

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

### Electrolysis of Water Lab /Demo

Electrolysis is used to start a chemical reaction to separate water ( $H_2O$ ) into hydrogen and oxygen.

#### SAFETY ISSUES:

DO NOT TRY THIS AT HOME! The use of electricity and water is dangerous and you should not experiment with this on your own or vary this procedure in any way!

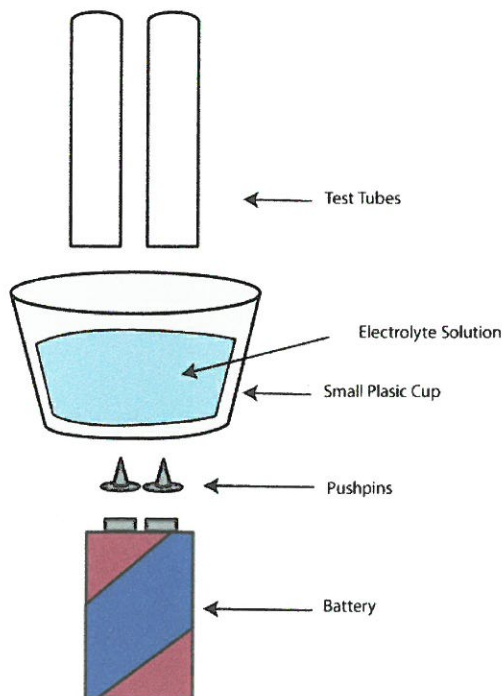
Wear safety glasses.

Glass test tubes are breakable – use caution!

#### Materials:

- 1 9V Battery or 2 D batteries in holder
- 2 metal tacks/push pins (flat head)
- 1 Plastic cup
- 2 Test tubes
- 300 ml Water and Baking soda solution in a large deep container

#### Set up of materials:



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11 to 11

Background + Materials for Procedure are posted.

**Procedure:**

1. Insert pushpins through the bottom of the plastic cup about 2 cm apart; the flat parts of the pin must line up with the electrodes on the battery.
2. Insert tubes and cup into container of baking soda and water solution.
3. Fill the test tubes to the top with the baking soda and water solution. There should be no air in the tubes.
4. Insert test tubes into cup upside down so that one push pin is in one tube.
5. Carefully remove the cup and test tubes from the container of baking soda and water solution. KEEP TEST TUBES FIRMLY ON BOTTOM OF CUP OVER THE PINS.
6. Place the cup with the tubes on top of the battery so that each pin sits on one of the electrodes.
7. Make and record observations.
8. Answer the related questions.

**Observations:**

<b>Tube 1</b> <b>(on positive electrode /anode)</b>	<b>Tube 2</b> <b>(on negative electrode/cathode)</b>



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**Electrolysis Questions:**

1. Why is it important that the push pins used in this lab are metal?
2. What did you observe as the electricity started to run into the water and baking soda solution?
3. Why is it necessary to use electricity to separate the water into hydrogen and oxygen?
4. How could you tell that hydrogen and oxygen were being separated and collected?
5. Did both tubes collect gas at the same rate? Give details.
6. Which tube collected more gas? Explain why this makes sense.