Names: _____
_____
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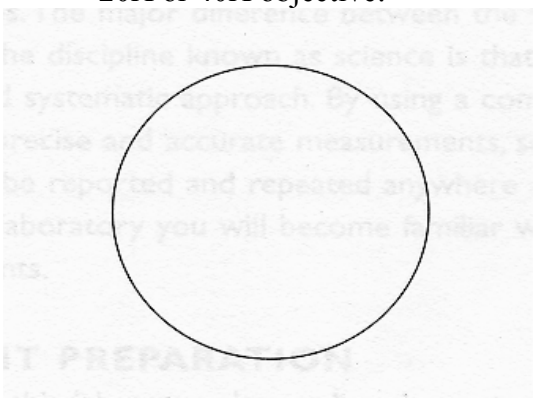
Datum Sheet for Labs 9 and 10
Chemotaxis and Phagocytosis in *Tetrahymena*,

A. Visualization of *Tetrahymena* by Light Microscopy

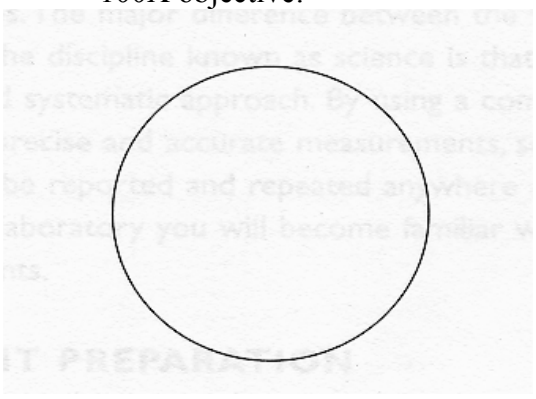
1. Using the following circles to represent the microscopic fields, draw examples of the *Tetrahymena* cells in the wet mount as seen with the 20X or 40X objective and the 100X oil immersion objective. **Indicate the optical system, total magnification, make a drawing of what you see, and write down any observations you may have.** (4 points)

20X or 40X objective:



_____optics _____X

100X objective:



_____ optics _____X

2. Give the individual and mean values for the length and width of 10 *Tetrahymena* cells **in ocular micrometer units** as seen with the 20X or 40X objective. (2 points)

Cell	Length (Ocular Units)	Width (Ocular Units)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Mean		

3. Calculate the mean length and width **in µm** using your conversion factor (From Microscopy lab). (2 points)

length:

width:

C. Analysis of Chemotaxis in *Tetrahymena*

1. Record the cell concentrations for each of your replicates here. (2 points)

Extract	Cell Concentration (cells/ml)	
	Replicate 1	Replicate 2
Peptone Broth		
Tris		
Undilute Extract		
1:10 Dilution		
1:100 Dilution		
1:1000 Dilution		

2. Fill in the following table with your data for the chemotactic response observed for each sample. (2 points)

Extract	Chemotactic Response (%)		Average	Standard Deviation
	Replicate 1	Replicate 2		
Tris				
Peptone Broth				
Undilute Extract				
1:10 Dilution				
1:100 Dilution				
1:1000 Dilution				

3. Attach to this datum sheet a graph showing the chemotactic response for each test sample. What conclusions can you draw from these data? (2 points)

C. Analysis of Chemotaxis in *Tetrahymena*

Fill in the following table with your data for the number of vacuoles observed for each sample. (6 points)

India Ink Concentration - 1%

time	number of cells	mean	SD	SE
0	_____	_____	_____	_____
10	_____	_____	_____	_____
20	_____	_____	_____	_____
30	_____	_____	_____	_____

India Ink Concentration - 3%

time	number of cells	mean	SD	SE
0				
10				
20				
30				

India Ink Concentration - 10%

time	number of cells	mean	SD	SE
0				
10				
20				
30				

D. Attach to this datum sheet your graph of these data. (2 points)

E. Show your calculations of the Student's t test comparing the 30 minute samples in 3% India Ink and 1% India Ink. Are the samples significantly different? (4 points)

F. Show your calculations of the Student's t test comparing the 30 minute samples in 10% India Ink and 1% India Ink. Are the samples significantly different? (4 points)