

**ecoMentors Lesson Plan Template: Helping kids explore the planet!**

**Title:** Water

**Grade Level(s):** 5

**Time/Date:**

**School:**

**Teacher:**

**Directions to school, class:**

**Ontario Curriculum Connection: Earth and Space Systems – Weather**

Vocabulary: Words & Concepts your class may be learning, look these up yourself too!

**Water cycle** - The cycle that controls the distribution of the earth's water as it evaporates from bodies of water, condenses, precipitates, and returns to those bodies of water. Also called *hydrologic cycle*.

**Evaporation** - The process by which a substance (i.e. water) is converted from a liquid state into vapor.

**Condensation** - The process by which a gas or vapor (i.e. water) changes to a liquid

**Infiltration** – The process by which water permeates a substance like soil by passing through its pores

**Run off** – The process by which water flows from small bodies of water towards bigger and bigger bodies of water (rivers, lakes, oceans) after precipitation

**Precipitation** - Any form of water, such as rain, snow, sleet, or hail, that falls to the earth's surface

**Transpiration** - The act or process of transpiring (sweating) through the leaves of plants

Materials and Equipment: List these before and while you plan and revise so you're prepared.

Worksheet Water Cycle (printed out about 15 times, on recycled paper)

Pen and paper for the students

Water Quiz printed out

What is your class accomplishing?: Learning & Activity Goals, Objectives

- **Describe the water cycle in terms of evaporation, condensation and precipitation**
- **Describe ways in which energy from the sun affects the water cycle**
- **Formulate questions about and identify needs and problems related to objects and events in the environment and explore possible answers and solutions**
- **Understand the value of water and the importance of water conservation**
- **Describe the major threats to our water supplies and identify different ways to solve them**

**Procedure**

**The Spark: Introductions, Demonstrations, Show and Tell, Topic Intro (Break the ice!) ~5-10min**

*Hello class, today we're talking about water. I think water is one of the most important things on our planet. Who agrees with me? Why? Why not?*

Ask students that offer answers to introduce themselves first.

**Brainstorming, Getting ideas, Connecting ideas (assess their knowledge!) ~10-20min**

*Why do you think water is so important? What do we use water for?* List all answers on the black board: **water makes plants grow> gives us food, we need water to drink, clean, flush, shower, cook, in water lives fish, ...**

*How do we get our water? Tap But where does the water from our tap come from? Fresh water supplies from ground water and surface water like lakes. How do a lot of people in Africa get their water? Do they have running water in their homes? No they have to walk to the nearest well.*

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play ~10-30mins**

**Water demo:**

Bring a full glass and an empty glass of water. Explain to the class that this full glass represents all the water we have in the world. Pour most of it out (97%). Ask the class: *Why could we not drink this 97% of water that I just poured out of the glass? Salt. So the remaining 3% in the glass is fresh water. Do you think we can use this entire 3% to use as drinking water? No, 99.4 % is in polar ice, glaciers or is too polluted.* Pour the rest of the water out, leave 1 drop of water in the glass. *So this one drop, only 0,018% of the world's water supply, can be used as drinking water. With how many others do we have to share this one drop? 6 billion people and all the plants and animals in the world!* Important: Use the water by drinking it or watering a plant in the class!

*Do you think our drinkable water supply is evenly distributed over our planet? Does anyone have an equal share in water? No, over 2 billion people in our world cannot access this clean, drinkable water and have to drink polluted water that makes them sick or even die. Do you know how much water you need per day to survive (as drinks and foods)? 2.4 litres. Do you know how much clean, drinkable water the average Canadian uses per day? 343 litres. What do we use it for? How do we pollute water? Sewers, chemicals, pesticides, oil, trash, ...*

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play(Pt. II or Cont...) ~10-30mins**

**Take action:**

Now you know that 1/3<sup>rd</sup> of the people on earth cannot get clean drinkable water and have to drink polluted water. What could we do to help? List answers on the board: **Reduce the amount of water we use, make wells and purification systems for people who need it, stop polluting our water, ...**

Make groups of students and let each group design a plan for action for one of the actions that are on the black board. Ideas for action plans are: Write letters to the government to ask them to stop polluting water. Make posters to put up in the school to tell people to save water, raise funds to pay for a well in Africa, Put jars in the toilets tanks to save water every time they flush, put signs above the taps to warn people to save water, ...

The groups only have to make an action plan, there is no time to actually carry out the plans. However, if a group is highly motivated, perhaps you and the teacher can work something out to actually take action with the class!

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play(Pt. II or Cont...) ~10-30mins**

**The water cycle:**

Water on our planet is used and reused again and again! We still use the same water dinosaurs drank millions of years ago! On our planet, no new water comes in and no water goes out, it is a closed system. Water is recycled over and over again.

Hand each pair of students a worksheet. Let them quietly discuss the meaning of the words, and fill out the picture. Afterwards, discuss the water cycle with the class (draw a schematic version on the black board). Go through all the words and ask the class about the definitions of these words.

Point out the importance of preserving our water. *What happens with water in the water cycle when it is polluted?*

**Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play(Pt. II or Cont...) ~10-30mins**

**Water Quiz:**

Explain to the class that you will do a quiz.

Make groups of 4 students/group or let students work individually. If they will do the quiz in groups, let every group choose 1 recorder who will write down the answers.

Point out that it is a competition to review what they've learned, so they have to be quiet to make sure other groups don't hear their answers! Every group writes their answers down. Answers will be discussed after the quiz. Give a point for every correct answer.

Note: Some answers will need some extra explanation: Use the reflection parts!

Questions and answers can be found in the additional material Water Quiz, or make up your own questions!

**Contingency, Plan B, extra game or activity (Back up plan) ~5-10mins**

**Matching Water Usage:**

Ask students: 'How much of our drop of useable fresh water is used for Farming? (42%) Production of Electricity? (39%) Homes, Offices, hotels (11%) Factories and Mines (8%)<sup>2</sup>. For this exercise write the categories in one column and the percentages jumbled in an adjacent column on the blackboard. Ask the students to match the activity to the percentage of water used by drawing a connecting line. Erase line if not correct; continue until all correct connections are made. Draw a pie chart (optional).

**Review, Conclusion and steps towards continued action ~5-10mins**

*Why is water so important for us? Should we take our water for granted?*

*What can we do to protect water?*

*What is the water cycle? What are the terms evaporation/ condensation/ transpiration/..*

*What can you do at home to conserve water?*

*What is the most important thing that you have learned today?*

References

1. The Otesha Book: <http://www.otesha.ca>

2. <http://www.awwa.org/Advocacy/learn/conserve/resources/ConservationInfo.cfm>

<http://cyberschoolbus.un.org/waterquiz/waterquiz4/index.asp>

<http://ga.water.usgs.gov/edu/sc3.html>

<http://www.epa.state.il.us/kids/fun-stuff/quiz/water-quiz.html>

**Great work ecoMentor! After use of Lesson Plan revise, add ideas and repeat!**