

Biology

Biology Sample Lab Report

Biology Experiment 1.2 Introduction to the Microscope

Materials:

- Microscope
- Lens paper
- Slides
- Coverslips
- Eyedropper
- Water
- Small pieces of brightly colored thread
- Methylene blue stain

Objective or Purpose:

To learn the various parts of the microscope and to learn to use the microscope properly

Procedure/Results:

1. With the help of the illustration in the textbook/student notebook (SNB), the following parts of the microscope were located and labeled in Figure 1 (SNB):

1. Eyepiece
2. Body tube
3. Revolving nosepiece
4. Coarse focus
5. Fine focus
6. Arm
7. Base
8. Stage with clip
9. Objectives
10. Diaphragm
11. Condenser
12. Light source

Total magnifications for each objective were calculated (Results below.)

Ocular Objective	Nosepiece Objective	Total Magnification	Magnification
10x	4x	40x	Low
10x	10x	100x	Medium
10x	40x	400x	High

1. Next, several short pieces of brightly colored thread were placed on a clean slide where a drop of water was positioned, and a coverslip was placed by

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holding it close to the drop of water and gently dropping it. (Results: drawing of what it looks like with the unaided eye) The prepared slide was viewed under the low-power objective using the coarse focus knob and then fine-tuned using the fine focus knob. The fine structure of the thread could be seen. (Results: drawing of what is seen at this magnification and labeled) The nosepiece was turned so that the medium-power objective was in place making sure the objective did not hit the slide. With the thread at the center of the field of view, the fine focus knob was used to make the image sharp. At this power, the center of the thread was completely black, but the fibers at the edge of the thread were easy to see. (Results: drawing of what is seen at this magnification and labeled) The nosepiece was again rotated with care to not hit the slide to the high-power objective and brought into focus using the fine focus knob. Most of the thread was black, but the edges of the thread were very hairy. (Results: drawing of what is seen at this magnification and labeled)

2. Lastly, cheek cells were collected by rubbing a cotton swab back and forth on the inside of the cheek. The swab was carefully removed to keep from getting excess saliva on it. After rubbing the wet side of the swab on the slide, a drop of methylene blue (stain) was added to the area where the cells were placed to help contrast the cells against the light making it easier to see. Then the cover slip was added. To make seeing the cells easier, some of the stain was removed by placing a paper towel against the coverslip on one edge and adding a drop of water on the opposite edge of the cover slip. Additional drops of water were added until most of the blue stain had been washed out from under the coverslip. The slide was placed on the microscope and viewed under the low-power objective. The cells looked like tiny circles. (Results: drawing of what is seen at this magnification and labeled) At medium-power the nucleus was visible as was the membrane of the cell. (Results: drawing of what is seen at this magnification and labeled) And at high-power the nucleus and cell membrane were even clearer. (Results: drawing of what is seen at this magnification and labeled)

Conclusion:

Identifying the various parts of the microscope and observing a thread and cheek cells at the three magnifications - 40x, 100x, and 400x - provided a clearer understanding of how to use the microscope properly.

Unique solution ID: #1151

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Last update: 2018-02-05 21:02