

Name _____ Date _____ Period _____

Investigation 5-2 Identifying Acids and Bases

LM 20

Purpose:

Look at the substances listed in the data table. Can you identify which substances are acids and which are bases? In this investigation, you will use an indicator to test for acids and bases.

Procedure:

CAUTION: Wear your safety goggles.

1. Use a marker to **label each cup** with the name of one substance from the table. Use these labels: Baking Soda (base), vinegar (acid), lemon juice, weak ammonia solution, aspirin, soap, soft drink, and milk of magnesia.
2. **Add a small amount** of each substance to the cup labeled with its name.
3. Use a spoon to **crush the aspirin** tablet before adding it to the cup. **Add a small amount of water** to the aspirin tablet.
4. **Add a small amount of water** to the baking soda and stir.
5. The **litmus paper** will be your first indicator. Test each liquid with a **red litmus paper** and record the color of the paper after you have dipped it in the liquid. Test each liquid with a **blue litmus paper** and record the color of the paper after you have dipped it in the liquid.
6. The **universal indicator** will be your second indicator. Test each liquid by dipping the paper into the liquid until all of the indicator portion is wet and then compare the stick colors to the key on the box. Record the pH number that most closely matches the universal indicator strip.

Data Table

Substance	Red Litmus Paper	Blue Litmus Paper	Universal pH Indicator
Baking Soda (Base)			
Vinegar (Acid)			
Lemon Juice			
Weak ammonia solution			
Aspirin			
Soap			
Soft Drink			
Milk of Magnesia			

Questions and Conclusions

1. Observe the changes to the litmus paper for the baking soda (base). Did any other substances have the same changes? List them.

2. Observe the changes to the litmus paper for the vinegar (acid). Did any other substances have the same changes? List them.

3. **Acids** have a pH number from 1-6. Did any of the substances have a pH between 1 and 6? List them.

4. **Bases** have a pH number between 8-10. Did any of the substances have a pH between 8 and 10? List them.

5. Which of the substances are acids? List them.

6. Which of the substances are bases? List them.

7. Pure water is not an acid or a base, but right in the middle with a pH number of 7. Were any of the substances a neutral pH like water? List them.

8. Are some bases stronger than others? Explain your answer.
