## Ionic Compound Properties and Acid Base Stations MiniLab

**Concepts:**

1. To apply the correct technique in titration and carry out acid base titration using phenolphthalein as indicator.
2. Make a solution and test the conductivity of ionic and covalent bonds.
3. Make a base by initiating a chemical reaction.
4. Investigate metal that oxidize in solutions during chemical reactions and how they change oxidation states (numbers: the roman numeral).

**Station 1: ACID AND BASE TITRATION**

**Prelab questions:**

1. **What is a titration?**
2. **What is a burette?**
3. **What is a volumetric flask?**
4. **What is phenolphthalein?**
5. **What is a neutralization reaction?**
6. **Put procedures in your own words**
7. Add **10mL** of the base in burette.
8. **10mL** of the acid in volumetric flask using the BIG graduated cylinder then add 2 drops of phenolphthalein
9. Add the base drop wise until solution turns pink.
10. Test pH again to check if the acid is neutralized.
11. Now you have Saltwater. Test the pH again to see if it is neutralized.
12. Leave any excess base in burette.
13. Pour neutralized acid solution down the drain.
14. Rinse everything with water

**Station 2: Conductivity**

**Prelab questions:**

1. **What is conductivity?**
2. **What is the different between an ionic bond and a covalent bond?**
3. **Do you think a covalent bond will conduct electricity like an ionic compound? Why?**
4. **Is sugar a covalent or ionic bond?**
5. **Do you think a covalent bond will dissolve quicker than an ionic compound? Why?**
6. **Write procedure in your own words**
7. Weigh 5 grams of each substance.
8. Obtain 100mL of tap water.
9. Time how long it will take each one to dissolve and record you results.
10. Make observations when you put salt and sugar in the water. Which appears to dissolve without stirring or heat?
11. Test the conductivity of each solution by holding the light bulb and then plugging it into the outlet.
12. NEVER touch the electrodes while it is plugged in.
13. Be sure to clean the electrodes after each test.

**Station 3: Make a base**

1. **What polyatomic ion does every base have?**
2. **Draw a pH scale from 1-12 and label it with the strength of acids and bases.**
3. **What pH is neutral?**
4. **Write the procedures in your own words**
5. Test the pH of the water and record it.
6. Obtain a piece of Calcium.
7. Take Calcium and place it in water.
8. Make a prediction about the bubbles that are forming, what molecule is it??
9. When it is done reacting, take the pH again and record it.
10. Neutralize the basic solution with vinegar until you reach a pH of 7. You can use the same pH stripe multiple times.
11. When it is neutralized pour the solution down the drain and rinse your beaker.

**Station 4: Observation of Oxidation**

1. **What does a roman numeral represent in a chemical formula?**
2. **What elements get a oxidation number?**
3. **How can you predict the oxidation number from only a formula?**
4. **What does oxidation mean?**
5. **Can an oxidation number change during a chemical reaction?**
6. **Write procedures in your own words**

Cu(s) + AgNO3🡪Cu(NO3)2 + Ag

1. Write the names of each ion and formula for the reaction above using correct oxidation numbers for the metals.
2. Obtain ONE small piece of copper.
3. Put 5-10 drops of AgNO3
4. Make observations about the reaction.
5. What does the Ag look like?
6. How much copper was used in the reaction?

Lead(II) Nitrate + Potassium Iodide 🡪 Lead (IV) Iodide + Potassium Nitrate

1. Write the formula for the reaction above.
2. Record the colors of both of the solutions
3. Put 10 drops of Lead Nitrate into the test tube.
4. Put 10 drops of the Potassium Nitrate into the same test tube.
5. Record observation of the reaction.
6. Rinse both test tube in the sink.