

Name \_\_\_\_\_

Period \_\_\_\_\_

Partner \_\_\_\_\_

Date \_\_\_\_\_

## **Investigating the Chemical Properties of Four Liquids**

### **Prelab Questions**

1. How many characteristic properties of two substances must be alike for the two substances to be the same?
2. How many characteristic properties of two substances must be different for the two substances to be different?
3. What does bubbling indicate?
4. What happens to red litmus paper in an acid? Base?
5. What happens to blue litmus paper in an acid? Base?
6. What happens to red and blue litmus paper in water?
7. What is cobalt chloride paper used to test for?

### **Procedure**

1. Put on your safety goggles and proper lab clothes. You must obey all lab rules.
2. Use a 24-well reaction plate for these reactions.
3. Add approximately 20 drops each liquid (A, B, C, or D) according to the data table.
4. Tear a piece of red litmus paper into four pieces and put one piece into row one of the plate.
5. Repeat for blue litmus and cobalt chloride paper.
6. Add 1 small piece of zinc to row 4.
7. Add 1 small piece of aluminum to row 5.
8. Add a pinch of  $\text{MnO}_2$  to row 6.
9. Record all your observations.
10. Scoop out all of the solid waste into a paper towel. Fold it up and throw it away.
11. Wash out the reaction plate.
12. Wash your hands with soap and water before leaving the lab.

### Data Table

	Liquid A	Liquid B	Liquid C	Liquid D
Red litmus paper				
Blue litmus paper				
Cobalt (II) chloride paper				
Zinc				
Aluminum				
Manganese (IV) oxide				

### Post Lab Questions

1. Do liquids A and B have any properties alike? If so, name them.
2. Do liquids A and B have any properties that are different? If so, name them.
3. Could A and B be the same liquid? Why or why not?
4. Could any two of the liquids be the same?
5. Try to guess the identity of each of the liquids.