

SkillCheck

- Observing
- Evaluating information
- Predicting
- Explaining systems

Safety

- Handle chemicals safely.
- Wash your hands thoroughly after doing this investigation.

Materials

- microscope slide
- microscope
- copper ribbon
- silver nitrate solution in dropper bottles

Science Skills

Go to Science Skill 9 for information about how to use a microscope.

It is possible to produce a sample of an element from individual atoms by growing a crystal of it. Even a metal such as silver can have crystals—the atoms simply need to be arranged in a very regular way. In this activity, you will use a dissecting microscope to observe the growth of silver crystals.

Procedure

How can silver be made in the lab?

Procedure

1. Place a slide on the microscope stage, and put a small piece of copper on the slide.
2. Focus on the piece of copper. Ensure that its image is clear and well lit.
3. Place a drop of silver nitrate solution onto the copper metal.
4. Observe as slivers of pure silver metal grow on the sides of the copper.
5. Clean up and put away the equipment you have used.

Analyze

1. Suggest why the slivers of silver tended to get longer rather than fatter as they grew.

Conclude and Apply

1. British Columbia is a major exporter of silver ores, which are chemical compounds that contain silver. How might this experiment be applied to the commercial production of silver?

