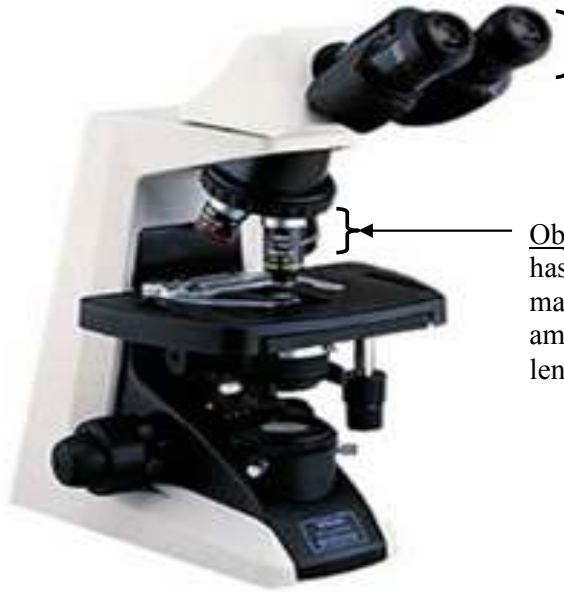
Total Magnification of an Object

When you are seeing an object through the eyepieces of a compound microscope, the image that you are actually seeing is being magnified twice: by the eyepieces AND the objective lens you are using to view an object.



Eyepiece or Ocular Lens (magnify an image 10 times)

NOTE: the magnification power of the eyepiece is usually 10X.

Objective Lens (this microscope has 3 objective lenses. Each one magnifies an image to a specific amount. The magnification of a lens is always engraved on it.)

Therefore, you need to know how to calculate the total magnification of an object seen when using the compound microscope.

How to Calculate Total Magnification of an Object

1. Total magnification of an object observed through the eyepieces (ocular lens) is calculated by multiplying the ocular lens magnification times the magnification of the objective lens being used (either: 4X, 10X, 20X, 40X, 100X, etc.). "X" is placed after obtaining the total magnification number.

2. **Example:**
   Ocular lens magnification = 10X Objective lens magnification being used = 4X
   Total magnification? Calculation: (10X)(4X) = 40X ← **Total Magnification**

3. **Practice:** Calculate the total magnification for your microscope and complete Table 1.1.

Table 1.1 Total Magnification Calculations

Objective Lens	Ocular Lens	X	Objective Lens Magnification =	Total Magnification
Scanning Power				
Low Power				
High Power				