CHAPTER: EXPERIMENTS WITH WATER

Grade: **5**
Board: **CBSE**
Book: **NCERT**

1.

Chapter Summary and Placement

Read through the following to understand the gist of the lesson.

Water and its properties are discussed in detail in the previous chapters and grades. This chapter enables the students to classify objects based on the floatation and solubility

2.

LEARNING OUTCOMES

<On completion of the chapter, students will be able to:>

1. Identify the objects that float and sink in water.
2. Understand the term soluble/insoluble
3. Explain the concept of evaporation and state the three forms of water

3. PREVIOUS KNOWLEDGE REQUIREMENT

<The below points should be refreshed before introducing the chapter:>

1) Remember the different source of water like, lake, ponds, well, rain water harvesting etc.

4. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently

Subtopic and Learning Objective #1

LO: Identify the objects that float and sink in water.

Teacher Activity

1. Perform Activity 1.
2. The teacher can introduce the chapter by asking a few question to the students
   - Paper boats on water: When does it sink?
   - Poori floating and not floating in hot oil.
   - Closed empty bottle floating on water
3. Explain the division based on objects that float and objects that sink.
   - In the case of poori: It is filled with hot air and steam which is lighter than water.
   - Plastic ball: It is lighter than water.
   - A half-filled bottle: The portion filled with water is heavier and will be underwater and the other part will be above water or floating
4. The egg floats in salt water because salt makes the water more heavier than egg.

Check for understanding:

a) Which of the following will sink?
   Pin, Match stick, Plastic ball, Steel spoon, Empty bottle

b) Why does some objects float on water?

c) How can we classify objects based on their behaviour in water?

Resources Suggested

Textbook, chalkboard, Resource 1

Activity 1

Name of the activity – FLOAT VS. SINK: A FOOD EXPERIMENT
Type of activity – Individual
Learning Objective: Understand the how different substance behave when in contact with water.
Use it for – Reading and analytical skills
Materials – Fruits: banana, orange, mango, lime, apple, grape, Veggies: carrot, potato, peppers Paper and pencil, Kitchen scale

Teacher instructions:

1. The teacher may ask the student to perform the activity at home and record the observations in their notebook
2. Take a large glass bowl with water
3. Collect your fruit and vegetables for the experiment. Take pencil and paper and create four columns as shown below
4. Record all your fruits, vegetables and their weight.
5. One at a time, place each item in the glass water bowl and record whether it sinks or floats.
6. Take everything out that can be peeled.
7. Peel each item and place both the fruit and peel back in the water. Did they float or sink?
8. Make a table with the observations.

Resource 1:





Things that sink and float



Floating on dead sea water

Subtopic and Learning Objective #2

LO: Understand the term soluble/insoluble

Teacher Activity

1. Introduce the term soluble by asking the students about making lime juice. The teacher can explain that even though we add sugar crystals, after mixing we cannot see the crystal.
    - So, soluble means the capacity of a substance to get dissolved especially in water.
    - Insoluble substances are those which will not get dissolved in water. Eg Wax, oil, sand etc.
2. Perform Activity 2

Check for understanding:

a) What is meant by soluble substance?
b) What happens to sugar when it is mixed with water?

Resources Suggested

NCERT textbook, Resource 2

Activity 2

Activity 2
Name of the activity – Soluble and Insoluble
Type of activity – Individual
Learning Objective: Understand the term soluble and insoluble.
Use it for – Observations
Materials – Milk, honey, lemon juice, oil, liquid wax (under the supervision of elders) sand

Teacher instructions:

1. The teacher may ask the student to perform the activity at home and record the observations in their notebook
2. Take a large glass bowl with water
3. Collect the materials required.
4. Record all names in the notebook
5. One at a time, place each item in the glass water and record whether it dissolves or not.
6. Make a table with the observations.
7. Discuss in the class and check if others have tried the experiment with different substances.

Resource 2:



Sand under water



Oil in water





Wax in water

Subtopic and Learning Objective #3

LO: Concept of evaporation three forms of water

Teacher Activity

1. Introduce the term vapour buy explaining what happens to water when it is heated.
    - Water will become water vapour when it is boiled for a long time. Vapour is the gaseous form of water
    - A substance can exist in three forms either solid, liquid or gaseous.
    - The solid form of water is ice. When water is kept in a lower temperature it becomes ice.
2. Introduce the term evaporation with the example of drying clothes in the sun.
    - Evaporation is the process by which water changes from a liquid to a gas or vapour.
    - The water in the clothes will be evaporated when put under sun because of the heat.

Check for understanding:

a) What is water vapour?
b) When will water become ice?
c) What is evaporation?

Resources Suggested

NCERT textbook, Resource 3

Resource 3:







States of water

5. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

Worksheet 1

Use it like: Class test, Home assignment, Revision

State whether the following are true or false.

1. A puffed up puri will float in water.
2. A steel plate sinks in water.
3. A plastic bottle cap floats in water.
4. Dead Sea has the saltiest water of all seas.
5. Oil can easily mix with water

Worksheet 2

Use it like: A class test, home assignment, revision

1. **Which of the following do not dissolve in water?**
   a. **Sugar**
   b. **Salt**
   c. **Colour powder**
   d. **Mud**
2. **Which of the following dissolves in water?**
   a. **Wood**
   b. **Jaggery**
   c. **Dust**
   d. **An eraser**
3. **Which of the following floats on water?**
   a. **Air filled tube of a tyre.**
   b. **A sharpener**
   c. **A stone**
   d. **A chain**

4. Which of the following sinks in water?
    a. A boat
    b. A piece of paper
    c. A nail
    d. A stick
5. What happens on adding salt to the water in which eggs are boiled? Why?
6. Which of the two will dry faster?Why?
    a. a handkerchief kept in the sun
    b. a handkerchief kept in the shade.
7. Why do clothes dry faster on a sunny day than on a cloudy day?
8. Why do a person who cannot swim, will not drown in Dead sea?

6. SOLUTIONS

This section gives you sample answers for activities and questions listed above.

Worksheet 1

1. False
2. True,
3. True
4. True
5. False

Worksheet 2

1. Mud
2. Jaggery
3. Air filled tube of a tyre.
4. A nail
5. When salt is added to boiling water with eggs, the water will become more heavier and the eggs will come up and float on the water
6. A handkerchief under the sun will dry faster because the water will get evaporated when kept under the heat from the sun.
7. On a sunny day it will be hot outside and and the water in the clothes will get evaporated fast. When i t is cloudy then there will be less sunlight and less heat. So the rate of evaporation is less.
8. Dead sea is the saltiest sea compared to all other seas. Salt in the water makes the water more dense/heavier and the person will float like lying on water.

7. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them

1. **Reference Video links:**

   The students can be suggested to watch the following videos/ shown in class:

   https://www.youtube.com/watch?v=cSjNd2kZW-k

2. **Extension activity 1:**

   Carry out the following suggested activities/ tasks if you have the time and resources to do them

   Purpose: Evaporation

   Fill a glass with water and keep it in a place where you get enough sunlight. Mark the level of water for future reference. See if the level of water is reducing over a period of time. Record your observations. Try the same experiment with different material like glass, metal, plastic and mud pot and see which has lesser evaporation rate.