FLINN SCIENTIFIC

Name_____

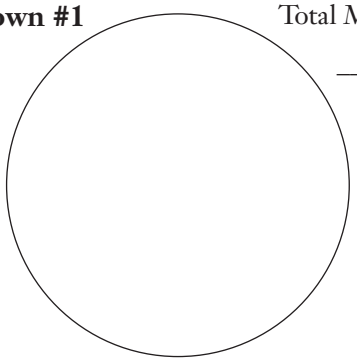
Microscope "Mystery" Worksheet

Student Drawings

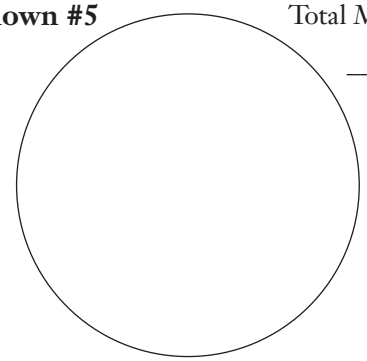
Instructions

Inside each circle on this page, sketch the objects seen on the eight numbered, unknown slides. Also record the total magnification.

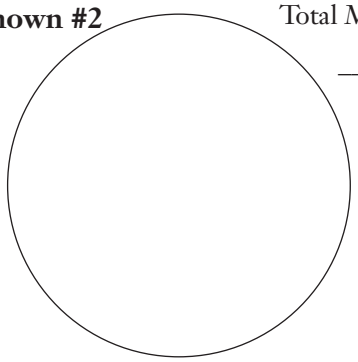
Unknown #1 Total Magnification _____



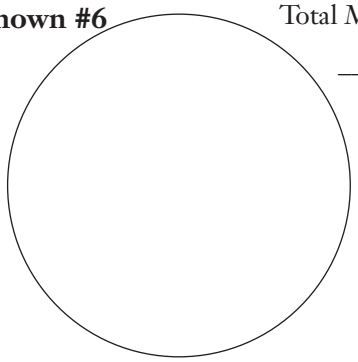
Unknown #5 Total Magnification _____



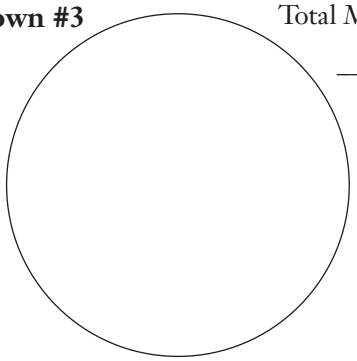
Unknown #2 Total Magnification _____



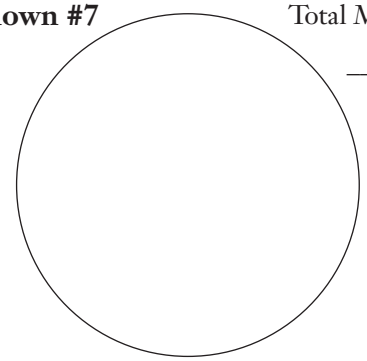
Unknown #6 Total Magnification _____



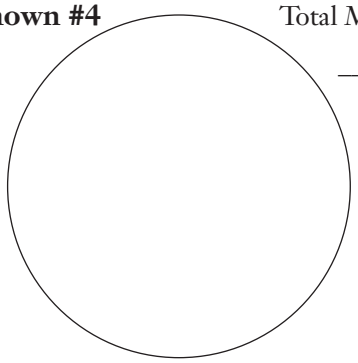
Unknown #3 Total Magnification _____



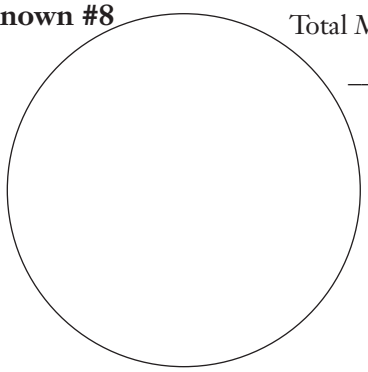
Unknown #7 Total Magnification _____



Unknown #4 Total Magnification _____



Unknown #8 Total Magnification _____



Microscope "Mystery" Worksheet (cont.)

Data Table

	Low Power	Medium Power	High Power
Objective Power			
Eyepiece Power			
Total Magnification			
Field of View (FOV—mm)			
Calculations Set Up ***(d = D/X)***			
Crystal Size—Estimated			
(mm)			
(µm)			

Post-Lab Questions

Use the information in the table above to help answer these questions. Write the answers in the spaces provided.

1. What is the total magnification of an object if a microscope's high power is 50X?

2. What would be the estimated length of a rice grain if 2.5 grains were predicted to fit end to end across a field of view (FOV) of 4.5 mm? (Record the answer in both mm and µm.)

3. Compare the size estimations of the crystals for each objective power.

   a. How close to each other are the estimated sizes for each power?

   b. Which variable in the formula, d= D/X, has the most uncertainty when it comes to estimating the size of any microscopic object? Why?

4. List one thing that all eight objects on the slides have in common. (Using *"microscopic"* or *"small"* is not allowed.)

5. Which of the eight objects on the slides did not come from something living? How do you know? (List one supporting piece of evidence.)

Slide Description and Identification

Unknown #	Description	Object ID
_____	Small, oval-shaped structures in small clumps, pairs, or individuals	*Saccharomyces* sp. (yeast)
_____	Objects have several finger-like projections	Motor neuron cells
_____	Oval or circular structures containing many smaller, dark-colored ovals	*Volvox* sp. (An alga containing chlorophyl)
_____	Thin, spiral-shaped lines that look like worms or spaghetti noodles	*Spirulina* sp. (A blue-green alga)
_____	Irregular-shaped structures packed tightly together; oblong shaped, clear areas visible within the cluster	*Sedum* leaf (Epidermal layer)
_____	Clear to white objects with rather consistent shapes	Sodium chloride crystals (salt)
_____	Pencil-shaped object with prominent dark, branching structures inside	*Planaria* (flatworm)
_____	Small, oval shaped structures with prominent dark centers	Turtle blood cells