Microscope Homework

BRING IN OBJECTS TO EXPERIMENT WITH TOMORROW!

Directions: Find two objects to use tomorrow. Each object you decide to use cannot be:

- dangerous or forbidden at school
- more than two inches tall

For each object, write what the object is, what it looks like and what you think it will look like when magnified.

My first object is ___________________________________________________________.

Description: ____________________________________________________________

______________________________________________________________________

______________________________________________________________________

Hypothesis: ____________________________________________________________

______________________________________________________________________

My second object is ________________________________________________________.

Description: ____________________________________________________________

______________________________________________________________________

______________________________________________________________________

Hypothesis: ____________________________________________________________

______________________________________________________________________
Microscopes

How Do Different Objects Look When Magnified?

1. Choose an object to look at with a microscope.

2. There are two different types of microscopes that you can use. Which type should you use with your object? In general, you should use:
   - A **Compound Microscope** if your object is **very thin** and **you can see through it**
     (things like strands of hair, glass slides or blades of grass)
   - A **Dissecting Microscope** if your object is **big** or if **you can’t see through it**
     (things like rocks, baseball cards or your hand)

3. Put your object on the microscope’s **stage** and look through the **eyepiece(s)**. Does it look fuzzy? Try turning the **focus knob**. Is it really dark? Make certain that the microscope’s **lights** are on. Try experimenting with different magnifications.

4. Draw what your object looks like on **Microscope Data Sheet**.
1. When observing your object under the microscope, what are its most interesting or unusual features?

2. What did you discover about your object using the microscope?
Instruments Used for Scientific Observations

Label the instrument

Name an object that can be seen with each instrument.

1. What is the relationship between the instruments and the size of the objects that can be seen with them?
**Reading About Microscopes**

**YOU USED MICROSCOPES IN THE CLASSROOM AT JEFFERSON LAB.**

**Directions:** Read the following passage. Fill in the blanks with words that make sense. Remember to use context clues that come before and after the blanks.

It happened over 300 years __1__ in Holland. Anton van Leeuwenhoek (AN-tun van LAY-vun-hook) had a new microscope that he had __2__. One day he __3__ through it at a drop of lake water. What he saw surprised him.

The water was alive with what Leeuwenhoek called “wee beasties.” The microscope made tiny organisms look 200 times __4__ than life size. Leeuwenhoek was one of the first scientists to see living things that were that __5__. His work was a giant __6__ for science.

Today, microscopes are much stronger. An electron microscope can make tiny organisms look 200,000 times __7__ size. A few electron microscopes can see individual atoms. Pictures can be made to show the objects or organisms much bigger. The pictures add greatly to what we know about tiny objects and __8__. Microscopes have come a long way in 300 years!

**Directions:** Choose the word that fits the context of the passage.

1. a. since  
   b. ago  
   c. before  
   d. after

2. a. made  
   b. lost  
   c. previewed  
   d. delivered

3. a. fell  
   b. broke  
   c. looked  
   d. went

4. a. farther  
   b. smaller  
   c. darker  
   d. larger

5. a. life  
   b. small  
   c. darker  
   d. larger

6. a. turtle  
   b. gorilla  
   c. step  
   d. tower

7. a. small  
   b. over  
   c. under  
   d. life

8. a. organisms  
   b. gravity  
   c. electricity  
   d. microscopes
If you woke up one morning and discovered that you had been shrunken to microscopic size, what would you do? Write a story about how you got that way, where you would go, what you would eat, and other challenges you would face.
Instruments Used for Scientific Observations

Label the instrument

Name an object that can be seen with each instrument.

human eye  people, houses, etc...

microscope  cells, bacteria, etc...

particle accelerator  atoms, quarks, etc...

1. What is the relationship between the instruments and the size of the objects that can be seen with them?

The larger the instrument, the smaller the observed object.
Reading About Microscopes

YOU USED MICROSCOPES IN THE CLASSROOM AT JEFFERSON LAB.

Directions: Read the following passage. Fill in the blanks with words that make sense. Remember to use context clues that come before and after the blanks.

It happened over 300 years ___1___ in Holland. Anton van Leeuwenhoek (AN-tun van LAY-vun-hook) had a new microscope that he had ___2___. One day he ___3___ through it at a drop of lake water. What he saw surprised him.

The water was alive with what Leeuwenhoek called “wee beasties.” The microscope made tiny organisms look 200 times ___4___ than life size. Leeuwenhoek was one of the first scientists to see living things that were that ___5___. His work was a giant ___6___ for science.

Today, microscopes are much stronger. An electron microscope can make tiny organisms look 200,000 times ___7___ size. A few electron microscopes can see individual atoms. Pictures can be made to show the objects or organisms much bigger. The pictures add greatly to what we know about tiny objects and ___8___. Microscopes have come a long way in 300 years!

Directions: Choose the word that fits the context of the passage.

1. a. since b. ago c. before d. after
2. a. made b. lost c. previewed d. delivered
3. a. fell b. broke c. looked d. went
4. a. farther b. smaller c. darker d. larger
5. a. life b. small c. darker d. larger
6. a. turtle b. gorilla c. step d. tower
7. a. small b. over c. under d. life
8. a. organisms b. gravity c. electricity d. microscopes
Microscopes

This is an activity in which students observe objects with a microscope.

Objectives:

In this activity students will:

- choose two objects from home to observe with a microscope
- describe what each object looks like to the unaided eye
- form a hypothesis for each object explaining what they think the objects will look like when
- learn how to use two different types of microscopes
- record their observations by sketching what they see
- calculate the magnification used to view an object

Questions to Ask:

1. Did the objects look like you thought they would when magnified?
2. How do smooth objects, like paper, look when magnified?
3. What most surprised you when using the microscopes?

Travel Book Activities:

- Reading About Microscopes
- Writing About Size
- Microscope Homework

Virginia State Standards of Learning

Science 6.1 Plan and Conduct Investigations

- by making observations involving fine discrimination between similar objects and organisms
- by recording precise and approximate measurements
- by communicating visual data through graphical representation (diagram)
Microscopes
Teacher Overview and Materials List

Background:
With the invention of the microscope, scientists could see things they never could before. They discovered that we were surrounded by strange creatures that were too small to see. In this activity, students will discover new things about ordinary objects.

Minimum Materials Needed for Each Student Group:
- Objects to observe
- Compound microscopes
- Dissecting microscopes

Pre-Activity Preparations:
The Homework
1. Have the students select two objects to bring in from home.
2. Have the students complete the homework page for their two objects.
Materials for Microscopes