

# Chapter 7

## Hydrogen

### LESSON PLAN

#### SPECIFIC OBJECTIVES

The students will learn about

- ❖ hydrogen and its occurrence
- ❖ preparation of hydrogen
- ❖ laboratory preparation of hydrogen
- ❖ physical and chemical properties of hydrogen
- ❖ uses of hydrogen
- ❖ oxidation and reduction: redox reaction

#### Teaching Aids

**Pictures/charts/models/animation** on the formation of hydrogen molecule; occurrence of hydrogen; discoverer of hydrogen; different methods of preparation of hydrogen; properties of hydrogen; position of hydrogen in reactivity series of metals; uses of hydrogen; redox reaction

#### Teaching Strategy

- ❖ Teacher will start the chapter by introducing hydrogen, its discovery and occurrence.
- ❖ Teacher will discuss different methods of preparation of hydrogen, i.e., by electrolysis of water; reaction between metals and water; from acids and alkalis.
- ❖ Teacher will explain laboratory preparation of hydrogen by demonstrating Activities 1 and 2.
- ❖ Students should be suggested the precautions taken while preparing hydrogen in laboratory.
- ❖ Teacher will now explain physical and chemical properties of hydrogen by demonstrating Activities 3 and 4.
- ❖ Teacher will discuss uses of hydrogen and will explain redox reaction.
- ❖ Now, teacher will ask the students to solve 'Check Point'.

- ❖ At last, teacher will sum up the lesson by going through the points given under the head 'Wrapping It Up'.
- ❖ Teacher will finally help students to answer the questions given under the head 'Test Yourself'.

### Boost Up

- ❖ Teacher can help students to perform the activities given in chapter.
- ❖ Teacher can make students revise new terms given under the head 'Know These Terms'.
- ❖ Teacher can encourage students to learn the facts given under the head 'Something More'.
- ❖ Teacher can show animations related to the topics taught, if possible.
- ❖ Students should be encouraged for writing more examples of redox reaction.

### Expected Learning Outcomes

The students understand and know:

- ❖ discovery and occurrence of hydrogen.
- ❖ different methods and lab method of preparation of hydrogen.
- ❖ physical and chemical properties of hydrogen.
- ❖ different uses of hydrogen.

### Evaluative Questions

The teacher should ask the following questions to evaluate the students.

1. Is hydrogen a nonmetal? Is it lightest of all the known elements?
2. Who discovered hydrogen?
3. Write the chemical formula of calcium hydroxide.
4. Describe the lab method of preparation of hydrogen.
5. Write two physical properties of hydrogen.
6. What happens when hydrogen gas combines directly with carbon?
7. What is meant by hydrogenation?
8. Mention one example which shows redox reaction.