

Microscopes Online

Name _____

Go to <http://sciencespot.net/Pages/kdzbio.html> to find the links below.

Site #1: A-Z Microscope History

1. Who was the first man to make and use a microscope? _____
2. What was his microscope called? _____
3. How many microscopes did he create in his lifetime? _____
4. How can you change the power of a single-lens microscope? _____
5. How was the first compound microscope different from Leeuwenhoek's microscope? _____

6. Where are the two lenses located in a compound microscope used in most classrooms today? _____

7. What did each of the following scientists discover by using a compound microscope?

Robert Hooke - _____

Louis Pasteur - _____

Robert Koch - _____

Site #2: Microbus – Go to the “History of the Microscope” section.

1. What did the Romans discover as they experimented with different shapes of clear glass lenses? _____

2. What were early lenses called besides magnifiers? Why? _____

3. Describe the compound microscope developed by Zaccharias and Hans Janssen. _____

4. What did Galileo contribute to the field of microscopy? _____

5. Who is known as the “Father of Microscopy?” _____

Site #3: Magnification Module

1. Select “Apollo Moon Rock” from the drop down menu that loads in the middle of the page. View the rock at each of the different magnifications. Choose three items from the list and view at the different magnifications.

(a) At which power do you see the greatest detail? _____

(b) At which power do you see the largest amount of the sample? _____

(c) At which power do you see the smallest amount of the sample? _____

2. What do you notice about the image as you increase the magnification? _____

Site #4: Powers of 10

If you need to stop the Powers of 10 display, click the Manual button under the picture to display arrows That will allow you to go back to the first slide or move ahead.

1. What is the first thing you see? _____ How far away is it? _____

2. What is the last thing you see? _____ How much is it magnified? _____

3. Write two to three sentences to summarize your observations of the Powers of 10 animation.

Site #5: History of the Microscope

Go to <http://inventors.about.com/od/mstartinventions/a/microscope.htm> to answer the questions below.

1. Scroll down to the “Beyond the Light Microscope” section of the reading. What, in your own words, Is the major drawback to light microscopes?

2. Continue on the next page of the website. What type of microscope solved the major problem with light microscopes? Who invented it? What year was it invented?

3. What is the smallest object that can be viewed under an electron microscope?

4. How many times can an electron microscope magnify an object?

5. What is the major disadvantage to using an electron microscope? Why must this be the case with electron microscopes?

Site #6: Electron Microscopy

Go to <http://www.vcbio.science.ru.nl/en/image-gallery/electron/> for the following questions.

1. What are transmission electron microscopes (TEM) used to see? How about scanning electron microscopes (SEM)? Answer both questions in a complete sentence.

2. What can you see in the image taken TEM at the bottom of the webpage?

3. What can you see in the picture taken with the SEM at the bottom of the webpage?

4. Identify which type of microscope (SEM, TEM, or compound light microscope) you would use to look at the following objects or structures:

a. A ribosome (the smallest organelle) inside of a cell: _____

b. The surface of a pollen grain: _____

c. A sample of pond water: _____