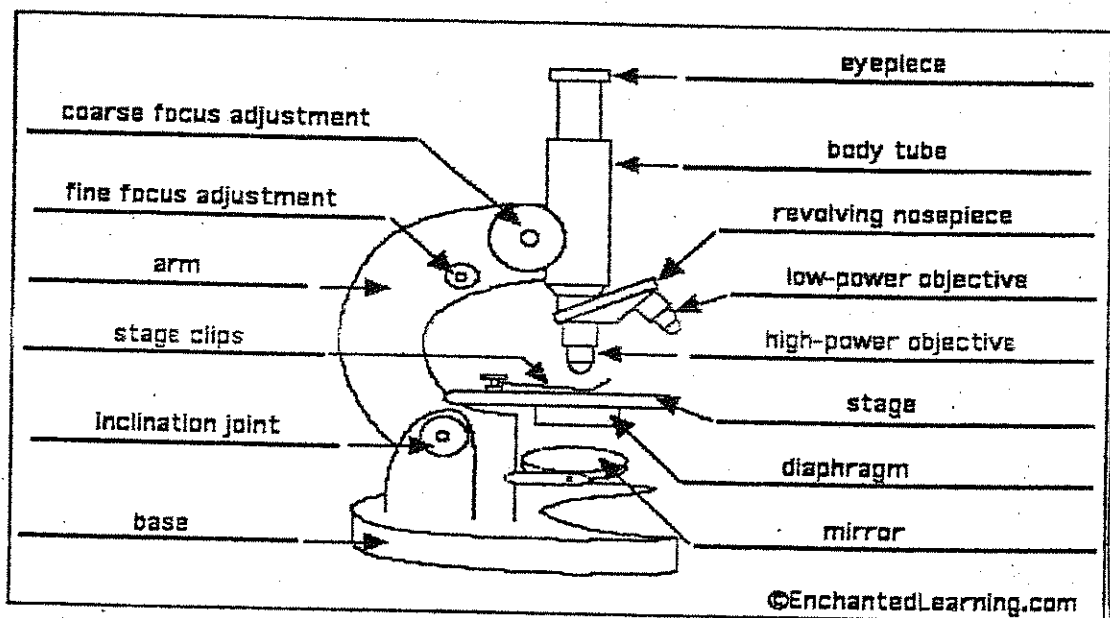


Name: _____ Period: _____ Date: _____

Microscope Investigation 1:
Introduction to the Microscope and the "Field of View"

Part 1: The Parts of a Microscope



arm - this attaches the eyepiece and body tube to the base.

base - this supports the microscope.

body tube - the tube that supports the eyepiece.

coarse focus adjustment - a knob that makes large adjustments to the focus.

diaphragm - an adjustable opening under the stage, allowing different amounts of light onto the stage.

eyepiece - where you place your eye.

fine focus adjustment - a knob that makes small adjustments to the focus (it is often smaller than the coarse focus knob).

high-power objective - a large lens with high magnifying power.

inclination joint - an adjustable joint that lets the arm tilt at various angles.

low-power objective - a small lens with low magnifying power.

mirror (or light source) - this directs light upwards onto the slide.

revolving nosepiece - the rotating device that holds the objectives (lenses).

stage - the platform on which a slide is placed.

stage clips - metal clips that hold a slide securely onto the stage.

Part 2: Focusing the Microscope:

1. Make sure your microscope is in LOW power.
2. Put the prepared slide onto the stage of the microscope.
3. Focus image using COARSE adjustment.
4. Focus image using FINE adjustment.
5. Put microscope in HIGH power.
6. Focus using FINE adjustment.
7. Put microscope back into LOW power to remove slide.

*****NEVER use COARSE adjustment in HIGH power*****

Part 3: the Field of View

*****What you look at through the eyepiece of a microscope is called the field of view*****

1. Take a look through the eyepiece of a microscope. What shape is the view in your microscope?

-
1. Now take a magazine and cut out a LOWERCASE LETTER "e."
 2. Place the cut out on a slide and cover slip over top.
 3. Put your slide on the microscope and focus according to the rules.
 4. Draw what you see in high and low power.

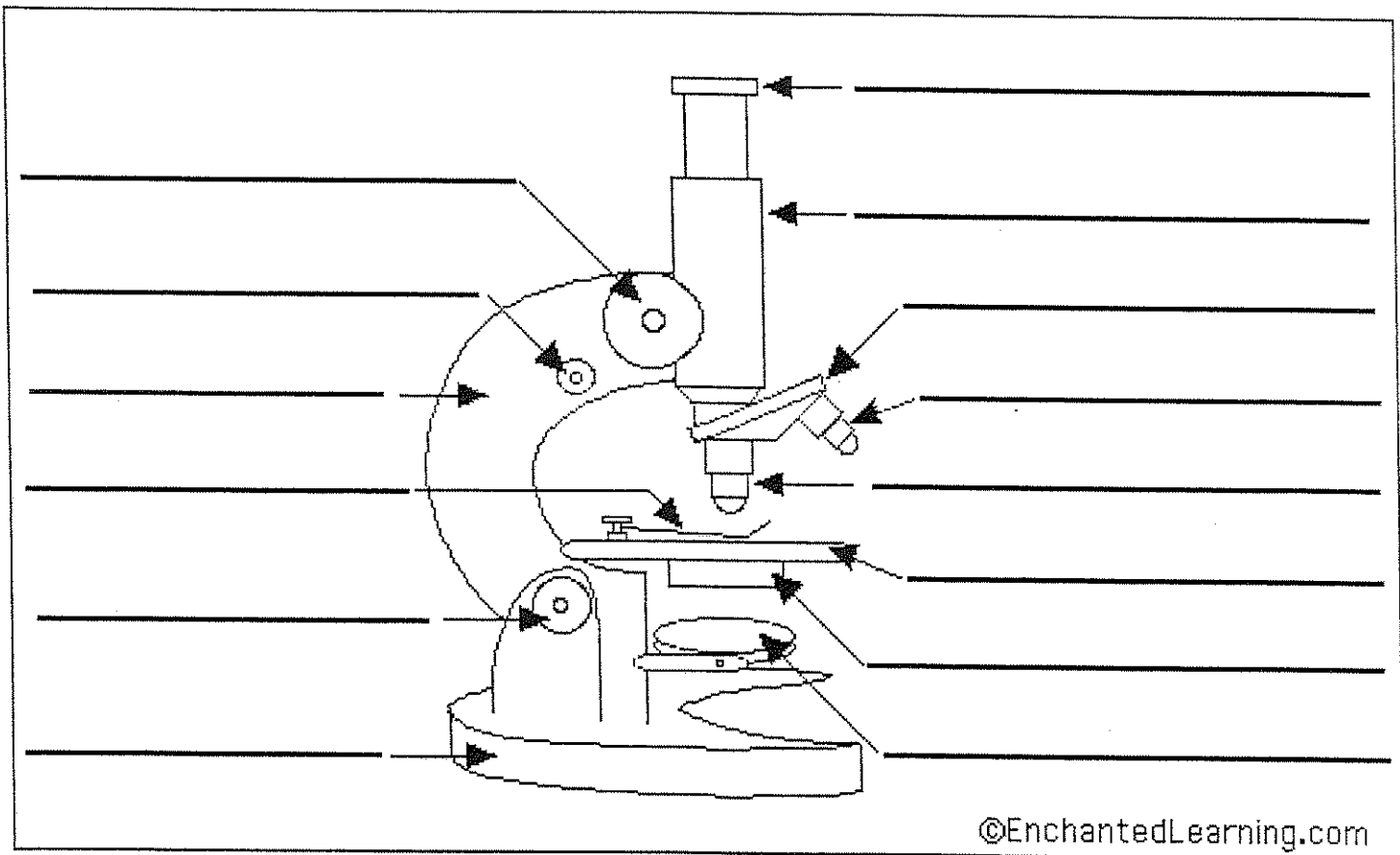
Low Power:

High Power:

2. What is the relationship between the orientation of the object on the stage and the appearance of the object in the field of view?

3. What is the relationship between the movement of the slide on the stage and the movement of the image in the field of view?

Label the parts of the microscope



- arm
- base
- body tube
- coarse focus adjustment
- diaphragm
- eyepiece
- fine focus adjustment

- high-power objective
- inclination joint
- low-power objective
- Light source (or mirror)
- revolving nosepiece
- stage
- stage clips

Microscope Troubleshooting

Problem: Everything is dark.

1. Make sure the microscope is plugged in.
2. Make sure the power switch is on.
3. Make sure the objective lens is snapped into position.
4. Make sure the light-source control is set correctly.

Problem: The image is blurry on all powers.

1. Clean the microscope's ocular lens using lens paper.
2. Clean the slide with tissue, paper towel, or cloth.

Problem: The image is blurry only on a particular power.

1. Clean the blurry objective lens using lens paper.

Problem: I can't find anything on low power.

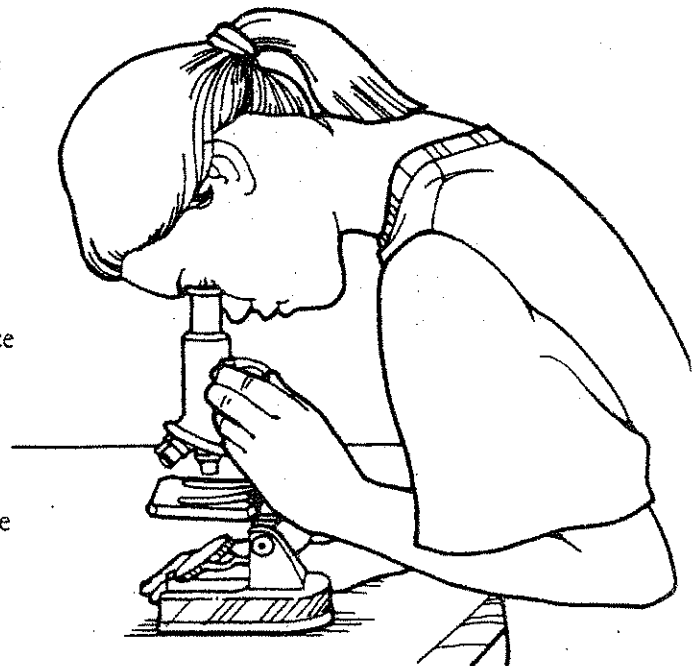
1. Center the cover slip of the slide under the objective lens.
2. Adjust the focus using the coarse-adjustment knob.

Problem: When I switched to a higher power, everything disappeared.

1. Return to the previous (lower power) objective lens.
2. Center the object in the field of view.
3. Adjust the focus using the fine-adjustment knob.

Viewing Prepared Slides

1. Rotate the objective lens to the lowest power.
2. Place the slide on the stage with the label side up and the cover slip centered under the objective lens.
3. Use the coarse-adjustment focus knob to focus on the specimen.
4. If you cannot see anything, move the slide slightly while viewing and focusing.
5. If nothing appears, reduce the intensity of the light source and repeat step 4.
6. Once the object of interest is in focus on low power, center it in the field of view by moving the slide.
7. Rotate the objective lens to medium power and adjust the fine-adjustment knob only.
8. If needed, rotate the objective lens to high power and adjust the fine-adjustment knob.

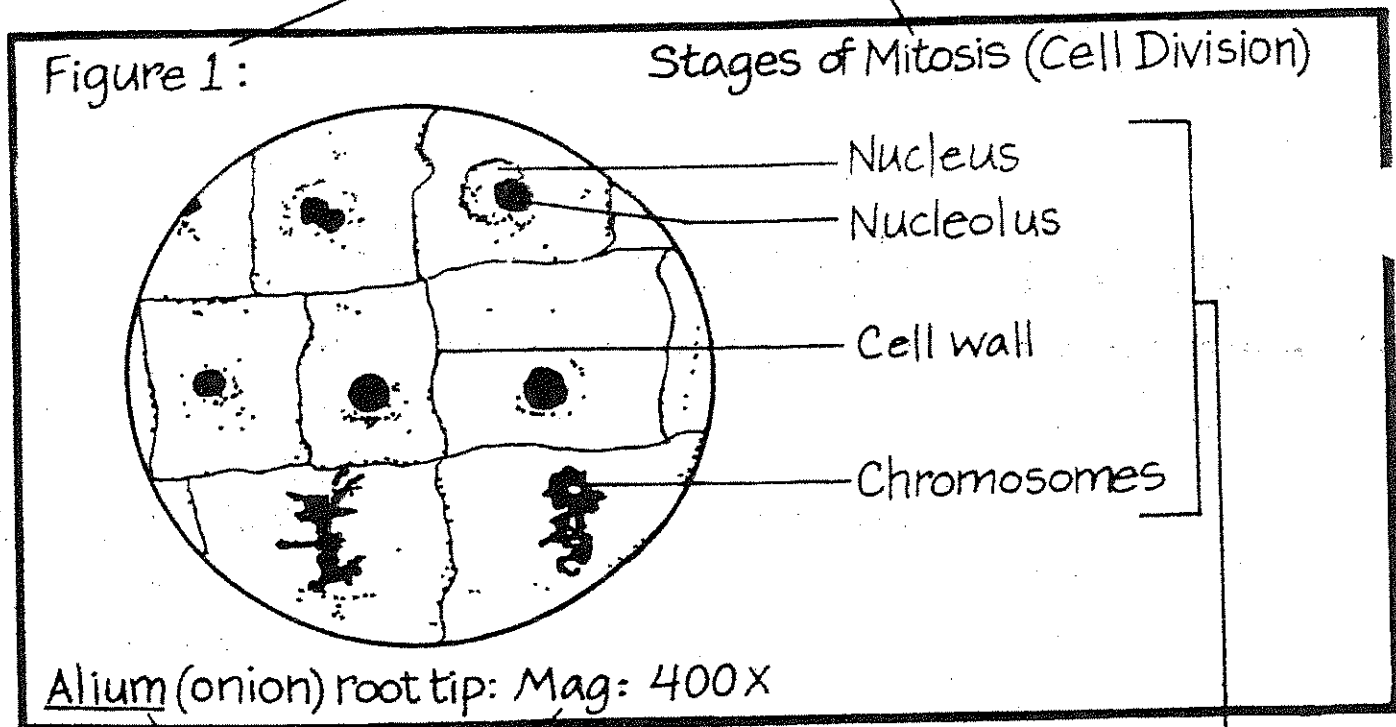


Microscope Drawings

Maintain a standard format when drawing what you have observed under a microscope. This helps keep your drawings understandable and improves the overall appearance of your lab reports and science journals. To keep your work consistent, follow this format for drawing objects seen through a microscope.

Complete the drawing in pencil.

Include a figure label and subject title above the drawing.



Include the species name and viewing magnification below the drawing. (Viewing magnification is found by multiplying the ocular lens power by the objective lens power.)

Label all relevant parts to the right of the drawing. Connect the words to the picture with straight lines.