Name Period Date

Unit 6 | Handout _____

Power of Magnification

Purpose: To learn how to calculate the power of magnification for a microscope.

Procedure

1. Look at the eyepiece on your microscope. Somewhere on it there should be a marking that looks like this: 10X. The "X" stands for "times" and the number tells you how much the image is increased. This is called the magnification power of a lens. So when you look through the eyepiece the image is _____ times larger than it is in real life. Sometimes there will be other markings, but always look for a number. For example, it may say 18mm, which is 10X. Or it may say DN10X.
2. Examine the smallest objective. There will be a marking on that lens too, probably a 4 or 4x. That tells you that the lens magnifies the object _____ times the original size you see in real life. The second objective is _____X and the third is _____X.
3. To determine the power of magnification, you simply multiply the power of the eyepiece times the power of the objective lens that is directly over the aperture. If the nosepiece is rotated to low power, which is _____X, and the eyepiece is _____X, then the total power is 40X. If you are looking at an image under lower power it looks _____ times bigger than in real life. This is called the power of magnification.

Practice

1. Fill out the table below.

Eyepiece Power	Objective Lens Power	Power of Magnification
10	4	_____
10	_____	600
_____	20	100
10	10	_____

More questions on the back!

2. What is the difference between magnification power and the power of magnification?

_____

_____

3. Fill in the blanks with the correct answer.
   a. What is the magnification power of the eyepiece on your microscope?

      _____
   b. What is the magnification power of the low objective lens? _____
   c. What is the magnification power of the medium objective lens? _____
   d. What is the magnification power of the high objective lens? _____
   e. How do you determine the power of magnification of two lenses?

      _____
   f. What is the power of magnification when using the lower power lens? _____
   g. What is the power of magnification when using the medium power lens?

      _____
   h. What is the power of magnification when using the high power lens? _____
   i. If a microscope had a power of magnification of 200x, what would the power of the objective lens be if the eyepiece is 10X? _____
   j. What are three possible combinations of eyepiece and objective lens powers if the power of magnification for a microscope was 500X? (Do not use 1 x 500).

      1. _____ x _____ = 500 2. _____ x _____ = 500 3. _____ x _____ = 500