

Chemical Effects of Electric Currents

Class 8 Science

Chapter 14

MODULE 2

CONTENTS

- Chemical effects of electric current
- Electrolysis
- Electrolysis of water

CHEMICAL EFFECTS OF ELECTRIC CURRENT

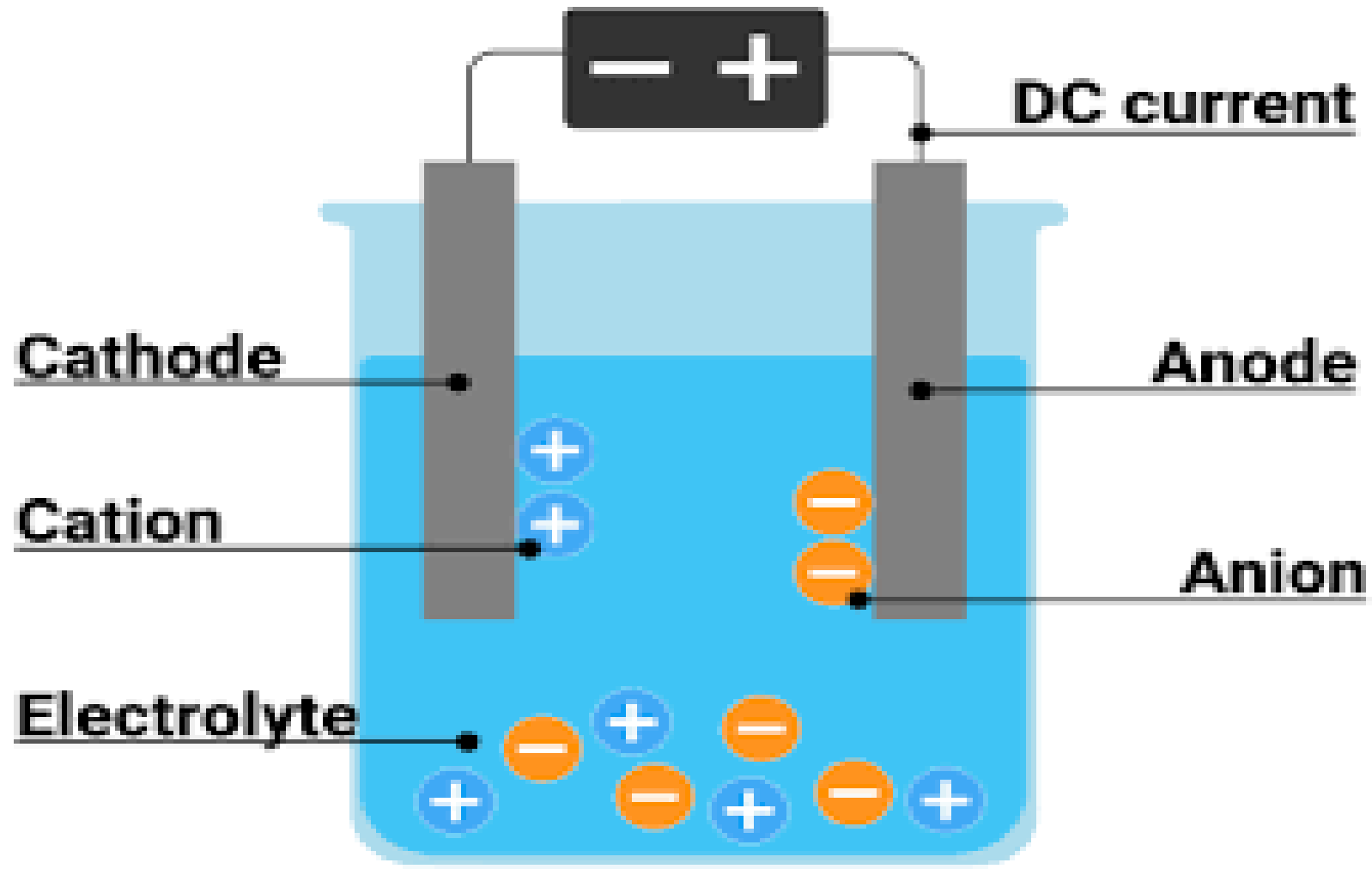
The passage of an electric current through a conducting solution causes the chemical reaction. The resulting effects are called chemical effects of current.

CHEMICAL EFFECTS OF ELECTRIC CURRENT MAY CAUSE:

- ❖ Formation of gas bubbles on the electrodes.
- ❖ Deposits of metal may be seen on electrodes.
- ❖ Changes of colour of solutions

Electrolysis

The effect in which components of a compound get split due to passing an electric current through it is called electrolysis.



What is an electrode?

An electrode is a conductor of electricity that can carry electric current into non-metals and other poor conductors of electricity.

There are two types of electrode: an anode and cathode

The positively charged electrode is called **anode** and the negatively charged electrode is called **cathode**.

What is an electrolyte?

A solution that breaks into its ions on passing electricity through it is called an electrolyte.

During electrolysis **two types of ions are formed: anions and cations**

An **anion** is a negatively charged ion and are attracted towards anode and a **cation** is a positively charged ion and are attracted towards cathode.

Electrolysis of water

In 1800, a British chemist, William Nicholson (1753-1815), had shown that if electrodes were immersed in water, and a current was passed, bubbles of oxygen and hydrogen were produced



When electric current is passed through water, it splits up into hydrogen & oxygen. This is called electrolysis of water.

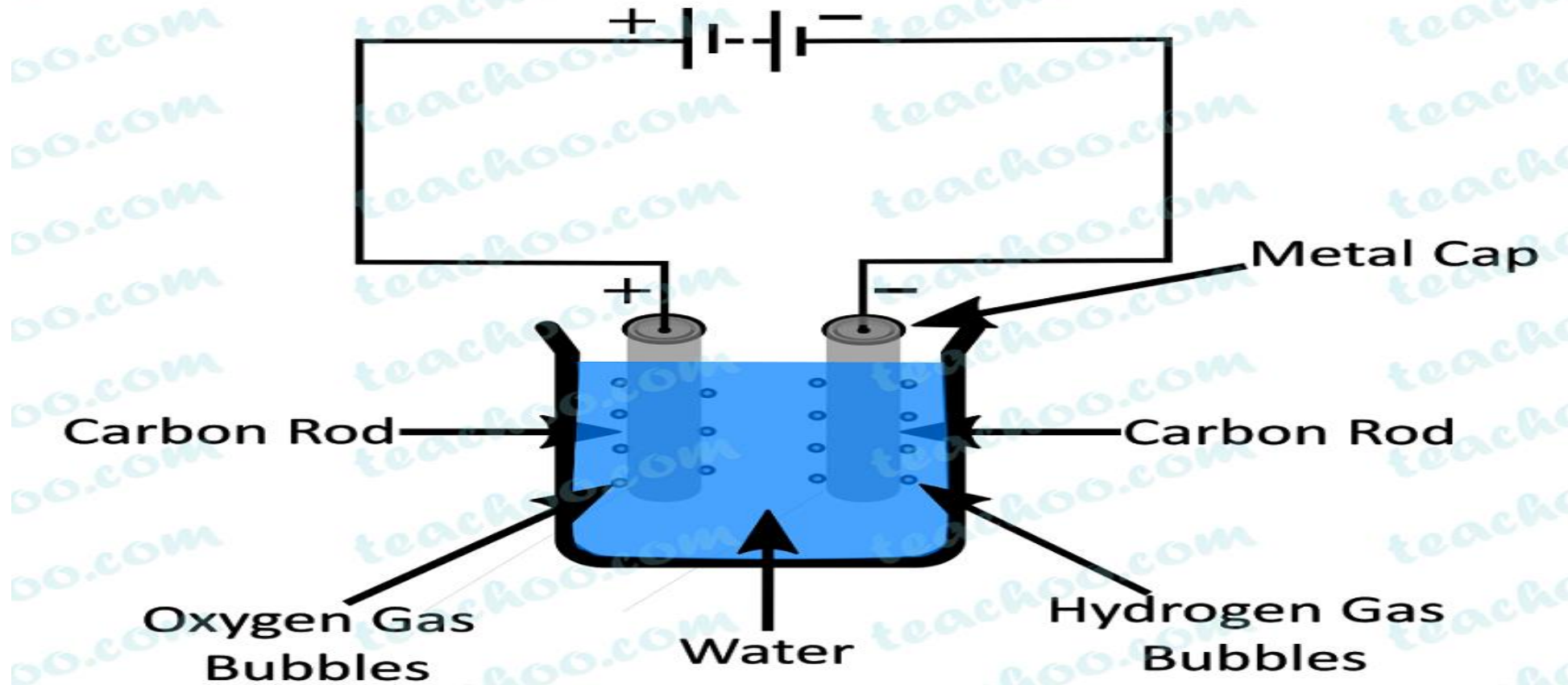
ACTIVITY – ELECTROLYSIS OF WATER

- Take out carbon rods carefully from two discarded cells.
- Clean their metal caps with sand paper.
- Wrap copper wires around the metal caps of the carbon rods and join them to a battery . These two rods are electrodes. (Instead of carbon rods, you may take two iron nails about 6 cm long.)
- Pour a cupful of water in a glass/plastic bowl.
- Add a teaspoonful of salt or a few drops of lemon juice to water to make it more conducting.
- Now immerse the electrodes in this solution.
- Make sure that the metal caps of the carbon rods are outside the water.
- Wait for 3-4 minutes.
- Observe the electrodes carefully.

Do you notice any gas bubbles near the electrodes?

Yes, gas bubbles are formed near the electrodes
These gas bubbles are oxygen & hydrogen

Passing current through water



Oxygen bubbles formed on the electrode connected to the positive terminal of the battery and hydrogen bubbles formed on the electrode connected to the negative terminal of the battery.

SUMMARY

- The passage of an electric current through a conducting liquid causes chemical reactions. The resulting effects are called chemical effects of currents.
- There can be various chemical effects observed on passing electric current depending on the type of solution and electrodes: Formation of Gas Bubbles, Deposits of metal may be seen on electrodes, Changes of colour of solutions
- The process of splitting of compound due to passing an electric current through it is called electrolysis.



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