**Date:**

**Exp: No:01**

**Compound Microscope**

**Introduction**

    "Micro" refers to **tiny**, "scope" refers to **view or look** at. Microscopes are tools used to enlarge images of small objects so as they can be studied. The compound light microscope is an instrument containing **two lenses**, which magnifies, and a variety of **knobs to resolve (focus)** the picture. Because it uses more than one lens, it is sometimes called the compound microscope in addition to being referred to as being a light microscope.  In this lab, we will learn about the proper use and handling of the microscope.

**Aim:**

* Demonstrate the proper procedures used in correctly using the compound light microscope.
* Determine the total magnification of the microscope.

**Materials**

* Compound microscope
* Glass slides
* Cover slips
* Eye dropper
* Beaker of water

**Procedures**

**I. Microscope Handling**

1. **Carry the microscope with both hands** --- one on the arm and the other under the base of the microscope.
2. One person from each group will now go over to the microscope storage area and properly **transport one microscope to your working area.**
3. The other person in the group will **pick up a pair of scissors, newsprint, a slide, and a cover slip.**
4. **Remove the dust cover** and store it properly. Plug in the scope. Do not turn it on until told to do so.
5. **Examine the microscope and give the function of each of the parts** listed on the right side of the diagram.

|  |  |
| --- | --- |
| lightmicroscopediagram2 | 1. eyepiece or ocular 2. body tube 3. fine adjustment knob 4. nosepiece 5. high power objective 6. low power objective 7. diaphragm 8. mirror (many   microscopes have a light instead) 9. base 10. coarse adjustment 11. arm 12. stage clip 13. inclination joint |

**Determining Total Magnification:**

1. Locate the numbers on the eyepiece and the low power objective and fill in the blanks below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Eyepiece magnification \_\_\_\_\_10\_\_\_\_\_\_\_\_\_** | **(X)** | **Objective magnification \_\_\_\_\_\_10\_\_\_\_\_\_\_\_** | **=** | **Total Magnification \_100\_\_\_\_\_\_\_\_\_\_\_\_X** |

1. Do the same for the high power objective.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Eyepiece magnification \_\_\_\_\_\_\_10\_\_\_\_\_\_\_** | **(X)** | **Objective magnification \_\_\_\_\_\_45\_\_\_\_\_\_\_\_** | **=** | **Total Magnification \_\_\_\_\_\_450\_\_\_\_\_\_\_X** |

     3.     Write out the **rule for determining total magnification of a   
 compound microscope.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Conclusion Questions:

**1.      State 2 procedures which should be used to properly handle a   
 light microscope.  
  
  
  
2.      Explain why the light microscope is also called the compound microscope.  
  
  
3.      Images observed under the light microscope are reversed and   
 inverted.   Explain what this means.**

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4.      Explain why the specimen must be centered in the field of view on low   
 power before going to high power.  
  
  
  
5.       A microscope has a 20 X ocular (eyepiece) and two objectives of 10 X and   
 45 X respectively:  
  
a.)      Calculate the low power magnification of this microscope.     
 Show your formula and all work.  
  
  
b.)      Calculate the high power magnification of this microscope.     
 Show your formula and all work.**