Water

10

SPECIFIC OBJECTIVES

The students learn about

- the process of evaporation and the factors affecting it
- the process of condensation
- water cycle
- the process of precipitation and its different forms
- underground water
- impurities in water
- different methods of purification of water
- need and ways to save water

TEACHING AIDS

Pictures/animation on the process of evaporation; Effect of temperature, surface area, wind speed and humidity on the rate of evaporation (as described in the chapter); The process of condensation, cloud formation, process of rain and snowfall, process of hailstones, dew, fog and frost formation; Heavy rainy scenes and floods; Damage due to heavy snowfall, hailstorms; Underground water, water table; Water cycle, polluted waterbodies, sources of water pollution, harms or diseases caused by consuming polluted water; Rainwater harvesting; process of sedimentation and decantation; Boiling of water; Different types of water filters; Sample or picture of chlorine tablets, potassium permanganate, bleaching powder.

LESSON PLAN

- Teacher will start the chapter by asking some simple questions on different forms of water based on the previous knowledge of students.
- Teacher will have a brief discussion on three states or forms of water, i.e., solid, liquid and gaseous states and will discuss its occurrence on the earth.
- Now, teacher will define the term 'evaporation' and with the help of teaching aids, describe how it occurs in nature.
- With the help of teaching aids, teacher will explain the factors affecting the rate of evaporation:
  - higher temperature increases the rate of evaporation.
  - larger surface area increases evaporation.

- higher wind speed increases evaporation.
- high humidity lowers the rate of evaporation.

- Now, teacher will explain the term 'condensation' that it is the change of gaseous form of water, i.e., water vapour into liquid form of water, on cooling.
- Now, teacher will describe water cycle that it is the change of one form of water into other and again into previous form in a cyclic manner. Teacher will explain the process of water cycle by showing pictures/animation on it and highlight its significance in keeping the amount of water on the earth constant.
- Teacher will explain the term 'precipitation' that it is the process of falling of solid or liquid form of water from the atmosphere on the earth. Teacher will also explain that rain is liquid form, whereas snow, hail, dew, fog and frost are solid forms of precipitation.
- With the help of teaching aids, teacher will explain the formation of rain, snow, hail, dew, fog and frost and the damages they cause (as described in chapter).
- Now, to check the learning of students about the chapter, teacher will ask them to solve 'Checkpoint 1'.
- Teacher will tell about underground water, rainwater harvesting and water table, and explain that the level of water table varies according to season, i.e., rises during rains and lowers during summers.
- Teacher will use different teaching aids to discuss the impurities in water and the harms of consuming impure water (as described in the chapter).
- Now, teacher will discuss the need of clean water and explain some common methods for cleaning water and their benefits.
- Teacher will describe the processes of sedimentation, decantation, filtration and chlorination.
- Teacher will discuss the need and ways to save water.
- Now, teacher will ask the students to solve 'Checkpoint 2'.
- At last, teacher will make students revise the new terms given in 'Science Vocabulary' and sum up the lesson by going through the points given in 'Wrapping it up'.
- Now, teacher will help students to solve the questions given in 'Exercises'.

BOOST UP

- If possible, teacher should perform the activities given in the chapter in the class.
- Teacher should discuss the conversation of Annu and Mannu given in bubbles in between the topics.
- Teacher should help students to find the answers of questions given in 'Think Zone'.
- Teacher should discuss the information given in the 'Knowledge Desk' at various places in the chapter.
- Teacher should display different types of water filters.
- Teacher should display chlorine tablets and tell how they are used for purifying water.
- Teacher should arouse the moral values in students for saving water by discussing with them the need of clean water.
- Students should be encouraged to find out sources of impurities in water.

EXPECTED LEARNING OUTCOMES

The students know about

- the process of evaporation and the factors affecting it.
- the process of condensation and precipitation.
- different forms of precipitation.
- water table, water cycle and rainwater harvesting.
- impurities of water.
- different methods of water purification.
- need and ways of saving water.

EVALUATIVE QUESTIONS

The teacher may ask the following questions for evaluating learning and understanding of students:

1. Where is water present on the Earth?
2. What is evaporation?
3. What is water vapour?
4. How do temperature and surface area affect the rate of evaporation?
5. What is humidity?
6. How does humidity affect rate of evaporation?
7. What is condensation?
8. How do clouds form?
9. How are dew drops formed on leaves?
10. What is underground water?
11. Which chemicals are used for purifying water?
12. Which cloth is used for filtering water?