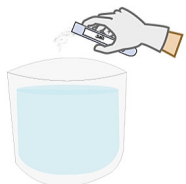


# ELECTROLYSIS OF WATER

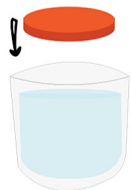
- 1 Pour water in the given container.



- 2 Add given salt in water & mix it.



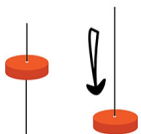
- 3 Place the given foam piece.



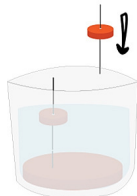
- 4 Make a hole in small pieces of eva foam.



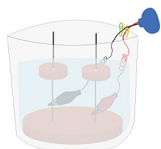
- 5 Insert the given graphite rods in small foam pieces.



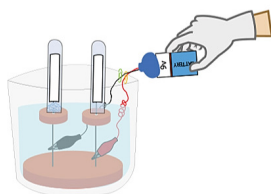
- 6 Insert graphite rods into the foam piece which is at the base.



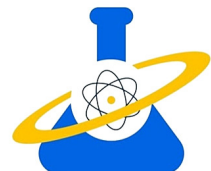
- 7 Connect red wire of battery connector with one of the graphite rods & black wire with another.



- 8 Connect battery with the battery connector & invert empty test tubes on both graphite rods.

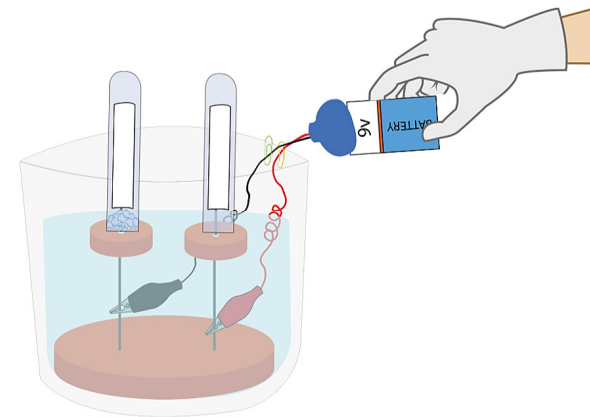


Working:- Bubbles will start producing on both graphite rods but more bubbles will be observed on negative terminal.



Future STEM Explorers

# Electrolysis



## Learning outcomes:

### Students will be able to

- Understand the concept of chemical effects of electric current
- Understand the concept of electrolysis
- Define the terms like electric current, electrolyte, electrolytic cell

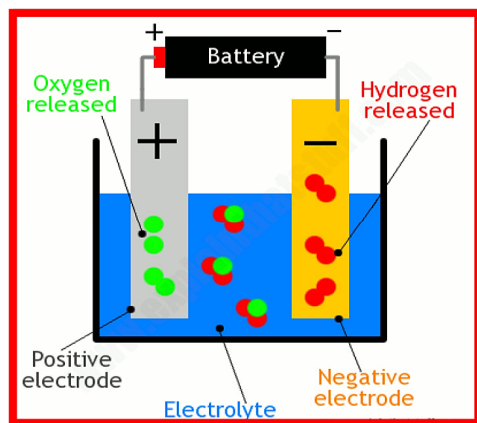
An electric current is a flow of electric charge. This charge is often carried by moving electrons in a wire or can also be carried by ions in an electrolyte. When this current is passed through a conducting solution, some chemical reactions take place.

### Electrolysis

The process of decomposition of a chemical compound in a solution when an electric current passes through it is called electrolysis. Electrolysis of water is the decomposition of water ( $H_2O$ ) into oxygen and hydrogen gas due to an electric current being passed through the water. Here, water is known as electrolyte (solution that conducts electricity due to presence of ions).

Science behind the activity:

When electric current is passed through water, it breaks down the water into hydrogen and oxygen ions. As a result of this decomposition, bubbles at the electrodes due to production of gases can be observed. Oxygen ions being negatively charged are attracted towards positive electrode and hence, are collected at anode and hydrogen being positively charged is attracted towards negative electrode and hence is collected at cathode.



Uses of Electrolysis:

- Electrolysis is used in refining and extraction of metals from impure samples. This process is called electro-refining.
- It is also useful in coating one metal with another. This process is called electroplating.

## Quiz Time

1. What would happen if we add salt to water during the process of electrolysis?

2. Name the gases to be collected at anode and cathode during electrolysis of water.

3. What is electrolytic cell? List down its components with their definition.

4. What chemical changes can be observed when electric current is passed through a conducting solution.