

# **BASICS:** *Biophysics - A Step-by-step Introduction to Concepts for Students*

## **Lesson Plan: Eye-Spy with My Wooden Microscope**

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**Topic:** Light Microscopy

### **Overall Objectives**

Students will learn microscope basics including the parts of a light microscope and how microscopes work. This lesson includes a 2-day plan in which students first assemble a small wooden microscope and learn the parts of a microscope, working in a group with the assistance of an instructor. Once the microscopes are assembled, students use the wooden microscopes to observe and draw an object or specimen on a slide. The students also give a presentation on the specimen they observed.

### **Grade Level**

Appropriate for K-6 students; wooden microscopes should be pre-assembled for K-3 classes.

### **Learning Objectives**

- Students will be able to label all parts of the wooden light microscope
- Students will be able to use a microscope to focus on a slide
- Students will do a show and tell of their drawings describing how the specimen/object appears to the naked eye and contrasting it with observations of the specimen or object observed under the microscope

**Time:** 2 class periods

- First class, concepts and assembly of the microscope
- Second class, observation of specimens and socks

### **Materials:**

- Small wooden microscope kits (*available at <http://echo-labs.com/woodenscope>*)
- Microscope slides or rectangles of transparent plastic
- Coverslips or small squares of transparent plastic
- Specimens (Plant leaves, Grass, Feathers, etc.)

## Procedure

1. Introduction to light microscopy
2. Overview of the parts of the microscope
3. Assembly of the microscope (this takes most of the time)
4. Selection of objects to observe under the microscope (students can bring their own or they can be provided by the teacher)
5. Activity 1: The students will observe an object with and without the aid of the microscope. They will draw what they observe in each case and present it to the rest of the class.
6. Activity 2: The students will look at their socks at the beginning of the class. They will be allowed to do the entire activity wearing just their socks. Then at the end of the class they will discuss how different their socks look after walking around their classroom. They will be able to identify some of the objects on their socks after examining them under the microscope.

## Assessment

- Label the parts of the microscope on a diagram
- Show and tell drawings and observations

## Discussion

- Why would you need to use microscopes?
- Who uses microscopes?
- Are there different types of microscopes?
- Why do we need different types of microscopes?

## Notes

1. For detailed instructions on assembling the wooden microscopes, see *Lesson Plan on Light Microscopy* and *Light Microscopy Lesson Plan and Workshop Power Point* at

<http://www.biophysics.org/BiophysicsWeek/Resources/tabid/6654/Default.aspx>

2. The parts of a light microscope are discussed in the above Lesson Plan and Power Point presentation.

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