



SKATEISTAN LESSON PLAN

"Water purifier"

Curriculum

Creation and Innovation

Date

Q4

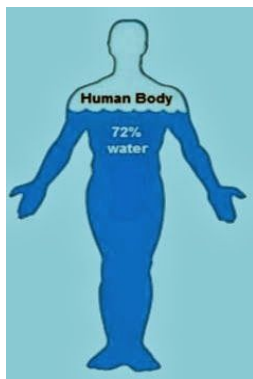
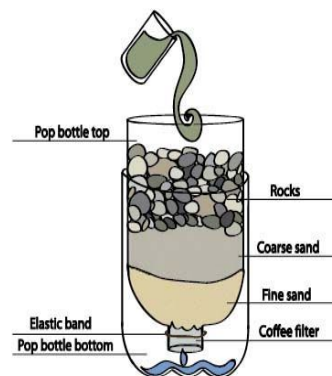
Author / Site

HQ Volunteer / All sites

Series

1 Lesson / 60 Min.

This filter will teach kids about the processes of water purification and how important it is to keep water sources clean from waste to protect our health but also the environment.



VOCABULARY

Filtration, clean water, pollution

MATERIALS

EXTERNAL

- *1-liter plastic bottles cut in half
- *Napkins or paper towels or coffee filter
- *Gravel
- *Sand
- *Charcoal
- *Dirty water

INTERNAL

- *Cups or scoops (for gravel and sand)
- Large waste container (plastic container or thick garbage bag for used filtering materials)
- *Large water container for dirty water (pitchers or gallon jugs)

RESOURCES

- [Utah State University: Homemade Water Purifier](#)
- [Fun science: Filter magic](#)

LEARNING OBJECTIVES

- △ Students will learn how to create a water purifier
- △ Students will learn about the water purification process
- △ Students will learn what can water contains
- ▼ Students will learn how important it is to keep the water sources clean from pollution

PREPARATION

- △ Research plastic bottles
- △ Find sand/gravel/charcoal
- △ Find napkins/paper towels/coffee filter
- ▼ Educators should previously learn about the purification process
- ▼ Short video to be watch describing the different steps of the activity: click [here](#)

ASSESSMENT

- △ The children will at the end of the class form groups of 2 and discuss with each other:
 - *how the process of filtration works
 - *why is it important to have clean water
 - *what, us, as human beings can do to keep water clean

Lesson
GUIDES



PLAIN
Language
Checklist

TIME	TEACHING STRATEGY	STUDENT ACTIVITY	MATERIALS	EXAMPLES
------	-------------------	------------------	-----------	----------

LESSON 1:

ORIENTATION

15 Min

Introduction

△ Explain that today we'll learn about clean water and how the filtration process to make water clean works. Begin with a discussion - *raise their hands*:

- *What is clean water?*
- *What makes water dirty? (e.g. Oil spills, bacteria and other organisms, toxic chemicals, litter, run-off from city streets, industrial waste, human waste, agricultural waste, etc)*
- *Why is clean water important? (E.g. For human = health - For environment = biodiversity)*

△ Show students the dirty water and explain the general process of water treatment to make water safe to drink.

- ✧ Writing materials
- ✧ Show a picture of the earth (pointing out that the earth, as well as the human body is mostly made of water)

ACTIVITY

30 Min

Warning: An adult will precut the bottle in half. Do not let the children do it.

Tips: Thicker layers make a better filter.

Creation of the Water Filter

Step 1: Put the top half of the plastic bottle-upside down (like a funnel) inside the bottom half. The top half will be where they build their filter; the bottom half will hold their filtered water.

Show the students the filter material they will be using and ask them: "Which of these layers (e.g.sand, gravel...) will remove the most dirt?"


Step 2: Let each student or group decide on an order of the filtration materials for their own filter with the exception that the napkin or paper towel should go first at the bottom (into the neck of the bottle).

Step 3: Get some dirty water and pour it into the filter water bottle

Ask the students: "What does the filtered water look like?" (Help the students to think about how the filter is working, what is being filtered out and what might not be filtered out, even if the water

- ✧ Plastic bottle cut in half
- ✧ Paper/napkin OR coffee filter
- ✧ Sand / charcoal/ gravel
- ✧ Dirty water
- ✧ Cup (to put the dirty water in)



TIME	TEACHING STRATEGY	STUDENT ACTIVITY	MATERIALS	EXAMPLES
	<p>(The recommended order from bottom to top in the bottle is napkin → sand → charcoal → gravel.)</p> <p>*Remember to wash your hands at the end of the activity*</p>	<p>looks clean.)</p> <p>Step 4: Compare the water from each filter and discuss what order of filter cleans the water best.</p> <p>Explain carefully to the children that the result is not yet drinkable. It still contains invisible microbes that you cannot see without a microscope. It still has to be boiled/or by adding some chlorinedioxide drops.</p>		
REFLECTION				
15 Min	<p>Vocabulary</p> <p>Pollution: Unnatural or harmful substances.</p> <p>Filtration: The process of removing matter from a liquid by means of porous media (materials with holes, various-sized)</p>	<p>Recap-</p> <p>Review the vocabulary of the lesson.</p> <p>Watch video relating to water pollution and its causes: https://www.youtube.com/watch?v=Om42Lppkd9w</p>	<p>☉ Projector, computer</p>	

TIME	TEACHING STRATEGY	STUDENT ACTIVITY	MATERIALS	EXAMPLES
------	-------------------	------------------	-----------	----------