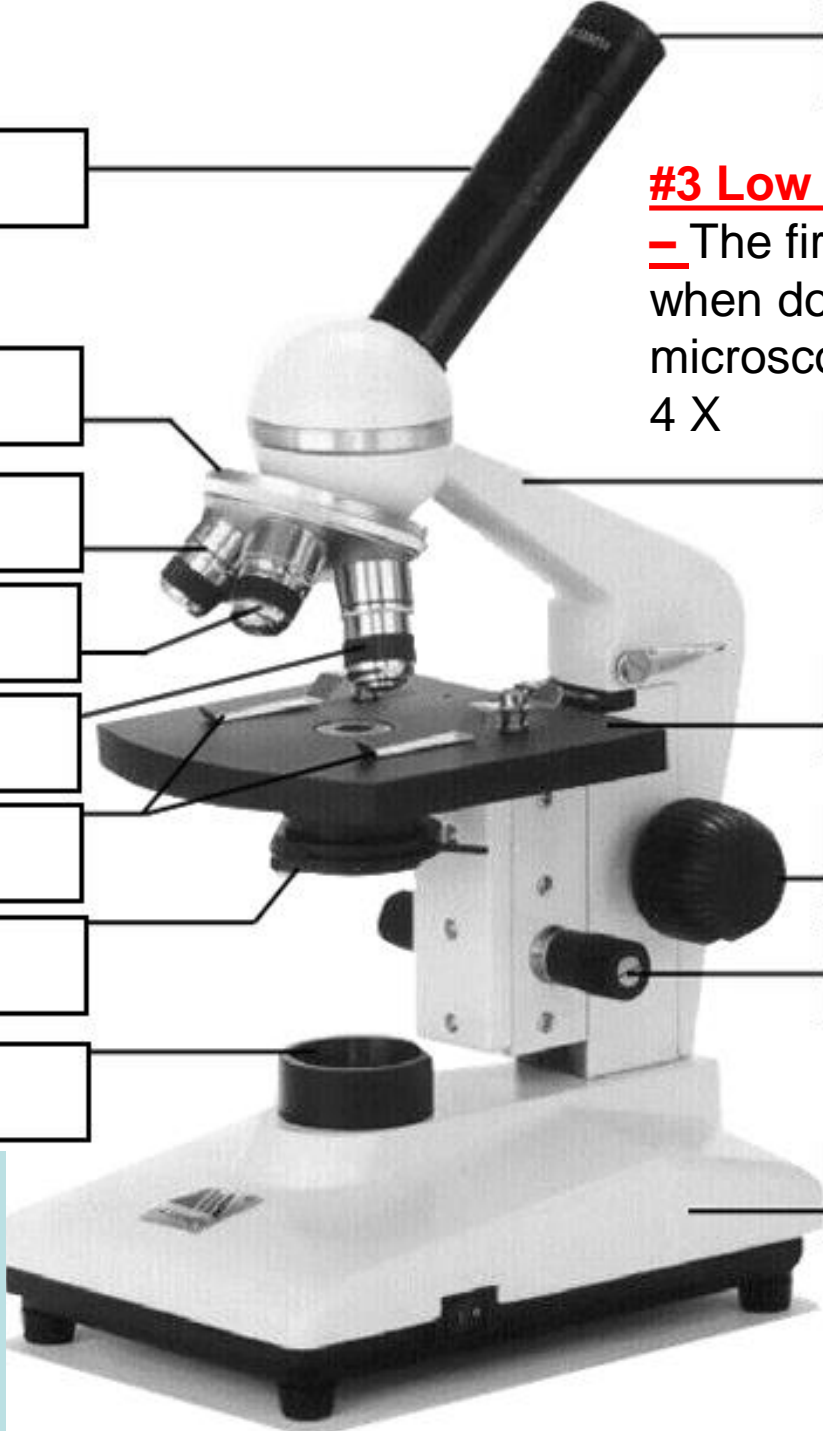
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#4 Medium Power

Objective – The second lens you use when doing proper microscope work. Usually 10 X

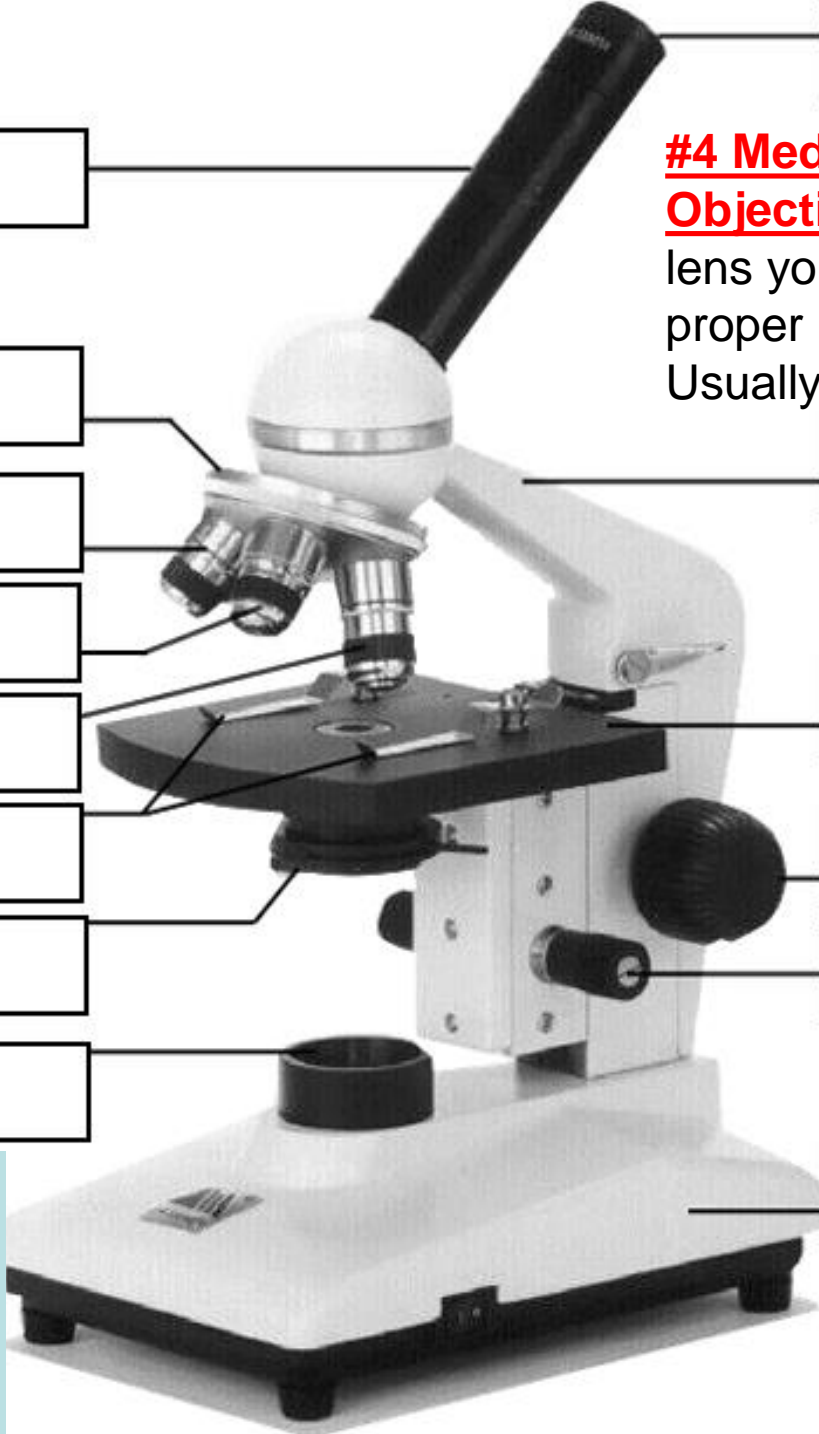
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#5 High Power Objective – The highest magnification used. Usually 43 X. NEVER use the course adjustment when using this lens.

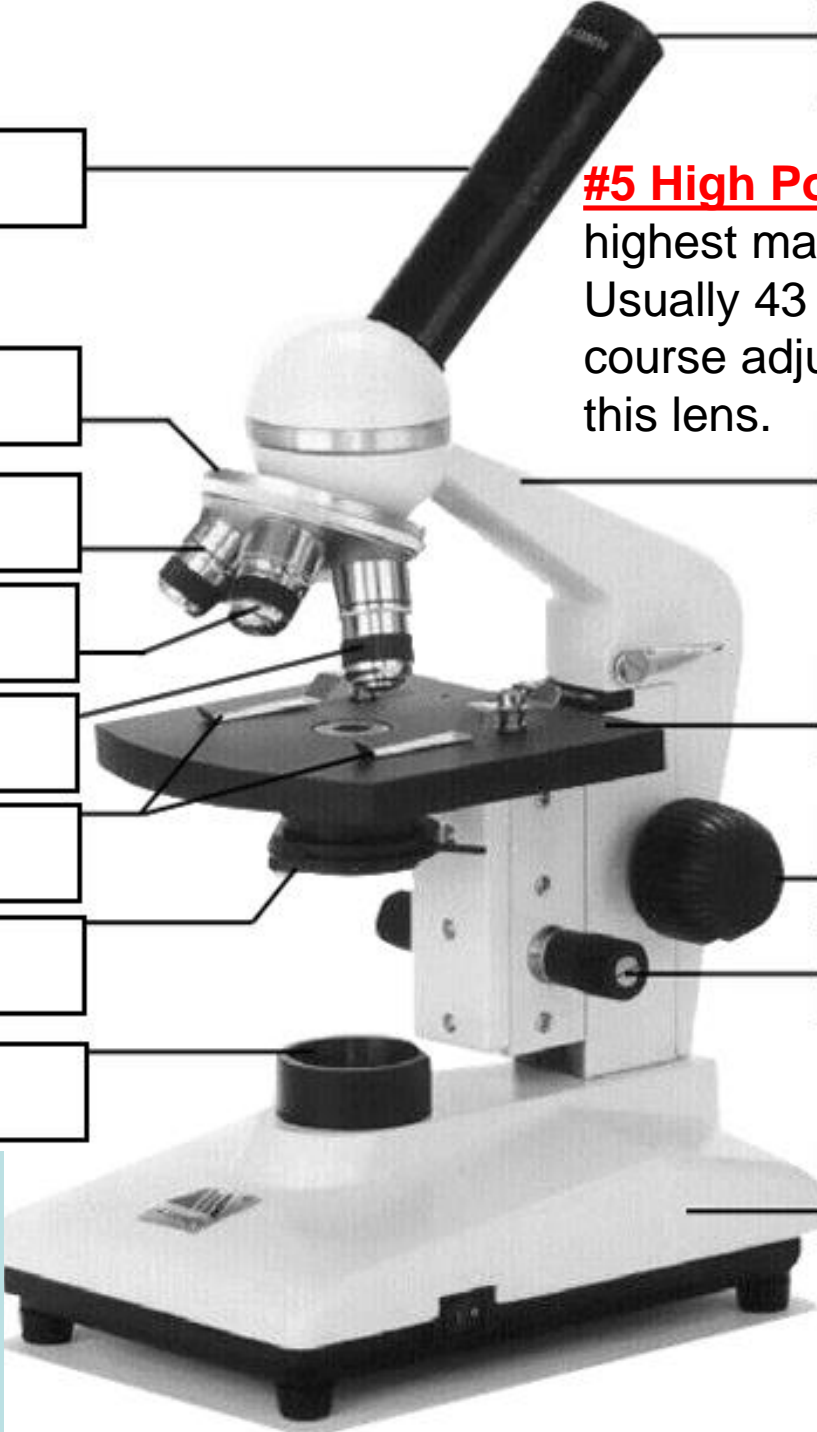
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#6 Stage Clips – Use to keep the slide in place.

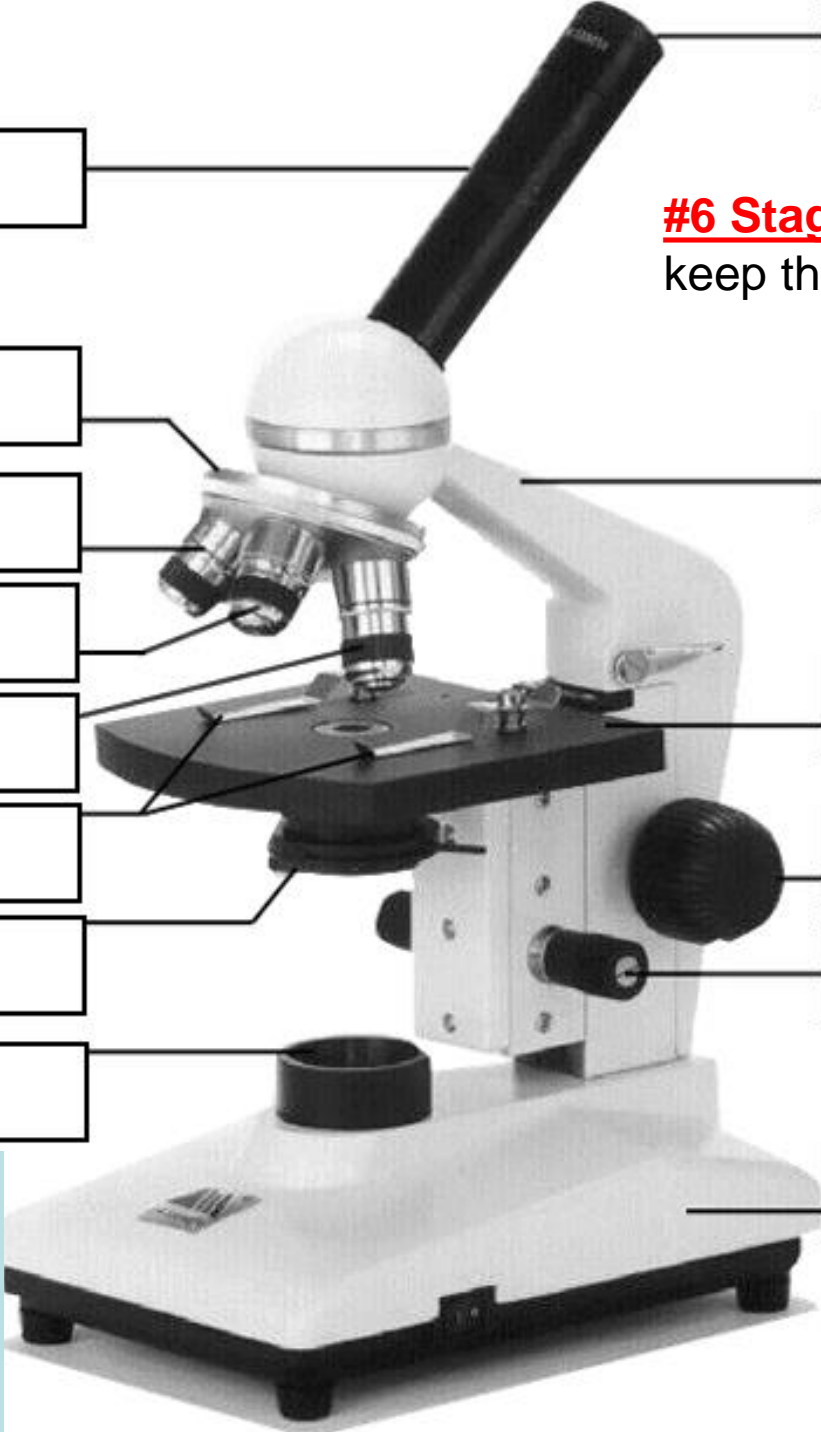
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#7 Diaphragm – Use to vary the amount of light passing through the slide. Usually it is better if the amount of light is low.

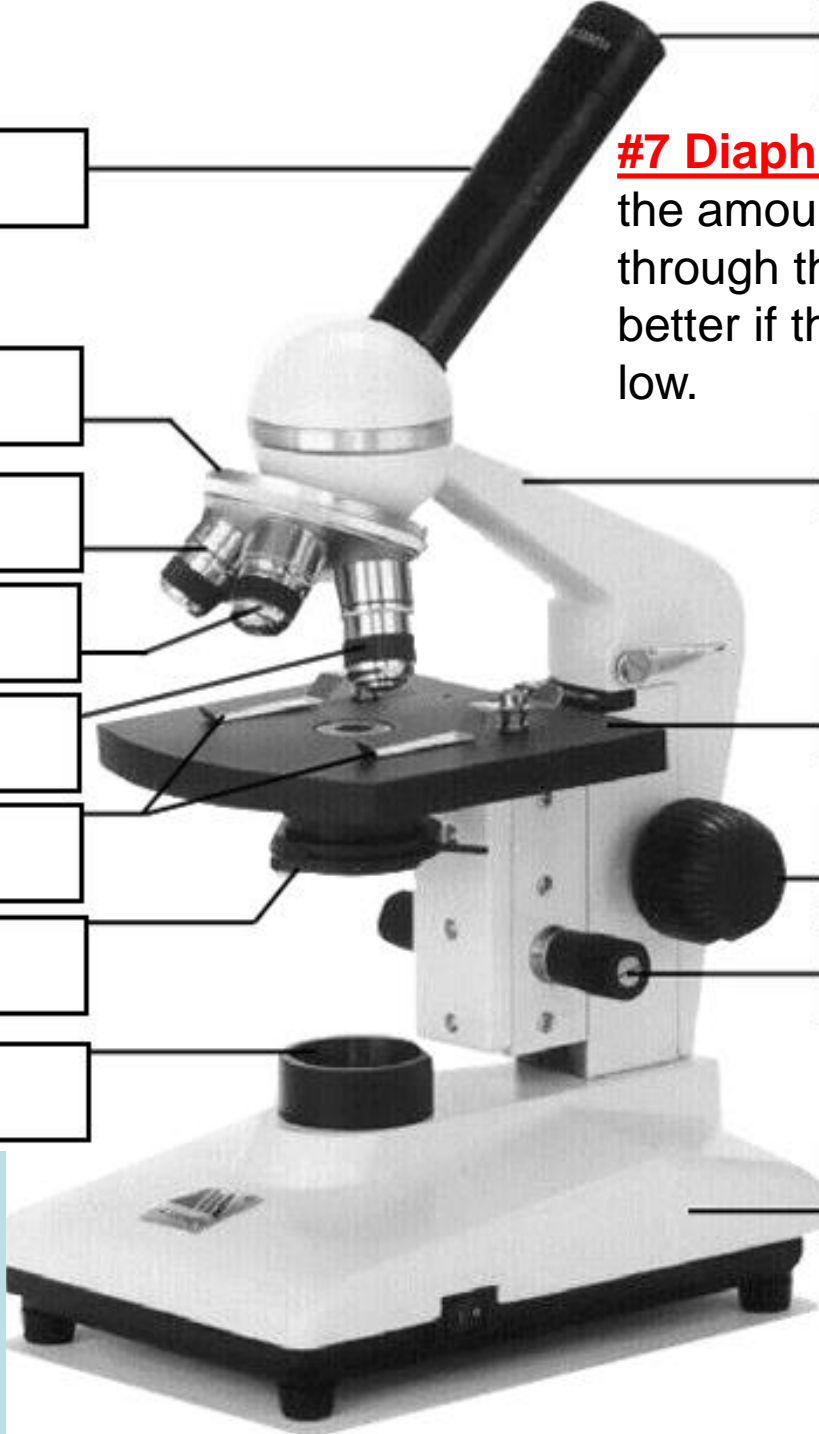
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

1.

2.

3.

4.

5.

6.

7.

8.

9.

#8 Light Source – Sends light up through the diaphragm and through the slide for viewing

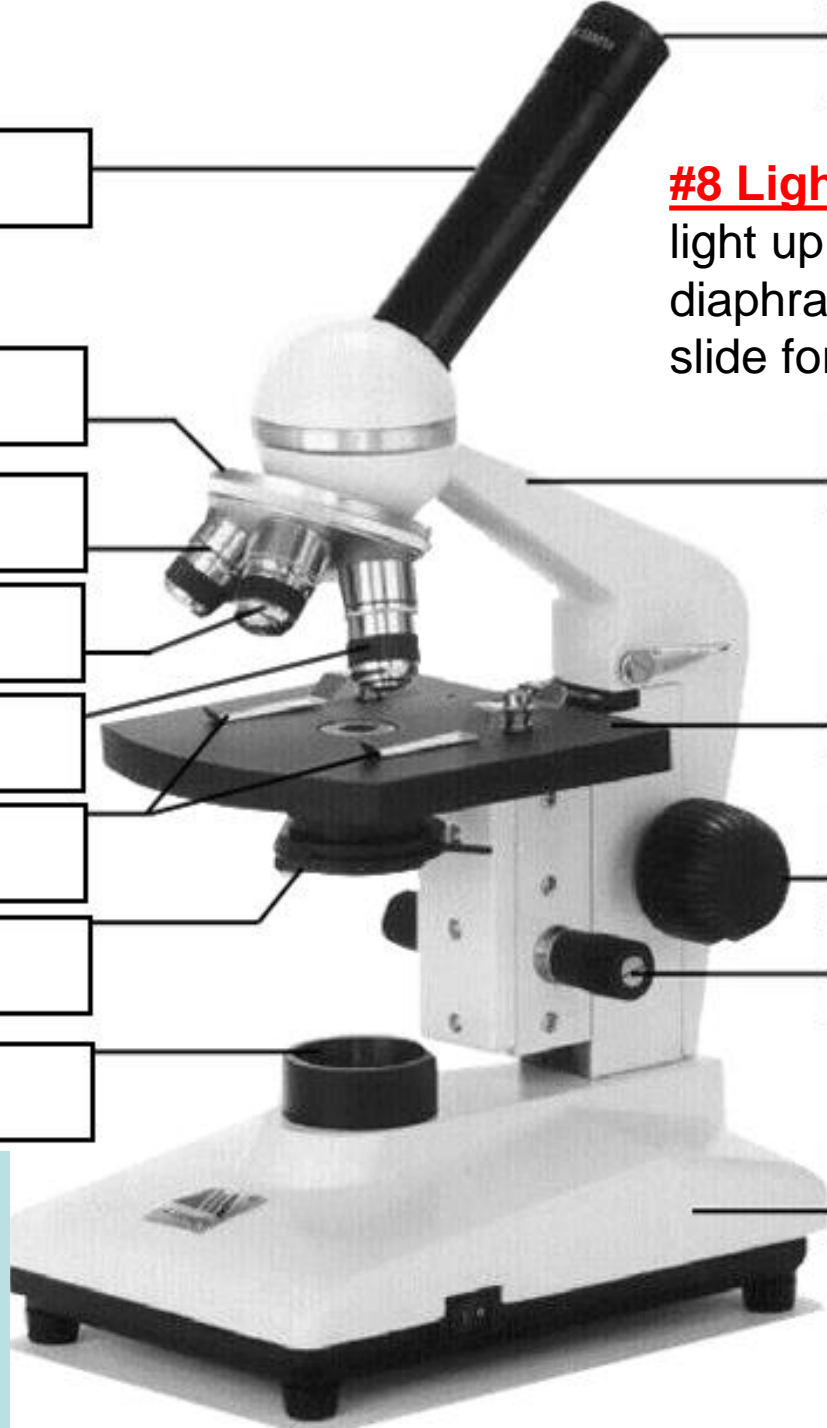
10.

11.

12.

13.

14.



[Click Here to Return to the Main Slide](#)

Part of microscope

- **Eyepiece Lens:** the lens at the top that you look through.
- **Body Tube:** Connects the eyepiece to the objective lenses.
- **Objective Lenses:** Usually you will find 3 or 4 objective lenses on a microscope. They almost always consist of 4X, 10X, 40X and 100X powers.
- **Nosepiece:** This is the part that holds the objective lenses and can be rotated to change power.
- **Base:** The bottom of the microscope, used for support.
- **Arm:** Supports the tube and connects it to the base

- **Light source:** found near the base of the microscope; makes the specimen easier to see.
- **Stage:** The flat platform where you place your slides.
- **Stage clips:** found on the stage; hold the slides in place.
- **Diaphragm:** rotating disk under the stage; different sized holes vary the intensity and size of light that is projected upward into the slide.
- **Coarse adjustment knob:** large, round knob on the side of the microscope used for focusing the specimen; it moves the stage up and down.
- **Fine adjustment knob:** small, round knob on the side of the microscope used to fine-tune the focus of your specimen after using the coarse adjustment knob.

How a Light Microscope Works

1. Use lenses to make small objects appear larger
2. Compound light microscope: Two lenses separated by a tube
3. Lenses magnify an object by bending the light that passes through the lens
4. **Magnification:** ability to make things **appear** larger than they are
5. **Resolution:** fineness of detail that can be seen in an image



