Lab 1 Microscope parts and functions

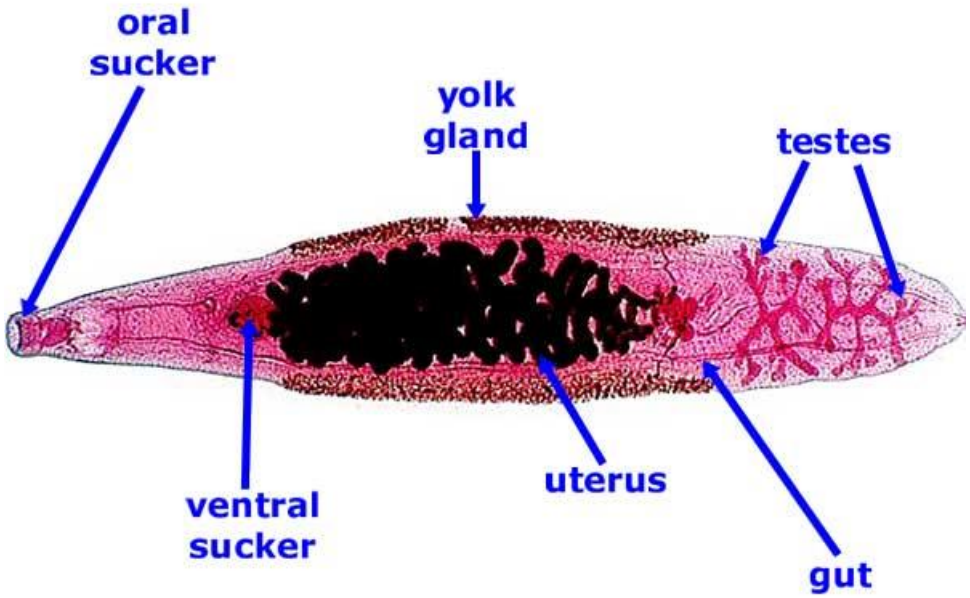
Name _____ Seat number _____

Objectives:

1. *Background on the fluke worm*
2. *Parts of a microscope*
3. *Identify parts of a fluke*
4. *Questions*

A. Background on the fluke worm

Clonorchis sinensis, the Chinese liver fluke, is a human liver fluke. This parasite lives in the liver of humans, and is found mainly in the common bile duct and gall bladder, feeding on bile. These animals, which are believed to be the third most prevalent worm parasite in the world, are endemic to Japan, China, Taiwan, and Southeast Asia, currently infecting an estimated 30,000,000 humans. Fluke worms cause human suffering when the larvae penetrate human skin and travel through the bloodstream. These worms migrate to the intestines where they attach with an oral sucker and mate.



Fluke worms are hermaphrodites. A hermaphrodite is an organism that has reproductive organs normally associated with both male and female sexes. This enables a form of sexual reproduction in which both partners can act as the "female" or "male." Sperm from a fluke's testis fertilizes eggs in a fluke's uterus. Eggs are released out of the fluke's posterior end and into human feces. These eggs may enter water and thereby gain entry into another human. This is common in the rice fields of Asia.

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B. Parts of a microscope

Base- solid foundation of the microscope

Arm- angular portion that extends upward from the base

Stage- (mechanical stage) -adjustable platform on which the microscope slide is placed **Mechanical stage knobs**- move the stage left or right and forward and backward.

Stage clips- metal clips on the stage that hold the slide in place

Condenser- iris diaphragm located directly under the stage opening; regulates the intensity of the light

Condenser adjustment knob- (*not seen in drawing*) knob located under the condenser that raises or lowers the condenser in order to alter the illumination

Iris diaphragm lever- located on the condenser and can vary between fully open and closed to alter the illumination

Light Source- located on the base, under the condenser

Power- on/off button located on the front left side of the base

Coarse adjustment knob- large knob on the arm that is used initially to bring the object into view

Fine adjustment knob- small knob on the arm for sharp focusing

Revolving nosepiece- circular attachment to the body tube that is used to change the objective lenses

Objective lenses- lenses of different magnifications are mounted on the nosepiece:

- **Scanning power** - red - 4× magnification
- **Low power** - green - 10× magnification
- **High power** - blue - 40× magnification
- **Oil immersion** - white - 100× (to be used only when instructed; requires oil on the slide)

Ocular- eyepiece; lenses through which the specimen is viewed. 10X magnification

Total Magnification- equals objective magnification x ocular magnification

Variable light control- dial on the right side of the base that allows different intensities of light to shine from the light source.

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Label the designated parts of the compound microscope

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

8) _____

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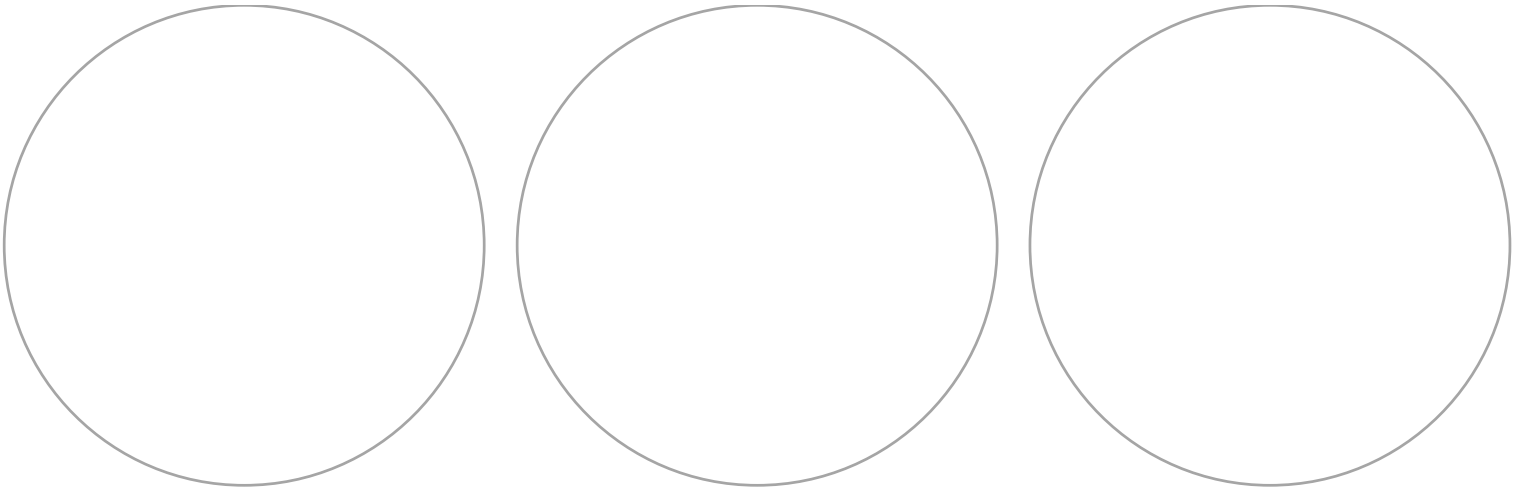
C. Identify parts of a fluke

1. Find a microscope that matches the seat number where you are sitting.
2. Bring a fluke slide to your desk, clip it onto the stage and search for the worm.
3. Use the diagram provided to help you draw and find the parts of the fluke.
4. Observe the fluke at 40× total magnification (4× objective)
    i. Label the following parts:
        1. Oral and ventral suckers
        2. Uterus and testes
        3. Yolk sac
        4. Guts
    ii. Determine the length of the Fluke that is visible in each view:
        1. _____ mm

Human Liver Fluke – 40× total magnification
(Write labels on the OUTSIDE of the circles)



Front Middle End

When putting away the microscope:

Remove slide from stage

Scanning lens is rotated into place above stage

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D. Questions:

1) What do you call an organism that has both ovaries and testes?

2) How do fluke worms get into a human being?

3) What is the total magnification with the 40X objective lens?

4) What objective lens should you start with every time you use the microscope?

5) Should you use the coarse adjustment knob as you increase the magnification, after you have focused on the scanning lens (40X total magnification)?