

*ERASMUS+ KA219
ENERGY FOR LIFE*



TITLE: HOW TO MAKE A WATER FILTER?

GRADE: 2nd

SUBJECT: SCIENCE



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BENEFITS CAUSED BY HUMAN BEING

NAME:	HOW TO MAKE A WATER FILTER?	Grade: 2nd	Number of lessons: 3
Summary	<p><i>This teaching unit is part of the ERASMUS + KA219 "ENERGY FOR LIFE" project on the teaching of science content through the scientific method using the four elements of antiquity (air, water, fire and earth) and using the STEAM methodology.</i></p> <p><i>With this didactic unit we intend to address content related to the benefits of human beings in nature. In particular, with the purification of wastewater produced by human activities.</i></p>		
Contents	<ul style="list-style-type: none"> - Water and its properties. - The states of matter: solid, liquid and gaseous. - Homogeneous and heterogeneous mixtures. Solutions. - Methods of separation of mixtures. - Water Pollution. - Purification of contaminated water. - Conservation of nature. 		
Aims	<ul style="list-style-type: none"> - It searches, selects and organizes concrete and relevant information, analyzes it, obtains conclusions, communicates its experience, reflects on the process followed and communicates it orally and in writing. - Use, appropriately, the vocabulary corresponding to each of the content blocks. - Presents the work in an orderly, clear and clean on paper. - Know and respect the rules of use and safety of instruments and work materials. - Identify some mixtures. - Performs simple experiences to separate the components of a homogeneous mixture (eg water and salt by evaporation) heterogeneous (eg sand and sawdust by buoyancy, ...). - Values the need to take care of the physical environment. 		
Resources	<p>-Youtube video: "How to make a homemade water filter using things that you can find anywhere!" (https://www.youtube.com/watch?v=NCB-ri0eGM&t=9s)</p> 		



-Water filter image: (<https://www.pinterest.es/pin/423338433703225255/?lp=true>)



Subject skills (to explain what has been worked or relationship with STEAM areas)

Science	<ul style="list-style-type: none"> - <i>Properties of water.</i> Water Pollution. Conservation of nature. Water purification. - Different materials (cotton, charcoal, sand, quartz gravel, small pebbles, plastic) and their properties. - The scientific method.
Technology	Separation of mixtures. Filtering of solutions.
Engineering	Manufacture of a water filter.
Art	Representation of a water filter and its internal layers. Complete a scientific method sheet.
Maths	Preparation of a budget for the construction of a water filter.

Assessment:	SUCCEEDED	ONGOING	DIDN'T SUCCEEDED
Students have reached most of the planned goals.	X		
Lessons have been well planned according to the level of students and curriculum.	X		
The difficulties encountered have been solved during the process.	X		
STEAM activities have increased students knowledge and curiosity for the topic.	X		
Outcomes of STEAM lesson plans have been understood by most of the students.	X		



STARTING-POINT

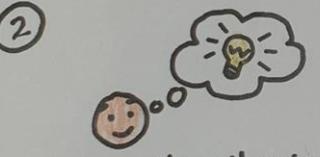
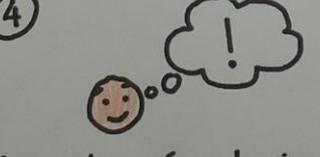
Session #1: In this session, we will proceed to an introduction of water in the world (sweet and salty), its importance for living beings and the shortage of fresh water. Water pollution due to human activities. The need to conserve nature and to filter and purify water. For this, the Youtube video about the production of a homemade water filter ("Project-Purifier of homemade water") will be viewed.

-Complete the following scientific method sheet:

Brain POP ELL

Scientific Method Notes

NAME: Celia Rodriguez DATE: 28-3-19

<p>①</p>  <p>Ask a Question</p>	<p>Can we clean dirty water?</p>
<p>②</p>  <p>Make a Hypothesis</p>	<p>We can use water filter?</p>
<p>③</p>  <p>Do an Experiment</p>	
<p>④</p>  <p>Come to a Conclusion</p>	<p>We can clean dirty water use water filter.</p>

-Budget.



MIDWAY PROCESS

Session #2: In this session, we will proceed to manufacture a homemade water filter in groups of 5-6 students. Material:



1. Plastic carefe (5-6 l.)



2. Plastic bottle (1.5-2 l.)



3. Cutter



4. Scissors



5. Scotch tape or cellotape to coat the cutting edge of the bottles.



6. Metal BBQ skewers

7. Preparation: (corks are included)



8. Assembly:



Session #3: In this session, we will proceed to the assembly by groups of the different elements that form the water filter.

Coal, aggregates, cotton, gauze, mortar and pestle





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