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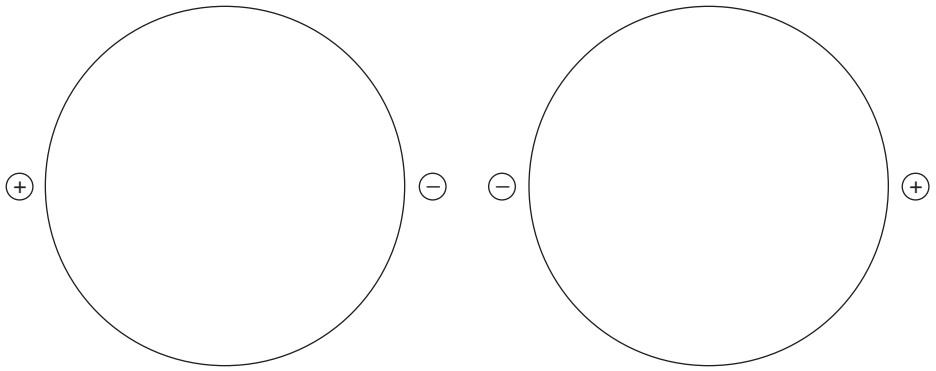
The Silver Surfer Worksheet

The original conducting solution contains tin(II) chloride ($SnCl_2$). The products of the electrolysis reaction are tin(0) and tin(IV) chloride.

1. Draw two sketches representing your observations during the first and second parts of this demonstration.



Part 1 Part 2

2. How did the two products differ in appearance?

3. Name the products that were obtained at the anode and at the cathode.

4. The electric current causes an oxidation–reduction reaction within the conducting solution.
   a. Which product results from the reduction of tin(II) ions?

   b. Which product results from the oxidation of tin(II) ions?

5. What was observed when the "sign" or polarity of the electrodes was switched?

Sour Stomach? Pour Me a Rainbow of Relief Worksheet

1. Describe what happened in this demonstration.

2. Write the balanced chemical equation for each of the following reactions.
   a. Neutralization reaction between magnesium hydroxide and hydrochloric acid

   b. Dissociation of magnesium hydroxide

   c. Reaction between hydrogen ions from the acid and hydroxide ions from the base

3. Using LeChâtelier's Principle, explain why adding HCl caused more magnesium hydroxide to dissolve in solution.

4. Explain why the solution is red and clear at the end of the demonstration.

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Sparks Are Flying! Worksheet

1. Describe what happened in this demonstration.

2. What is the difference between an endothermic and an exothermic reaction? Was this reaction endothermic or exothermic? How do you know?

3. In this demonstration, rust (iron oxide) reacted with aluminum foil. Write a balanced chemical equation for this reaction. Include heat on the correct side of the equation.

4. How was the activation energy needed for this reaction supplied?

In Honor of Flag Day Worksheet

1. List the contents of the three 600-mL beakers and the solutions added to each beaker. Describe the color changes each in each mixture.

2. Write a balanced chemical equation for each of the following reactions.

   a. Bisulfite ions reacting with water (*Hint:* This reaction is reversible.)

   b. Sulfite ions reacting with water (*Hint:* This reaction is reversible.)

   c. Formaldehyde (H_2CO) reacting with sulfite to form hydroxymethyl sulfonate ions ($HOCH_2SO_3^-$) and hydroxide ions.

3. The third reaction listed above consumes sulfite ions and produces hydroxide ions. How does this affect the equilibrium in the first two reversible reactions?

4. The sulfite/bisulfite solution acts as a buffer. What happens when the bisulfite ions are used up? How are the color changes produced?

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Uncle Sam's Splashy Finale Worksheet

1. Describe what happened in this demonstration.

2. Write the chemical equation for the decomposition of hydrogen peroxide.

3. Why does the dishwashing liquid foam?

4. What was the purpose of the sodium iodide? Did it get used up during the reaction?