

In science. many  
scientist have made  
many different

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In the sixteenth century microscopes came about and evolved over time, which led to be a valuable tool for multiple fields in science. Many scientist have made many different types of microscopes and continue to upgrade and modify. This invention has made remarkable discoveries of viruses and diseases that has helped prevent and stopped infectious diseases. The very first microscope invented was a compound microscope by Zacharias and Hans Janssen.

Around 1590, the father and son team discovered different lenses could be magnified and viewed by optical images. Compound microscope has two systems of lenses at each end and a simple tube. The compound microscope is most used today in schools and has a standard design, making it easy for students to operate. Although this microscope has low resolution, it's affordable and can be magnified up to 1000x by multiple lenses. The compound microscope was upgraded by Robert Hooke. Insects, sponges, bryozoans, foraminifera, bird feathers and plant cells were studied by Hooke leading him to publish a book of his observations. Antony van Leeuwenhoek was a scientist who was the first to observe specimen. Also considered to be the father of microscopy who made it possible to view specimen with the naked eye.

The small specimen Antony van Leeuwenhoek observed named the specimen "animalcules" (little animals). These little animals consisted of bacteria, protozoans, blood cells, sperms cells, microscopic nematodes, rotifers and were viewed by a simple microscope. Other similar types of microscopes are dissection and stereomicroscopes. These microscopes are used for larger objects such as worms, plants and insects that need to be

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dissected for further inspection. This allows us to view the surface structure and there location by three-dimensional imaging.

Also is a low magnification using light being reflected off of the surface rather than it transmitting through it. Different from other microscopes, confocal microscopes use a laser which is a visible light source. Advantages of confocal microscopes have sharper images of specimen in a single point system which doesn't allow unwanted light to blur an image. The stage of the confocal microscope is moved up and down so different planes of specimen can be viewed. Detecting fluorescent labels is the most common use for this microscope.

Fluorescence microscopes can identify an infectious disease by using ultraviolet radiation. Either the specimen has natural fluorescent substance or stained with a a current fluorescent dye that can be observed through this microscope. Antibodies can be identified to help visualize unknown bacteria by this fluorescent technique. Electron microscopes are 20th century instruments that use magnetic fields and beams of electrons rather than a light source. The quality of the image is much better than it would be with the light microscope. The damage of viruses that leave on cells and tissues are visualize through these microscopes, but the viruses itself are only visible on a light microscope. Phase-contrast microscope is another optical instrument for many different observations.

It allows light to pass through different densities and also allows living plants and animals that are transparent to be produced by a high-contrast image.

Phase-contrast is a tool made for the study of motility, cytoplasmic

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streaming and processes of cell organelles. In other words, phagocytosis and cell division can be seen through phase contrast.

Somewhat similar to phase-contrast is dark field microscopes. This is ideal for observing unfixed or transparent specimen because dark-field does not allow light from going straight through the microorganism. The edges of light will hit the specimen at an angle, this will cause a dark background and edges of the specimen to radiate.