

## Indicators Lab

There are three sets of activities and a set of questions you must complete during this lab. You may do the activities in any order.

### Station #1-pH Paper Identification

1. Pick one of the clear solutions and pour about 50 mL into a beaker.
2. Take one piece of pH paper from the tray and touch the end of it to the surface of the liquid in the beaker.
3. Match the color of the paper to the scale on the side of the container.
4. Repeat steps 1-3 for the other two clear liquids.
5. Place an antacid tablet in the beaker that contains the acid and observe what happens.
6. Test the pH of the acid after the antacid has been added.
7. Throw the pH paper away. Pour the liquids into the sink. Clean out the beakers and wipe them dry. Wipe down the sink counter.

What was the pH of solution A? 7

Is solution A an acid, base, or neutral? Neutral

What was the pH of solution B? 3

Is solution B an acid, base, or neutral? Acid

What was the pH of solution C? 7

Is solution C an acid, base, or neutral? Neutral

How did the pH change when the antacid tablet was added to the acid?

It went from Acid to Neutral

What is in your stomach an acid, base, or neutral? Acid

What do you use antacid tablets for? to reduce acid in stomach

Is an antacid tablet an acid, base, or neutral? Acid

What do antacid tablets do to your stomach? settle it

## Station #2-Raddishes

1. Take the radish and index card from the tray. Rub the radish onto the index card so that the card becomes red (you only need to make part of the card red, not the entire card).
2. Take the Q-Tip from the Dixie cup containing orange juice and dab it onto one spot on the index card. Note the color on that spot of the index card.
3. Repeat step 2 for each of the remaining solutions.
4. Throw away the index card. Wipe down the counter or table top. If Miss Slater if anything is empty or needs to be changed.

What color should have appeared for the acids? Red

What color should have appeared for the bases? Blue

List the solutions as either acids or bases.

	Acids	Bases
o	ORANGE Juice	Mouthwash
o	COKE	

What are most of the acids used for? Drinking

What kind of taste do acids have? Sweet

What are most of the bases used for? Cleaning

What kind of taste do bases have? bitter

What do you have in your stomach (acid, base, or neutral)? acid

Would it be better to add acids or bases to your stomach? acids

## Station #3-Cabbage

1. Place half a leaf of cabbage into a plastic baggie.
2. Add two plastic cups full of water.
3. Close the baggie (make sure most of the air is out of the baggie).
4. Use your hands to mix the cabbage and water together for about a minute.
5. Pour the solution into two Dixie cups (you want an equal amount in each cup).
6. Add one teaspoon of glass cleaner to one cup.
7. Add one teaspoon of lemon juice to the other cup.
8. Pour the liquids into the bucket. Throw the cups, cabbage and baggie away.  
Wipe off the desk top.

Which solution was your acid? lemon juice

What color did the acid turn in the cabbage solution? red

What is this acid used for? edible

Which solution was your base? glass cleaner

What color did the base turn in the cabbage solution? blue

What is this base used for? cleaning glass

## Questions

4. Use the Venn Diagram to compare and contrast acids and bases.



1. What is the name of the type of chemical that tells if you have an acid or a base solution?

indicator

2. What is the color for acids? red

3. What is the color for bases? blue

4. What is pH? indication used to determine if a solution is acid or base

5. What is pOH? indication used to determine if a solution is an acid or base

6. List the two models of acids and bases from your notes. 1. Arrhenius  
2. Bronsted-Lowry

7. According to Arrhenius, label each as an acid (A) or a base (B).

H<sub>2</sub>S A

CH<sub>4</sub> A

NaOH B

HCl A

KOH B

HNO<sub>3</sub> A

NH<sub>3</sub> A

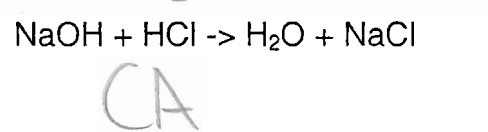
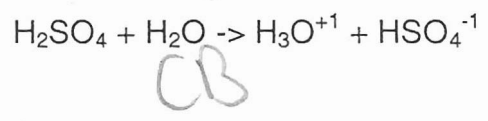
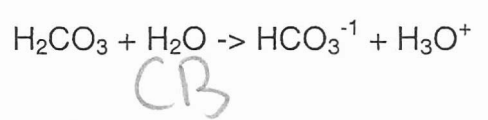
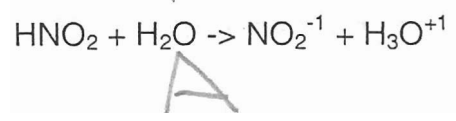
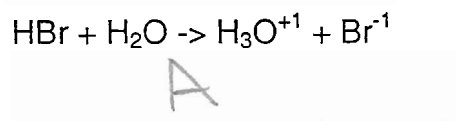
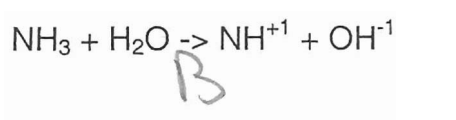
C<sub>2</sub>H<sub>6</sub> A

Mg(OH)<sub>2</sub> B

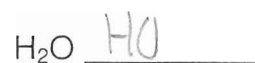
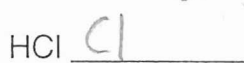
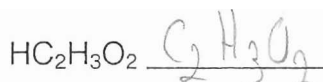
8. What is a conjugate base? the species that remains after an acid has lost a proton

9. What is a conjugate acid? the species that is formed when a base gains a proton

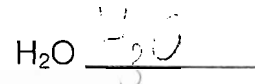
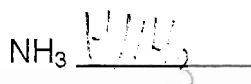
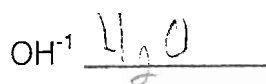
10. Label the acid (A), base (B), conjugate acid (CA), and conjugate base (CB) in the following reactions.



11. Write the formula for the conjugate base of each acid.



12. Write the formula of the conjugate acid for each base.



13. Your stomach uses acid to help digest the food you eat. When the stomach contains too much acid, a person will use an antacid (like Alka-Seltzer). Antacids decrease the amount of acid, making the person feel better. Why do medications like antacids decrease the amount of acid in the stomach?

So acids in ur stomach don't eat your stomach.

14. Would you predict most medications to be acids or bases? Why?

Bases, because bases r used to clean things and medications clean your body of sickness.

15. Most of the foods you eat are acids. What would happen if you ate too many acidic foods? How could you fix it?

Your arteries would clog, you'd ha diet.

16. What happens when acids and bases mix together? They react.

17. What is the danger of eating a base (like a cleaning product)? Pain,

you could throw up and die.