



The SCIENCES / BIOLOGY lesson plan provides teachers and students with the opportunity to investigate the impact climate change is having on the environment through classroom activities.

## **SUBJECT MATTER ( SCHOOL DISCIPLINE / LEARNING AREA)– THE SCIENCES / BIOLOGY**

**LESSON-** Characteristics of water

**OBJECTIVE** - Integrating environment and climate change subconsciously to the learning outcome *Characteristics of water* using digital games' web 2.0 tools. Thus, the students will be able to learn about *Characteristics of water*, consciously while they are raising awareness on the environment and climate change subconsciously using digital games. These games can be applied to indoor and outdoor learning environments, distance and traditional (face-to-face) classrooms.

### **Learning Objectives of the lesson:**

Upon completion of this lesson, students will be able to:

- **recognise various sources of water;**
- **relate water to other liquids;**
- **appreciate the importance of water;**
- **understand the dangers associated with polluting water.**

**Learning outcomes and environmental awareness and climate change implications** - The environmental issues suggested by the game allow students understand how human actions modify the physical environment. The outcome is to assess the impact of water pollution on a local environment.

**Description of the game and activities and technical specs:** The digital game is represented by sources and uses of water, properties, effects and consequences of water pollution, measures



to prevent water pollution. The purpose of the game is to enable students to understand the importance of water in our lives, in nature, and the environmental impact of inappropriate use of water.

**Key points for the teacher to underline:** water, as a source of life, water in the natural cycle of life, structure, composition, properties, characteristics, functions and uses of water, correlating these knowledge with their ecological implications.

## **INSTRUCTIONS/ PROCEDURES**

### **Teacher- Question 1 – What is water: sources, uses, properties are the characteristics of water**

Teacher will introduce students the term of water (e.g. Water is a colorless and tasteless substance composed of one oxygen and two hydrogen atoms, as reflected by its chemical formula etc), the importance of water; the sources of water ( e.g. Water covers about 71% of the Earth's surface—96.5% of it is found in oceans, seas, and bays, while the rest is stored in ice caps, glaciers, groundwater, and other water sources), the critical functions of water, (e.g. Liquid water makes Earth unique and habitable compared to other planets) the uses of water ( e.g. it provides food, habitat, and protection to countless plant and animal species, it regulates the Earth's temperature through the hydrologic cycle).

### **Activity 1**

The digital game is designed as a multiple choice quiz, meant to enable students to classify the sources of water according to their location, water utilization, water characteristics and functions.

**Web 2.0 tool digital game model:** multiple choice quiz

<https://learningapps.org/display?v=pv3rc1auj23>

### **Teacher – Question 2 – What are the properties of water ?**



The teacher makes an introduction to the functions of the water there are possible due to the unique thermal properties of water: thermal conductivity, specific heat capacity, and melting and boiling point, density of water, density of ice.

## **Activity 2**

This digital game is designed to challenge students to developed a virtual water cycle in the nature to demonstrate the impact and importance it has for the environment and for life.

**Web 2.0 tool digital game model:** map quiz [https://www.educaplay.com/learning-resources/7908707-2\\_water\\_carbon\\_cycle.html](https://www.educaplay.com/learning-resources/7908707-2_water_carbon_cycle.html)

## **Teacher - Question 3 – How**

The teacher explains the human effect upon irrational and improper use of water; what the most frequent water pollutants are; demonstrate how to identify ways to prevent and reduce water pollution.

## **Activity 3**

The teacher will describe the following digital game – students are required to fill in the blanks with the missing words in order complete and article with information about the water pollution sources

**Web 2.0 tool digital game model:** fill in the blanks [https://www.educaplay.com/learning-resources/2487943-water\\_pollution.html](https://www.educaplay.com/learning-resources/2487943-water_pollution.html)

## **Assessment/ Evaluation**

Upon completion of the three activities, ask students create a comprehensive and detailed presentation showing an evaluation of the consequences of their own behaviour with water upon their own state of health and upon the environment.



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