

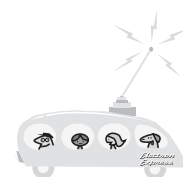
LESSON 27

LAB

Electrons on the Move Electroplating Metals

Name _____

Date _____ Period _____



Purpose

To use electrochemistry to extract metals from ionic compounds in solution.

Safety Instructions



You must wear safety goggles at all times.

The solution contains acid. If you spill any acid on your skin, alert your teacher and rinse with water.

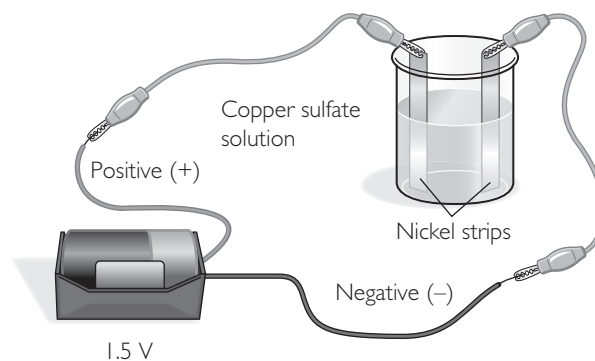
Rinse the nickel strips after they have been in the copper solution, before handling.

Materials

- copper (II) sulfate solution
- 250 mL beaker
- 2 nickel strips
- 1.5-volt D-cell battery with holder
- 2 insulated wires with alligator clips

Procedure

1. Attach a battery snap connector to a battery and fill your 250 mL beaker with 100 to 200 mL of copper (II) sulfate solution.
2. Connect one alligator clip to each of the two nickel strips.
3. Place both nickel strips in the beaker with the blue copper sulfate solution. The two metal strips should not be touching and should be as far apart as possible.
4. Attach one alligator clip to the positive (+) side of the battery and to one of the nickel strips. Attach the second alligator clip to the negative (-) side of the battery and the second nickel strip to complete the circuit. Observe for at least one minute.



5. Switch the sides of the battery to which the two alligator clips are attached. Wait at least one minute or until you notice a change.
6. Reverse the wiring back to its original position.

Observations

1. What did you observe when you hooked up the nickel strips to the battery?
2. What happened when you reversed the flow of electricity?
3. Where does the copper come from that ends up on the nickel strip?
4. What is in the copper (II) sulfate solution?
5. Write a short paragraph explaining your observations.
6. What is the main difference between copper atoms and copper ions?
7. **Making Sense** Are copper atoms and copper ions the same element? Explain your thinking.
8. **If You Finish Early** Consider a sample of gold chloride, AuCl_3 . Explain what procedure you might follow in order to extract solid gold from the compound.