Chapter 7: Experiments with Water

Think What Would Happen If

Question 1: (Page 60)

Ayesha put a puffed *puri* in a bowl of water. Would it sink or float?

Answer:

The *puri* would float in a bowl of water because it is full of air.

Question 2:

You put a steel plate on water. Would it sink or float? What would happen to a spoon?

Answer:

If the steel plate is placed carefully on the surface of water it will float because it can displace more amount of water because of its large surface area. A spoon however, when placed in water will sink because it has lesser surface area.

Question 3:

Would the cap of a plastic bottle sink or float on water?

Answer:

The cap of a plastic bottle will float on water because plastic is less dense i.e., lighter than water.

Question 4: (Page 61)

Have you seen that some things float on water while others sink? Think how this happens?

Answer:

If an object displaces an amount of water equal to its own weight, the object will float. But, if the object weighs more than the water it displaces, it will sink. This is the reason why some objects float on water while others sink. However, the density of an object determines how much water will it be able to displace.

Do This and Find Out

Question 1: (Page 61)

Do this experiment in groups of four friends. Each group will need a big pot filled with water and the things listed in the table. Put each thing one-by-one in water and observe. Write your observations in the table given.

Mark (✓) for the things that float. Mark (×) for those that sink.

Answer:

Things to be put in water	**I guessed, before I did it**	**I saw, when I did it**
(a) Empty bowl *(katori)* (b) After putting in 6-7 small pebbles, one-by-one	✓ ×	✓ ×
Iron nail or pin	×	×
Matchstick	✓	✓
(a) Empty plastic bottle with its lid closed (b) Bottle half-filled with water (c) Bottle full of water	✓ ✓ ×	✓ ✓ ×

Aluminium foil (from medicine packing) (a) Open and spread out (b) Pressed tightly into a ball (c) In a cup-like shape	 ✓ ✗ ✓	 ✓ ✗ ✓
(a) Soap cake (b) Soap cake on a small plastic plate	✗ ✓	✗ ✓
A piece of ice	✓	✓

Question 2: (Page 62)

Find out from the other groups which things floated and which sank in the water?

Answer:

The other groups too had pretty much the same answers, i.e., the heavier things sank while, the lighter ones floated.

Question 2:

After doing the experiment, fill in the blanks.

1. The iron nail _____ in water but the *katori* _____. I think this happened _____.

2. The empty plastic bottle _____ on water. The bottle filled with water _____ because _____.

3. The aluminium foil _____ when it was spread out. When pressed tightly into a ball it _____. This may have happened because _____.

Answer:

1. The iron nail sank in water but the *katori* floated. I think this happened because the iron nail could displace less amount of water than what was displaced by the *katori.*

2. The empty plastic bottle floated on water. The bottle filled with water sank because it displaced less volume of water than the empty plastic bottle.

3. The aluminium foil floated when it was spread out. When pressed tightly into a ball it sank. This may have happened because the tightly packed aluminium ball displaced less amount of water as compared to the aluminium foil when it was spread out.

Is It Magic?

Question 1: (Page 63)

Take some water in a glass. Put a lemon in it. Now keep putting salt in the water, half-a-spoon at a time. Were you able to float your lemon in water?

Answer:

Yes, the lemon started to float as soon as the amount of salt reached to a particular level in water.

Question 2:

What do you think, the lemon floated in salty water because……?

Answer:

Due to addition of salt, the density of water increased, and so the lemon floated in salty water.

What Dissolved, What Did Not?

Question 1: (Page 63)

Suggest some ways to Hamid for quickly dissolving sugar.

Answer:

Hamid can do the following things for dissolving the sugar quickly—

(i) Stir the solution continuously.

(ii) Stir the solution over a low flame.

Do This Experiment

Question 1: (Page 64)

Make groups of four friends. For the experiment you will need 4-5 glasses or bowls, spoons, water, and the things listed in the table. Take some water in each glass. Now try to dissolve one thing in one glass. Observe what happens and note in the table.

Things	Did it dissolve or not?	What happened for keeping for 2 minutes?
Salt		
Soil		
Chalk powder		
1 spoon milk		
Oil		

Answer:

Things	Did it dissolve or not?	What happened for keeping for 2 minutes?
Salt	Yes	Salt disappeared in water.
Soil	No	The soil settled at the bottom of the glass.
Chalk powder	No	The chalk powder settled at the bottom of the glass.
1 spoon milk	Yes	The solution became milky.
Oil	No	Oil droplets floated on the surface of water.

Tell

Question 1: (Page 64)
Could you see the salt after it dissolved in water? If no, why?

Answer:
No, the salt was not visible after it dissolved in water, and this is because the salt is completely soluble in water.

Question 2:
Does that mean that the water does not have salt? If it has, then where is the salt?

Answer:
No, the water has salt in it, and it means that the salt has completely dissolved in water.

Question 3:

What difference did you see—in the water with salt and the water with chalk powder—after keeping for some time?

Answer:

(i) Water with salt was clear as the salt got wholly dissolved in water.
(ii) Water with the chalk powder was not very clear. The chalk powder settled on the bottom of the glass after a while because chalk powder is not soluble in water.

Question 4:

Which of the two would you be able to separate from the water by straining with a cloth— salt or chalk powder?

Answer:

We can separate chalk powder from the water by straining with a cloth because it is not soluble in water.

Question 5: (Page 65)

Do you think the oil got dissolved in the water? Why do you think so?

Answer:

No, the oil did not dissolve in water, and it started floating on the surface of water after a while.

Racing Water

Ayesha put two drops of oil on the lid of her tiffin box. Next to that she put two drops of water and two drops of sugar solution. She tilted

the lid. She saw some drops slid down quickly, while some were left behind.

Question 1: (Page 65)

You also try to do the same and then tell—which drop went ahead? Why did it slide faster?

Answer:

The drop of water went ahead, whereas the drop of oil and sugar syrup got stuck to the lid of the tiffin box. This happened because the sugar syrup and oil were thick and could not slide like water which is thinner.

Where did the Water Go?

One day Ayesha's mother put some water to boil on the stove for making tea. She got busy with something and forgot about it. When she remembered and came to check, she found very little water left in the pan.

Question 1: (Page 65)

Think where did the water go?

Answer:

The water evaporated because of the heat, and it got converted into water vapour and went up in the air.

Question 2:

Why did Chittibabu and Chinnababu keep their mango jelly in the sun?

Answer:

They kept their mango jelly in the sun so that the water in it could evaporate due to the sun's heat.

Question 3:

At your house, what things are made by drying in the sun?

Answer:

My mother makes the following things by drying in the sun—

(i) *Papad*

(ii) Pickles

(iii) *Badi*

(iv) Potato chips

What We Have Learnt

Question 1: (Page 66)

You have washed your handkerchief and you want to dry it quickly. What all can you do?

Answer:

I can do the following things:

(i) Squeeze the water out of the handkerchief and spread it on a cloth line under the sun. The heat of the sun will cause the water present in the handkerchief to evaporate.

(ii) Put a hot iron carefully on the wet handkerchief. The heat of the iron will cause the water present in the handkerchief to evaporate.

Question 2:

What things do you put in water to make tea? Which of those things dissolves in water?

Answer:

For making tea, I put the following things in water—

(i) Sugar
(ii) Milk
(iii) Tea leaves
(iv) Cardamom
Out of the things mentioned above, sugar and milk are soluble in water, whereas tea leaves and cardamom are insoluble.

Question 3:
You have been given some *mishri* pieces (lumps of sugar). Suggest some ways to dissolve them quickly.
Answer:
I would do the following things to dissolve the *mishri* pieces quickly—
(i) Make a fine powder by crushing the *mishri* pieces and then dissolving it in water.
(ii) Stirring the sugar lumps continuously in water.
iii) Heating the water containing the *mishri* pieces.
