

Chapter 1

Use with Section 1

ENRICHMENT

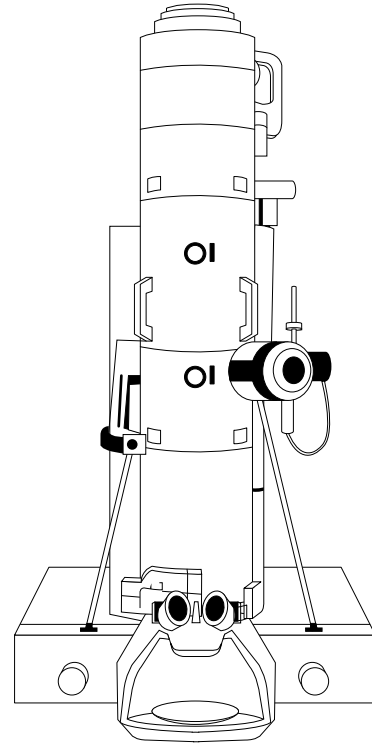
● What is science?

Science and Technology Working Together— The Electron Microscope

The development of the electron microscope is an excellent example of just how interrelated science and technology are. Technologists use science to do their work of inventing, and scientists use technology to do their work of discovery.

In 1924, a French physicist showed that a beam of electrons may be considered as a form of wave motion that has a much shorter wavelength than light. At that time, scientists using light microscopes could only see clearly specimens that were larger than the wavelength of light. The new theory of electron waves enabled modern technologists to invent the electron microscope in 1931. The electron microscope uses beams of electrons instead of light rays to magnify objects.

With a light microscope, a magnification of up to 2000 times may be obtained. However, with an electron microscope, a magnification of up to one million times may be obtained. With the electron microscope, scientists can examine objects as small as viruses or bacteria and discover more about how they work. In 1970, the electron microscope made it possible for scientists to take the first pictures of individual atoms.



Answer the following questions, using complete sentences.

1. How could the ability to study a virus help a doctor?

2. How did the invention of the electron microscope help scientists do their work of discovery?

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Answer the following questions, using complete sentences.

1. How could the ability to study a virus help a doctor?

The doctor might find a way to fight the virus.

2. How did the invention of the electron microscope help scientists do their work of discovery?

With the electron microscope, specimens could be examined in much closer detail to see them for the first time or to learn more about how they work.

