

LESSON
7
LAB

Now You See It

The Copper Cycle

Name _____

Date _____ Period _____



Purpose

To find out what happens when you perform a series of reactions, starting with copper metal.

Materials

1.0 M copper (II) nitrate	lab marker or wax pencil
1.0 M HCl	test tube, 13mm x 100mm
1.0 M NaOH	room temperature water bath
aluminum foil	test tube rack
hot water bath	glass stirring rod

Safety Instructions

Wear safety goggles at all times.

Be very careful handling the hydrochloric acid and sodium hydroxide.

Always be careful when heating chemicals.

Procedure

- Put on your goggles and DO NOT take them off.
- Take your test tube to the front of the room and use the wax pencil or lab marker to mark your test tube in the same places as your teacher's example.
- Add 1.0 M copper (II) nitrate to the first mark on your test tube as shown in Figure A.
- Add 1.0 M sodium hydroxide to the second mark on the test tube as shown in Figure B. **Caution: sodium hydroxide is corrosive. Avoid contact with skin and eyes. If any of this solution should spill on you, immediately flush the area with water and then notify your teacher.** Mix the solutions with the stirring rod thoroughly before setting it down in the test tube rack. Carefully touch the bottom of the outside of the test tube to see if heat has been released. The copper containing product in the test tube is copper (II) hydroxide. The other product is sodium nitrate. Record the changes that occur in the test tube in the observations table.
- Put the test tube into the hot water bath. Heat it until no more changes occur. The products of this reaction are copper (II) oxide and water. Record the changes that occur in the test tube.
- Remove the test tube from the hot water bath. Cool the test tube and its contents for two minutes in a room temperature water bath. Add 1.0 M hydrochloric acid to the third mark as shown in Figure C. **Caution: hydrochloric acid is corrosive. Avoid contact with skin and eyes. If any of this solution should spill on you, immediately flush the area with water and then notify your teacher.** Mix with the stirring rod. The new products are copper (II) chloride and water. Record the changes that occur in the test tube.

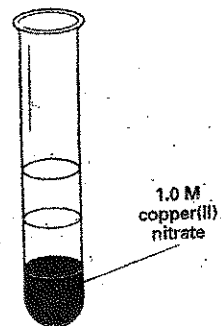


FIGURE A

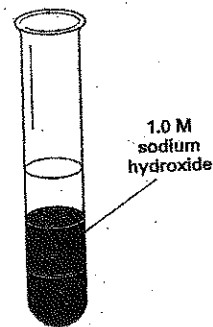


FIGURE B

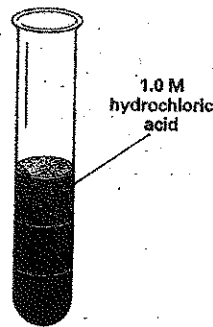


FIGURE C