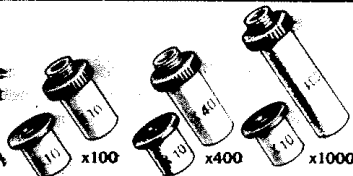


Magnification

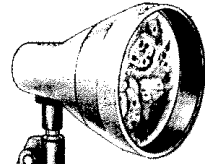
The magnification of an image is the number of times larger it is than the object. Lenses of different magnifying powers give different magnifications. A microscope's magnifying power is that of the two lenses multiplied together.



A microscope will normally have three objective lenses like this. They are called the low, medium and high power lenses.

Accessories

A projector screen can be fitted so that the image you would normally see is projected onto a screen. This system is used for teaching, where a whole class can see the object.

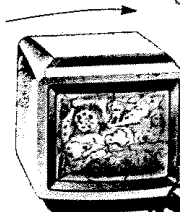


Microscope with projector screen

A camera can be attached to a microscope in place of the eyepiece. Photographs of the object can then be taken so that a permanent record can be kept.



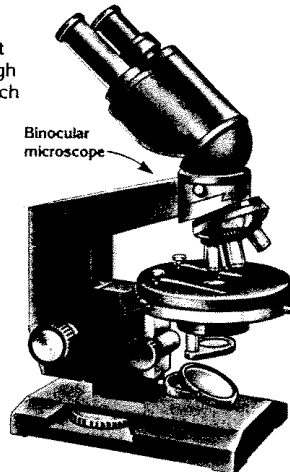
A video camera can be attached to some microscopes so images of moving objects (like tiny animals) can be shown on a screen and recorded on video tape.



More optical microscopes

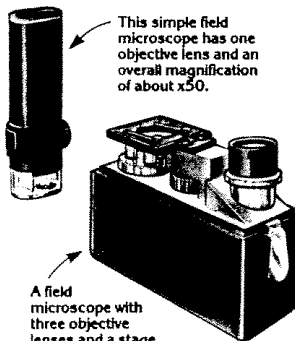
Here you can see some of the different types of microscope available. Although they all look different, they work in much the same way as the simple optical microscope. You will find some other more specialist microscopes explained in different places in this book.

Binocular microscopes have two eyepieces to make viewing more comfortable. Both eyes see the same image (it is not in three dimensions, as with the stereomicroscope below). A multi-ocular microscope has two or more eyepieces so that more than one person can look through it at once.



Binocular microscope

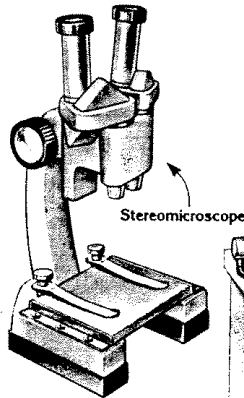
Field microscopes are light and compact so that they can be carried around outdoors. They are used in field studies to look at objects which could not be taken back to a laboratory.



This simple field microscope has one objective lens and an overall magnification of about x50.

A field microscope with three objective lenses and a stage for holding slides.

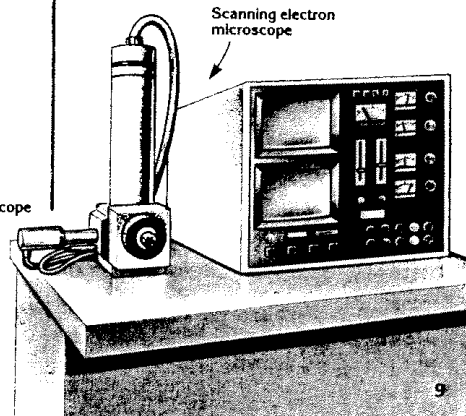
A stereomicroscope consists of a pair of microscopes, one for each eye. The object is seen in three dimensions because each eye has a different view. The magnification is lower than in a normal microscope, but the images you see are much more spectacular.



Stereomicroscope

Electron microscopes

An optical microscope can only magnify objects up to about 2000 times. Some electron microscopes can magnify up to about 250 000 times (for more about them, see pages 44-45).



Scanning electron microscope