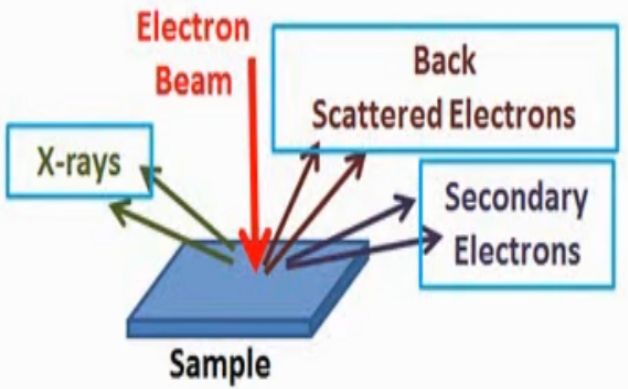
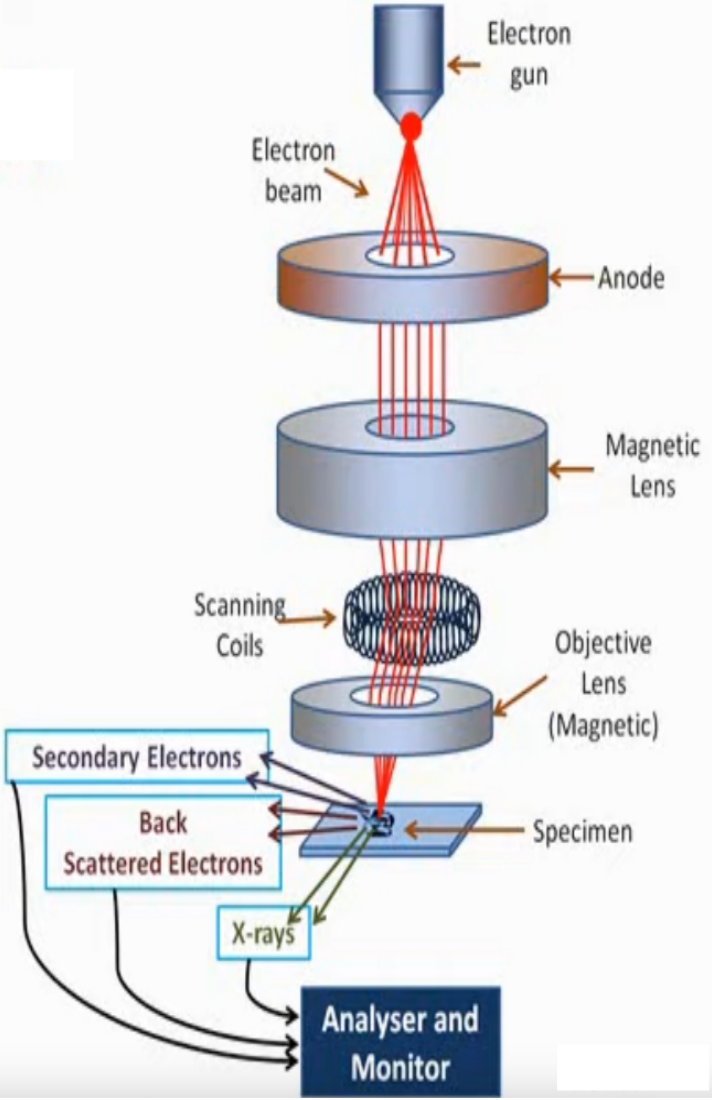
Scanning Electron Microscope

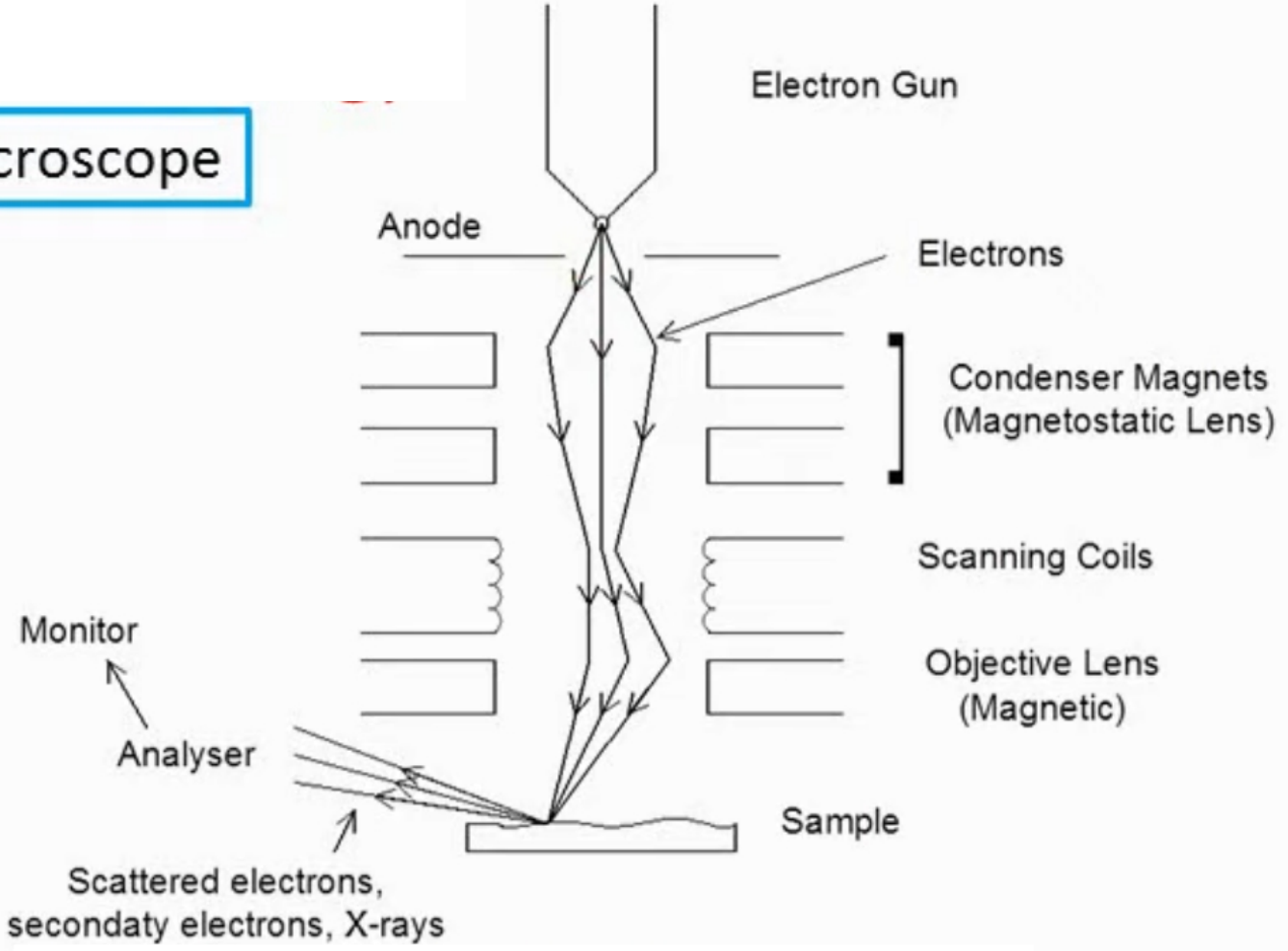


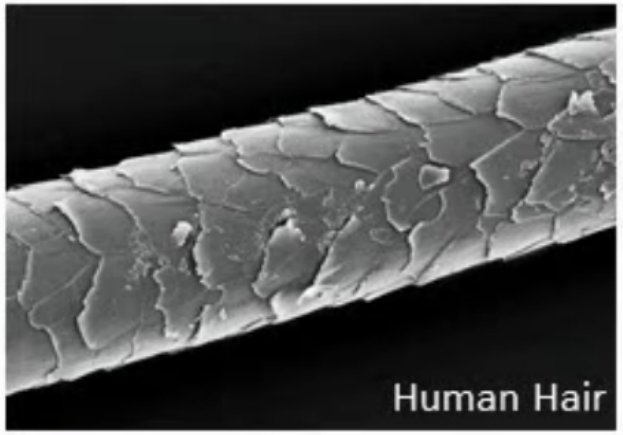


Scanning Electron Microscope

When the high energy electron beam strikes the sample,

- some electrons are scattered due to elastic scattering (the back-scattered electrons),
- some electrons are knocked off from the surface (secondary electrons) and
- some electrons penetrate deep into the inner shells of the sample atoms to knock off inner shell electrons due to which characteristic X-rays are produced.





Advantages

a) Resolution of the order of few nano meters.

b) Information about the elements and compounds in the sample and their relative abundance.

c) Biological specimens like pollen grains can be studied.

d) Corroded layers on metal surface can be studied

Disadvantages

a) SEM can produce the image of a surface only a few nano meter deep.

Scanning Electron Microscope