

Lab One  
**Eukaryotic Pathogens**



### ACTIVITY ONE

#### **Wet Mount Slide Preparation**

Each person will prepare a stained slide of his/her own cheek cells, emphasizing visible eukaryotic cell structures. Each table will also view infected snail vectors and coax out/view eukaryotic parasites from within; this should be set up first as it takes 60 minutes for parasites to emerge.

#### **(1) Snail Parasites - Coaxing Them Out/Monitoring**

Each table will place 2-3 snails in a finger bowl of seawater either in light for 60 minutes. Monitor every 15 minutes using a dissecting scope and/or naked eye. After 60 minutes, proceed to (3) below.

#### **(2) Inner Cheek Cells/Stained Wetmounts - Work Individually**

Because you lack pigments like chlorophylls, your cells need to be stained to see. Obtain a clean slide and place a TINY drop of methylene blue in the center. Use a sterile toothpick to GENTLY rub (not poke or draw blood) the inside of your cheek. Place your cells into the stain, mixing to transfer to the slide. Place a coverslip over the mixture and view/draw using 40X (possibly 100X).

#### **(3) Unstained Snail Parasite Wetmounts - SHOULD BE LAST THING YOU DO TODAY!**

Each person prepares 1 slide. Using a plastic disposable pipette, carefully suck up visible parasites. This means pre-squeezing the pipette, holding that position, and going in gently to withdraw JUST the parasite. You should be able to SEE something in the pipette as well as on the slide! Transfer 1 small drop to a clean slide and place a coverslip thereon (make sure it is not floating/moving). View for flatworms, larvae and/or protozoa using your compound light microscope.

### ACTIVITY TWO

#### **Assignment - Prepared Slides For Today**

(1) Typical Nematode and Schistosoma Worms. View/draw at either 10X or 40X objective.

(2) Although not yet covered, you will also view protozoa that cause important blood diseases: extracellular Trypanosoma; and intracellular Plasmodium (malaria). These require oil/100X objective.

### ACTIVITY THREE

#### **Arthropod Vectors and Classification**

In this exercise, you will explore representative insect vectors using your naked eye, a ruler, a dissecting microscope and/or compound light microscope.

#### **Assignment - Prepared Slides for Today**

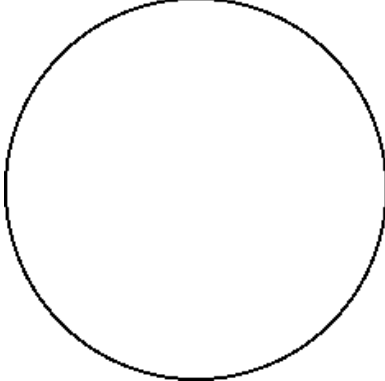
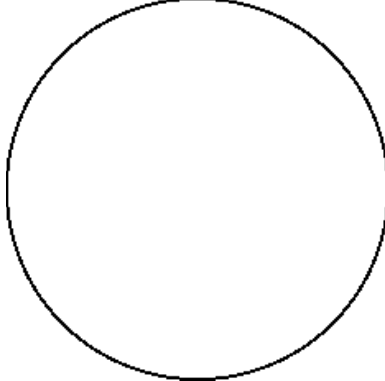
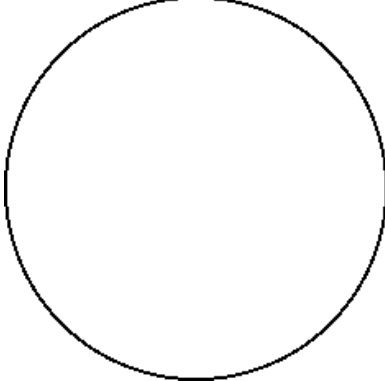
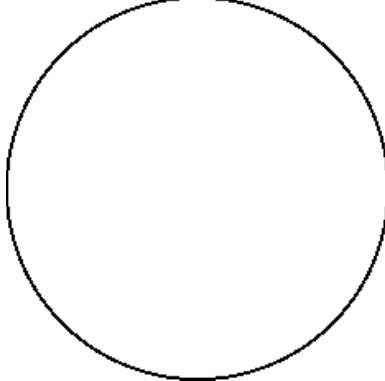
Mosquito Life Cycle (first and last stages), Tse Tse Fly/Glossina, Assassin Bug/Triatominae

**Honors Biology Worksheet - 30 pts.**

Each person turns in his/her own worksheet; DUE October 12 at the beginning of class.

Name \_\_\_\_\_

**Prepared Slides - Multicellular Parasites**

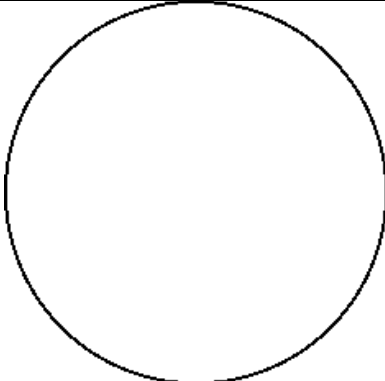
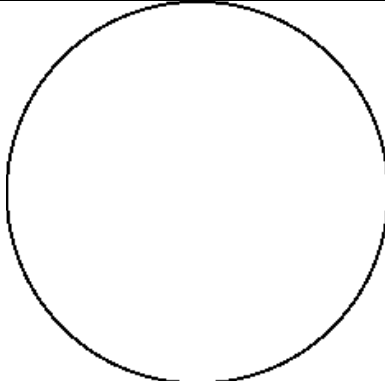
 <p>Nematode; Magnification: Name 3 nematodes and respective diseases:</p>	 <p><u>Schistosoma</u> Adult; Magnification: Where is this form in host during disease?</p>
 <p><u>Schistosoma</u> Eggs; Magnification: Where is this form in host during disease?</p>	 <p><u>Schistosoma</u> Sporocyte; Magnification: Where is this form in host during disease?</p>

Advanced Schistosoma Question: Type/Print Answers on Separate Pages

Download on-line images of the following other Schistosoma stages and insert into a Word document that describes each, emphasizing where it is found and what its role is in disease: miracidiae, cercariae. When finished, place these terms - plus all above stages viewed in the correct order.

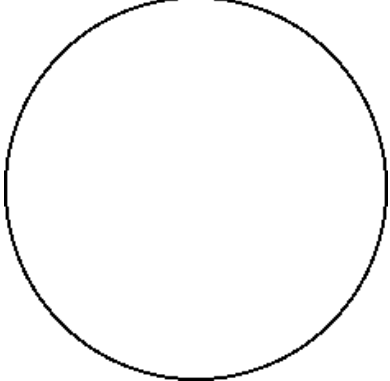
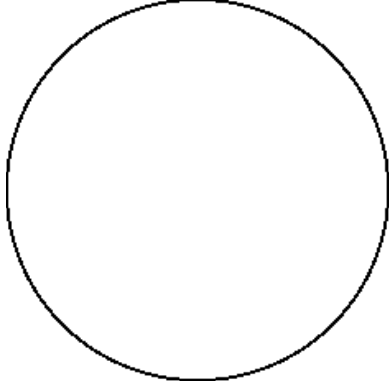
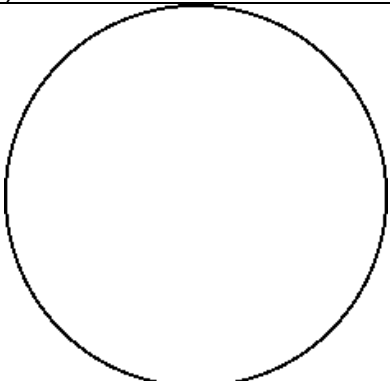
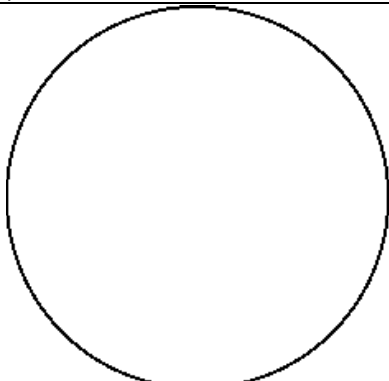
**Prepared Slides – Protozoa**

Using black pencil, point to agent in each drawing.

 <p><u>Trypanosoma</u>, 1000X Total Magnification Motility: Disease(s):</p>	 <p><u>Plasmodium</u>, 1000X Total Magnification Motility: Disease(s):</p>
--	--

## Arthropod Vectors

*If microscope used, indicate total magnification - BUT show as much of vector as possible*

	
<p>Assassin Bug, Magnification:  <u>Dimensions:</u>                  Length (mm) =                  Width (mm) =</p>	<p><u>Glossina</u>, Magnification:  <u>Dimensions:</u>                  Length (mm) =                  Width (mm) =</p>
	
<p>Mosquito Early, Magnification:  <u>Dimensions:</u>                  Length (mm) =                  Width (mm) =</p>	<p>Mosquito Adult, Magnification:  <u>Dimensions:</u>                  Length (mm) =                  Width (mm) =</p>

### Arthropod Biology and Classification Questions:

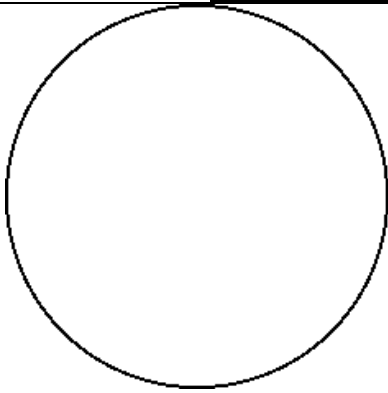
(1) Complete the following about agents above - based on eukaryotic pathogens described in lecture.

	Agent(s) Carried	Disease(s) Transmitted	Class	Order
<u>Glossina</u>				
Assassin Bug				
Mosquito				

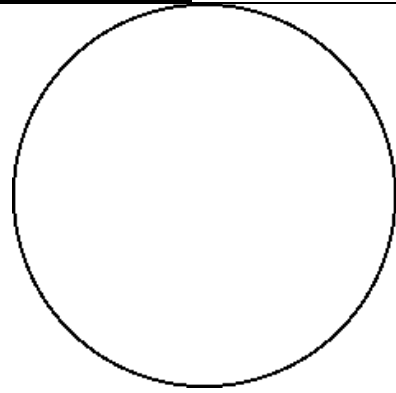
(2) Using all eukaryote-based lectures, name THREE other insect vectors not viewed in lab - AND the agents they carry, the diseases they transmit. Type/Print answers on separate pages.

(3) Develop a description of the arthropod phylum that reflects my coverage of other animal phyla from lecture. Provide 1 distinguishing feature for each different order you named above. Type/Print answers on separate pages.

### Wet Mounts - Cheek Cells and Snail Parasites



My Cheek Cell; Magnification:



My Snail Parasite; Magnification:

Snail Biology and Classification Question: *Type/Print Answers on Separate Pages*

Classify snails to the order level and prepare a phylum description that reflects my coverage of other animal phyla from lecture.