

History of Microscopy

Name: _____ Class: _____ Date: _____

Do an internet search on the History of the Microscope. Look at least three different sites (or videos) and make some brief jot notes on the development of the modern microscope (maybe different types) You should have about 7-10 points with dates. Try to include Nimrud Lens, Galileo Galilea, Robert Hooke, Antonie van Leeuwenhoek, Carl Zeiss, Ernst Ruska and Max Knoll, Transmission Electron Microscope, Emission Electron Microscope, scanning electron microscope and Tunneling Electron Microscope.

Here are three sites to look at:

<https://www.news-medical.net/life-sciences/Brief-History-of-Microscopy.aspx>

<https://www.microscopemaster.com/microscope-timeline.html>

https://en.wikipedia.org/wiki/Timeline_of_microscope_technology

c. 700 BCE: The "[Nimrud lens](#)" of Assyrians manufacture, a rock crystal disk with a convex shape believed to be a burning or magnifying lens.^[1]

1624: Galileo improves on a compound microscope

1665: [Robert Hooke](#) He coins the word *cell* for the structures he discovers in [cork](#) bark.

1674: [Antonie van Leeuwenhoek](#) improves on a simple microscope for viewing biological specimens

1846: [Carl Zeiss](#) founded [Carl Zeiss AG](#), to mass-produce microscopes and other optical instruments.

1931: [Ernst Ruska](#) and Max Knoll start to build the first [electron microscope](#). It is a [transmission electron microscope](#) (TEM)

1951: [Erwin Wilhelm Müller](#) invents the [field ion microscope](#) and is the first to see [atoms](#).

1981: [Gerd Binnig](#) and [Heinrich Rohrer](#) develop the [scanning tunneling microscope](#) (STM)

1988: [Alfred Cerezo](#), [Terence Godfrey](#), and [George D. W. Smith](#) able to resolve materials in three dimensions with near-atomic resolution.

Recent New 'Chemascopes' are capable of observing atoms at the atomic molecular level

Present – Research is still continuing and we are able to 'see' more and more detail of things

Answer the following questions using the websites and the textbook pages on my blog.

1. What has happened over the years with respect to new developments in microscopy?

How has the resolution (how clearly you can see things) changed?

The resolution has improved greatly – we now see very tiny things in amazing detail.

Has the magnification increased or stayed the same?

It has increased greatly from 270x to over 90 million x

How has the field of view changed?

As the magnification increases, the field of view gets less.

How do you see an image taken with an electron microscope?

It is a computer-generated image and not seen directly with the eye.

2. Do you think that we are done developing new microscopy methods? Explain your opinion.

No, the development of microscopes continues to get better constantly.

3. Why is it important to take care of a compound microscope?

They are expensive and can last for decades if treated properly.

4. What are 6 most important things that we should make sure we do to take care of a compound microscope if we were able to touch them this year?

1. Always carry it with two hands
2. Always use it on a flat, stable surface
3. Carefully place slide on stage.
4. Start at the lowest objective lens.
5. Use the coarse adjustment knob and look at the specimen to ensure no contact between objective lens and slide specimen.
6. Only increase (change) the objective lens if it is needed and do so carefully.