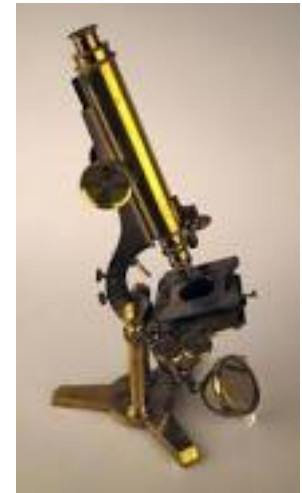
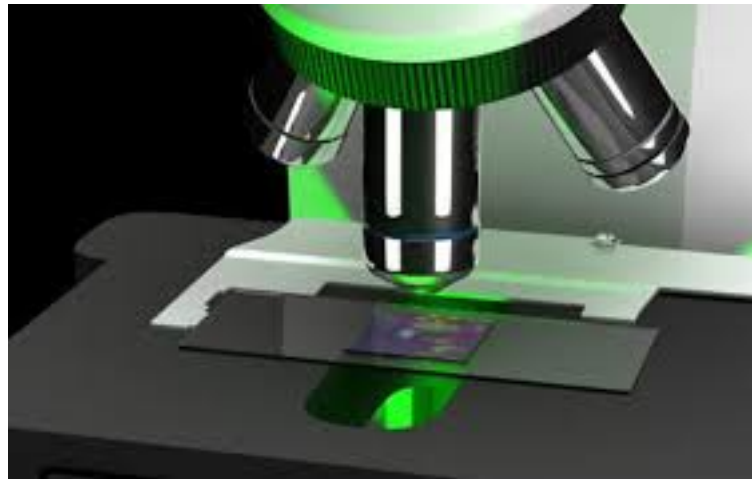


# Microscopes



# Microscope definition

- micro – small
- scope – to look or see
- microscope is an instrument used to see objects that are too small for our eyes to see



# History

- People have used lenses to magnify objects for hundreds of years.
- About 400 years ago the first microscopes were invented in the Netherlands (two lenses were placed at opposite ends of a tube).



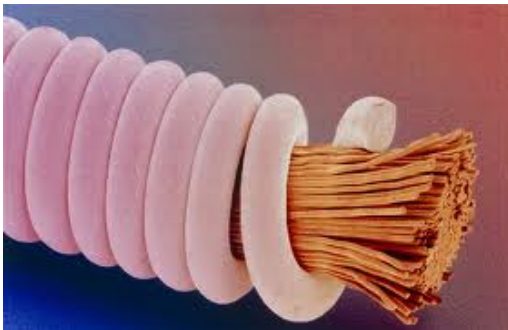
# Impact of Microscopes

- The invention of the microscopes have allowed people to discover new worlds literally under our fingertips.
- Microscopes revolutionized the study of disease, physics, farming, and biology.



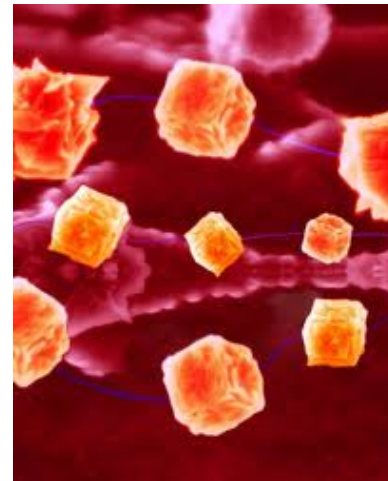
# Small Objects

- Under the best conditions humans are capable of seeing objects that are .1 mm long (a little less than the width of a human hair)
- Because of microscopes we can now see bacteria, DNA, genes, molecules, and atoms.



# Types of Microscopes

- optical microscopes– use one or more lenses to bend light to magnify small objects (cells, bacteria)
- Electron microscopes – use electrons to magnify very tiny objects (molecules, atoms)



# Lenses

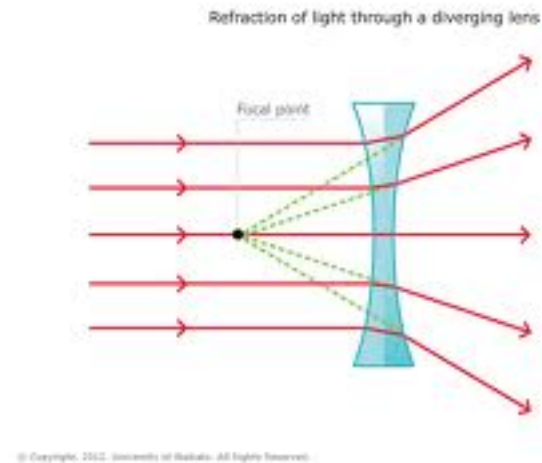
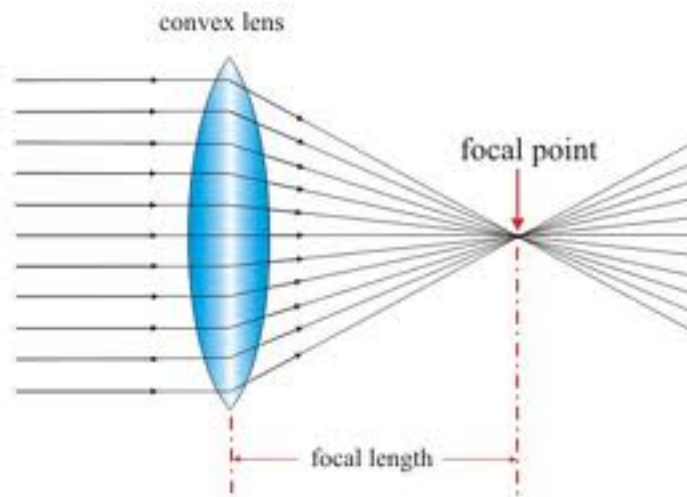
- A curved piece of glass or other clear material
- Depending on its shape, a lens can make an object appear bigger or smaller.





# Types of Lenses

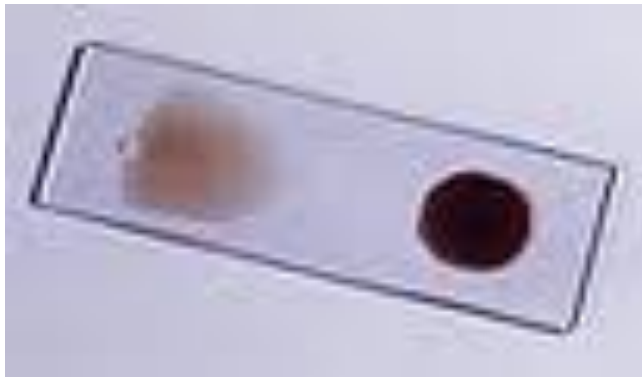
- Convex – curves outward and focuses light on a point
- Concave – curves inward and spreads out light





# How optic microscopes work

- thin slices of an object are placed on the stage over the hole in it.
- Light is then shined through the hole on the stage



# How light microscopes work

- Light passes through the object and into the tube where a set of lenses enlarge the object.
- After passing through the tube, the light passes into our eyes so we can see the object.

