Vision Empower & XRCVC

Teacher Instruction KIT

Each Drop

Syllabus: Karnataka State Board
Subject: Environmental Science
Grade: 4
Textbook Name: Karnataka State Board
Chapter Number & Name: 6.Each Drop

1. OVERVIEW

1.1 OBJECTIVES

Objective

- To understand the water cycle.
- To understand the importance of recycling of water and rain water harvesting.
- To identify problems caused due to shortage and wastage of water.
- To know different ways of water conservation.

Prerequisite Concept

- *Water -EVS , Grade 3, chapter 4: Story of a drop of water*

Content Index

*Kindly Note: Activities marked with * are mandatory*

2. LEARN

2.1 KEY POINTS

- Water Cycle:The water cycle describes how water evaporates from the surface of the earth, rises into the atmosphere, cools and condenses into rain or snow in clouds, and falls again to the surface as precipitation.
- Evaporation: it is a process in which the water changes from liquid phase to gaseous phase.
- Condensation: it is a process in which matter changes its state from gaseous phase to liquid phase.
- Precipitation:The water droplets form clouds which become heavy and fall from the sky in the form of rain, hail or snow.
- Rain water harvesting: a water conservation method in which rainwater is collected by allowing it to flow from the rooftop through pipes in a storage tank which is later on used for various purposes.

2.2 LEARN MORE
None

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Water activity

Activity 1: Water activity

Materials required: None

Prerequisites: None

Activity Flow
Ask the following questions to the students and have a discussion and let everybody know everybody's views or ideas of water.

1. *Ask the students what they would do, if they get a bucket of water.*
2. *Are there any wishes which they want to fulfil in water?*
3. *Do any of them know how water is formed? (their stories about water)*

Water story

Activity 2: Children- water story

Materials required: None
Prerequisites: None

Activity Flow
Narrate the story in the class and ask each of their opinions.

There was once a jar of fresh, clean water. Every drop of water in the jar felt immensely proud of being so clear and pure. Day after day they would congratulate each other on how clean and beautiful they were.

That was, until one day when one of the drops got bored with his ultra-clean existence. He wanted to try what it was like being a dirty drop. The other drops tried to talk him out of it, but he stuck to his guns.

Hardly realising, when the drop came back all dirty he turned all the other drops in the jar into dirty drops too.
They tried to get clean again, but couldn't. They tried everything to shake off the dirtiness. Finally, much later, someone dipped the jar in a fountain, and only when a lot of clean water entered the jar, did the drops regain their old transparency and purity. Now they all know that if they all want to be nice clean drops, then each and every one of them has to stay clean, even if they find it difficult. Putting right the mistake of one single drop entails a lot of work for everyone else.

The same happens with us and our friends. If we want to live in a jar of clean water, each one of us will have to be a clean drop. None of us should try being the dirty drop who spoils everything.

3.2 CONCEPT INTRODUCTION ACTIVITIES

Water cycle

Activity 3: Water cycle

Materials required: Big bowl and plastic sheet to cover the opening / big box with a plastic lid, a small bowl/glass that should fit inside the big bowl, rubber band, water.
Prerequisites: None

Activity Flow

- *First introduce the water cycle and these three terms : evaporation, condensation and precipitation, to the children. Then start with this activity to demonstrate the water cycle.*
- *Place the small bowl/glass in the centre of the big bowl.*
- *Fill the big bowl with water about 2/3 of the cup and don't put water inside the small bowl.*
- *Cover the big bowl with plastic wrap and secure it with rubber band/thread. You can also use a plastic lid.*
- *Place it outside in a sunny area for a few hours.*
- *After a few hours, allow students to observe the bowl. Remove the plastic wrap and let the children touch it, they would feel the droplets on the plastic sheet and few drop in the small bowl.*
- *This shows that heat of the sun turns water into vapour first. The vapour turns back to water droplets on the plastic sheet (condensation). Then drops get heavy and fall back down (precipitation) to the water in the big bowl or in the small bowl.*

- *Then explain water cycle to them:*
    - *Water from the earth's oceans is heated by the sun's rays which causes it to change into a vapour and rise into the air.(evaporation)*
    - *Once high up in the sky, the gas begins to cool and turns back into a liquid (condensation).*
    - *The water droplets form clouds which become heavy and fall from the sky in the form of rain, hail or snow. (precipitation)*
    - *This cycle repeats itself continuously that is why it is called the water cycle.*

Water cycle

Activity 4: Role play on water cycle
Materials required: None
Prerequisites: None

Activity Flow

- *After knowing about the process of water cycle children can do a role play.*
- *Teachers should assign roles to children as clouds, sun, rivers, ocean, raindrop, water drop, water vapour to make them understand better how this cycle works.*

- *Each child would be describing his role in an order of a water cycle.*

Uses and conservation of water

Activity 5: Uses and conservation of water

Materials required: None

Prerequisites: None

Activity Flow

- *Discuss with the children the uses of water.*
- *Starting with where do they use water and what are the other activities in which we use water.*
- *And then ask them the source of water in their home/hostel/school.*
- *And what are the common sources of water which they know.*
- *What are the ways in which water wastage happens?*
- *Then continue the discussion by telling them about the scarcity of water and water conservation.*
- *Scarcity of water : Water scarcity is there due to excessive use of water by the large population. Overuse of water has led to a decrease in the supply of water available for us.*
- *Water conservation: 97% of earth is covered in salt water, 2% is ice caps and 1% of water is available and suitable for use. This shows how important water conservation is for us.*
- *Ask them to suggest some ways to reduce water wastage and to conserve water?*
- *Then discuss with them the following ways to conserve water:*
    - *Not wasting water while brushing, bathing, washing, etc.*
    - *Not polluting the water.*
    - *Periodically check for water leaks in taps.*
    - *Constructing rain water harvesting, re-using the water.*
    - *Make other people aware about conservation of water.*

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- We use water in our houses for drinking, cooking, bathing and washing the dishes. Water is used to grow food.
- Watering plants
- Water to the fields through canals and expensive irrigation systems
- Water to produce electricity
- Water used in construction of buildings and industrial purposes

4. EXERCISES & REINFORCEMENT

4.1 EXERCISES & REINFORCEMENT

Water cycle song

Activity 5: Water cycle song

Materials required: None

Prerequisites: Water cycle concept

Activity Flow

Teachers can listen and play the water cycle song in the class and sing with the children. Given below is the link to the song along with the lyrics.

https://youtu.be/gBbFxl6Oy94

Lyrics:
Heat turns water into vapor
A gas that rises through the air
And cold makes vapor condense to liquid and fall back down everywhere
(repeat)

Girl Molecule:
We are water molecules
And we are on an epic journey all around
It is called the water cycle from the sea to the air to the ground

EVAPORATION: Water turns to vapor
CONDENSATION: Vapor turns to drops
PRECIPITATION: Drops fall down
And they COLLECT all over the ground

(repeat)

Boy Molecule:
And we can fall as many things, like rain or sleet, snow
Girl Molecule: And we collect almost anywhere, wherever water freezes or flows
Boy Molecule: You can call it the hydrologic cycle too

Beanbag: And they even cycle in and out of animals, plants, and you!

Both Molecules: Eww!

Heat turns water into vapor

A gas that rises through the air
And cold makes vapor condense to liquid and fall back down everywhere

EVAPORATION: Water turns to vapor
CONDENSATION: Vapor turns to drops
PRECIPITATION: Drops fall down
And they COLLECT all over the ground

(repeat)

4.2 IMPORTANT GUIDELINES*

Exercise Reading
It is very important that the children practice their learnings as well as their reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity
It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework
To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

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