

SUBJECT: SCIENCE
TOPIC: CHEMICAL EFFECTS OF ELECTRIC CURRENT

DAIRY- LESSON PLAN

Pre-content/Content/ Post-content	Learning Outcome/Objectives	
<u>Pre-Content:</u>	General	Specific
Students know that some solid materials allow electric current to pass through them whereas others do not allow electric current to pass through them. The materials which allow electric current to pass through them easily are called good conductors of electricity. On the other hand, those materials which do not allow electric current to pass through them easily are called poor conductors (or non conductors of electricity). Teacher will motivate the students to introduce the lesson. <u>Content:</u> • Conduction of electric current • Chemical effects of electric current • Electroplating <u>Post Content:</u> Students will be able to • Discuss the conductivity of different liquids. • Discover the effect of impurity on the conductivity of water. • Discuss the process of electroplating • Identify the uses of electroplating	Students will be able:- • conceptualize the conductivity of different liquids and chemical effects of it. • appreciate the applications of electroplating	Students will be able to:- • discover the flow of electric current in liquids. • find out which liquids conduct electricity • demonstrate the conduction in few solutions. • develop the principle of electroplating. • compile uses of electroplating in daily life. • identify hazards of electroplating.

Home work / Assignment:-

- Worksheets
- Exercise questions
- Extra questions

Teacher's Activity	Student's Activity	Teacher's Observation and Remedial action taken
Teacher will: initiate the chapter by discussing about conductors and insulators with examples and about a simple circuit. <u>Annexure 14 (A)</u> demonstrate the electrical conductivity of vinegar, tap water, RO water, oil, milk. <u>Annexure 14 (B)</u> demonstrate the process of electrolysis of water show a video on the process of electroplating show a video on purification of impure copper	Students will: give examples of insulator and conductors <u>Annexure 14 (a)</u> perform activity of the electrical conductivity of different liquids and categorize them as good or poor conductors in a tabular form <u>Annexure 14 (b)</u> perform the activity of the chemical effects of electric current and will be able to discuss the applications of chemical effects of electric current. see the video on electroplating and will be able to discuss the applications of chemical effects of electric current. see the video, draw the diagram and record observations.	

Teaching Aids: Active Inspire, ICR, worksheets, reference books and material required for conducting the activities.

Methodology / Innovative methods: Demonstration of electrical conductivity of different liquids and electroplating.

Interdisciplinary links: Art – Students will develop the skill of drawing.

Chemistry – Chemical effects of electric current.

HOD

Coordinator

Vice-Principal

Principal

ANNEXURE 14(A), 14 (a)

ACTIVITY NO. 14 – YOU SHALL NOT PASS

Subject	Science
Class	VIII
Chapter/Unit	Chemical Effects of Electric Current
Topic	Good conductors and Poor conductors
Time	30 minutes
Nature of Activity	Group

What will I learn (Learning Outcome)?

Will classify the materials as good conductors or poor conductors after testing their conduction of electricity.

Skills: Applying, Analyzing and Creating

What I have to do?

To test the conduction of electricity through vinegar and other liquids.

What do I require?

Plastic or rubber caps, vinegar, tester, tap water, RO water, oil, milk.

What do I need to know?

When the liquid between the two ends of the tester allows the electric current to pass, the circuit of the tester becomes complete. The current flows in the circuit and the bulb glows. When the liquid does not allow the electric current to pass, the circuit of the tester is not complete and the bulb does not glow.

➤ **Teacher's Activity**

Teacher will-

1. explain the difference between good conductors and poor conductors.
2. make arrangements for the activity.
3. make pairs of the students and will explain the steps of the activity.
4. ensure that each participant of the pair performs the activity on his/her own.

How will I proceed?

➤ **Student's Activity**

1. Collect a few small plastic or rubber caps of discarded bottles and clean them.
2. Pour one teaspoon of vinegar in one cap.
3. Bring your tester over this cap and let the ends of the tester dip into vinegar.
4. Take care that the ends are not more than 1 cm apart but at the same time do not touch each other. Record the observations.
5. Repeat the same with other samples and record the observations.

What have I observed?

S. No.	Name of the Sample	Bulb glows (Yes/ No)	Good conductor/ Poor conductor
1.	Vinegar		
2.	Tap water		
3.	RO water		
4.	Oil		
5.	Milk		

What have I learnt?

1. Vinegar and Tap water will _____ electricity because they _____.
2. RO water, oil and milk will _____ electricity because they _____.

What am I curious to learn?

- Let us test the conduction of electricity through various fruits and vegetables. Display your result in a tabular form.

Let me evaluate myself

1. Why some liquids conduct electricity while other don't?

2. Explain why a bulb glows on passing current.

3. We add a small amount of sugar to distilled water, the resulting solution will be a good conductor or a poor conductor? Explain why?

4. Why is it right to say poor conductors instead of bad conductors?

5. There are two different solutions in set up P and Q as shown in figure. The bulb in the set up P glows more brightly as compared to that of the set up Q. What are the possible causes for this?

➤ **ANNEXURE14(B)**

Teacher will demonstrate the electrical conductivity of Distilled Water, Acidic Water, Basic Water.

AIM: To show the Electrical conductivity of Distilled water, Salty Water, Acidic Water and Basic Water.

MATERIAL REQUIRED: Battery, Bulb, tester, discarded Bottle caps, Distilled water, Acidified Water and Water sample with a few drops of Caustic Soda.

PROCEDURE: Take four clean bottle caps and pour about two teaspoons of distilled water in each one of them. Add a few drops of HCl in the second cap and similarly a few drops of Caustic soda in the third and a pinch of salt in the fourth. Test the Electrical Conductivity of each type of solution by dipping the tester in each one of them and draw conclusions.

➤ **ANNEXURE14(b)**

Student will observe the activity and answer the back exercise questions

OBSERVATION: The bulb glows in all the cases.

CONCLUSION: All the given types of electrolytes conduct electric current.

ANNEXURE 14(B), 14 (b)

Activity - Electrolysis of water

Chapter- Chemical Effects of Electric Current

Class: VIII

Duration: 30 minutes

Nature of the activity: Group

Learning Outcome: Students will be able predict that the chemical effect of passing Electric Current through water is evolution of gases.

What we have to do?

Study electrolysis of water.

What do we need?

Water in a 250 mL beaker, common salt, a battery of 3 D type 1.5 V cells, cell holder, double cotton covered copper connecting wires, a switch.

How do we proceed?

➤ **Teacher's activity:**

Teacher will arrange activity kits and demonstrate the working of one kit.

➤ **Student's activity:**

1. Take two long dcc (double cotton covered) copper wires and fold one end of each into U-shape.
2. Fill the beaker about half with water. Add half a teaspoonful of common salt to water to make it more conducting.
3. Insert the U-shaped connecting wire in water. Connect its other end to the positive terminal of the battery.
4. Connect the negative terminal of the battery to a plug key.
5. Connect the second U-shaped connecting wire to the negative terminal of the cell through the key. 6. Insert the key into plug. Wait for a few minutes.
7. The wire connected to the positive terminal of the battery is called the positive electrode and the wire connected to the negative terminal of the battery is called negative electrode.
8. Observe carefully. Do you observe gas bubbles on the electrodes? On which electrode do you observe larger number of bubbles?
9. Now remove the key from the plug. Do you still observe the bubbles on the electrodes?

What do we observe?

What have you learnt?

1. In this experiment, why do we add common salt to water?

2. How can you capture the gas released at both the electrodes?

3. How will you confirm that hydrogen gas is released at the negative electrode?

What more can we do?

- Bubbles released on the electrodes can be collected in a small (glass/ plastic) bottle inverted over the electrodes.
- The distance between the electrodes can be increased and its effect on the number of bubbles released at the electrodes can be studied.
- The activity may be repeated taking water from various sources (tap water, distilled water, river water, etc.) and also by taking electrodes of different materials.