



WebQuest

Introductory Level -
Make Earth Great Again



TITLE OF THE WEBQUEST:	Make Earth Cool Again
LEVEL OF THE WEBQUEST	Introductory Level
INTRODUCTION	
<p>Global warming is a contemporary problem that threatens nature - people, plants, animals. But what is global warming and what are its causes?</p> <p>Global warming is the permanent increase in global temperature above normal levels. This has to do with the release of the so called greenhouse gasses into the atmosphere, especially carbon dioxide (CO₂), which come mainly from the combustion of petrol and of natural gas we use. These gasses rise high in the atmosphere and create an invisible blanket that day by day becomes thicker. These gasses act like a greenhouse not letting the earth cool down.</p> <p>Global warming negatively impacts nature: it makes the polar ice melt, gives rise to the sea level, and causes more heat waves, more wildfires, more floodings and the destruction of ecosystems. Due to the global warming, drinking water and water for crops become scarce as it evaporates rapidly and the earth dries out from the moisture needed to maintain water cycle. The snow in the mountains becomes scarce and less groundwater is collected, while springs and streams gradually dry up. Even if it rains, rainfalls are so powerful that the earth cannot absorb the water and thus fertile areas are susceptible to desertification.</p> <p>In this web quest you will learn more about global warming its causes and its consequences. Particularly, you will realize the effects of global warming on the life-sustaining water cycle. You'll also learn what you can do to make the earth cool again, helping drought-affected areas to regain the lost water.</p>	
TASKS	
<p>Every Summer you visit your grandparents in a village in a very beautiful Greek island. You love running all around the fields, feeding the hens, taking rides with the grandfather's donkey and milking the goats. During the dusk, sitting in your grandparent's house courtyard, you are amazed by your grandfathers and grandmother's fairy tales that travel you to magic countries and places.</p> <p>Among the stories you love to hear every night is the story of the creek, which was just outside the village and where the young people used to gather in older times. In this creek they played with the water, they dived from the rocks and they were swimming in its cold water. For some inexplicable reason day after day, year after year the water from the river started to vanish. When your father was born, the water was so little that it was barely enough for the villagers to water their fields. Nowadays there is nothing to remind the old glory days of the creek: Its bed is almost dry and there is no more water for the crops.</p>	

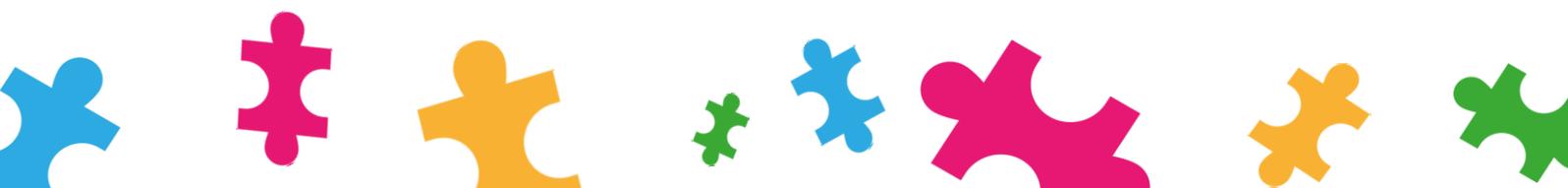




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Not only that, but it seems that all over the island the creeks are drying up and people feel worried for the future life on the island. You ask your parents to visit the place where the river water used to flow, and you come across a picture of desertification. You're determined to find out why the water was lost and try to find a way to bring it back in order to experience your grandparents' amazing life by the creek.

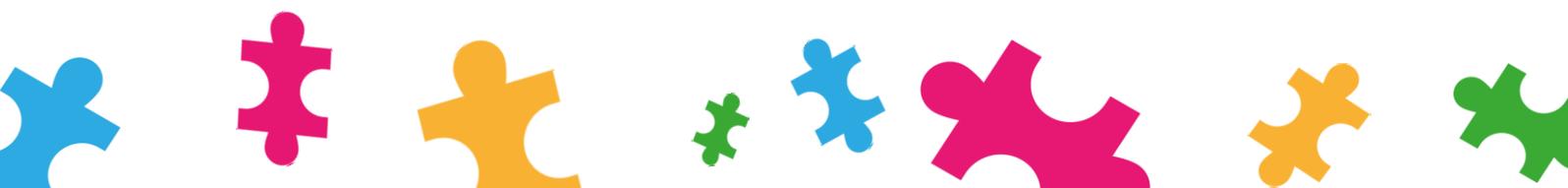
PROCESS

Upon returning to school in September your first concern is to visit the school library and with the help of your teacher to search for answers to your questions and work out a solution to the drought problem.

STEP 1. Quest of ... droughts and water shortage

You sit on the library computer, search the internet for information about the phenomenon of water scarcity in your village and come into a big surprise! Click on the links below ...

- Greece will face increased water scarcity in the future: <http://bit.ly/3r7KMKf>
- Scientists warn for increased water scarcity in Greece and Cyprus: <https://www.tanea.gr/2018/12/29/science-technology/kampanaki-epistimonon-gia-ayksimeni-leipsydria-se-ellada-kai-kypro/>
- Greece among countries facing increased water scarcity, according to JRC study: <https://www.athina984.gr/2018/12/29/i-ellada-anamesa-stis-chores-poy-tha-antimetopisoyn-ayximeni-leipsydria-symfona-me-meleti-toy-jrc/>





d. Water scarcity images: <https://www.ypethe.gr/archive/leipsydria-xirasia>

e. Presentation on droughts: <https://slideplayer.gr/slide/13029840/>

Soon your search leads you to the realization that water scarcity is not only a local, but a national and global phenomenon:

a. Eleven cities in the world threatened with water scarcity: <http://bit.ly/3i3PRAw>

b. Over 180 million people are affected by water scarcity in the Mediterranean:
<https://www.lifo.gr/now/world/137915>

c. A quarter of the Earth lacks water: https://www.pronews.gr/ygeia/proionta-ypiresies/795116_14-tis-gis-ehei-elleipsi-neroy-i-ellada-stin-26i-thesi-ton-horon-me

d. The Cape Town dam: <https://youtu.be/mSEt7wM2cX4>

All internet resources mention a common reason for droughts throughout the globe. Can you spot which one is it?

STEP 2. Droughts and Climate Change

You guessed right. The main reason for the global water shortage is climate change caused by global warming. You rush to discover more about global warming and climate change.

a. Climate change: Today's temperatures are the highest in 125,000 years:
<https://www.enikos.gr/international/761437/klimatiki-allagi-oi-simerines-thermokrasies-einai-oi-ypsiloteres->

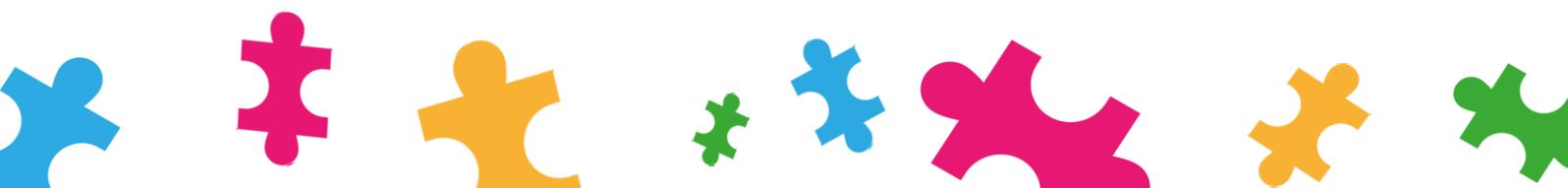
b. Climate Change in 52'': <https://www.enikos.gr/international/114475/video-i-klimatiki-allagi-se-52>

c. Climate Time Machine: <https://climatekids.nasa.gov/time-machine/>

Explore how global warming affects the water cycle through the following resources:

- <https://www.eea.europa.eu/el/simata-eop-2010/simata-2018/grafikes-plirofories/kyklos-toy-neroy-2014-ta/view>
- <https://www.xanthipress.gr/epidrasi-tis-klimatikis-allagis-ston-kiklo-tou-nerou-tis-marias-adamidou/>
- <https://www.eydap.gr/news/Events/WorldWaterDay2020/>
- <http://www.fao.org/climate-smart-agriculture-sourcebook/production-resources/module-b6-water/chapter-b6-3/en/>

STEP 3. Experimentation





With the help of your teacher stimulate the global warming through this experiment which demonstrates what happens when the levels of greenhouse gases in the atmosphere increase:
<https://www.naturesave.co.uk/going-back-to-school-with-climate-change-experiment/>

Increase in temperature makes water in ground reservoirs evaporate at a higher rate than it can be replenished by rainfalls. Thus, soil becomes dry and plants die. Watch the following experiment that shows how temperature affects water evaporation:
<https://www.youtube.com/watch?v=kmmEV4ohSDA>

STEP 4. The devastating effects of global warming

Droughts are only one of the disastrous effects global warming on our planet. Follow the links to learn more about global warming perils:

- a. Climate Change and its Consequences: <https://www.youtube.com/watch?v=y-VNfbKEjRU&feature=youtu.be>
- b. Global warming and its negative effects: <https://www.clickatlife.gr/taksidi/story/14863>
- c. These are the most devastating consequences of climate change:
<https://www.pagenews.gr/2020/07/31/kosmos/autes-einai-oi-pio-katastrofikes-synepeies-tis-klimatikis-allagis/>

STEP 5. In search for solutions

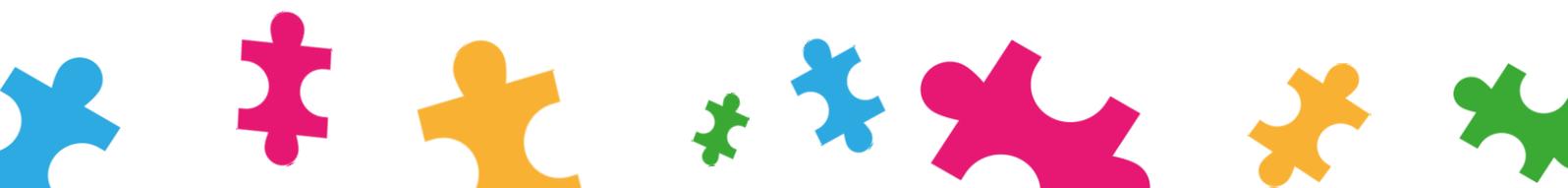
Your grandparents village, the whole world needs your help. These are some ideas you can put forward:

- a. Global Warming: <https://youtu.be/PqxMzKLYrZ4>
- b. The Biotic Pump: How Forests Create Rain: <https://www.youtube.com/watch?v=kKL40aBg-7E>
- c. Tips for home: https://ec.europa.eu/clima/citizens/tips_el
- d. Global warming and how you can contribute
<https://www.letsmakecyprusgreen.com/el/blog/global-warming-and-how-you-can-help/>

STEP 6. Raise awareness

Now it is your turn to take action against climate change. You feel that it is in your hand to make the earth cool again and bring back the water in the creek at your grandparent's village.

Along with your classmates, design and develop a school display to raise awareness within the school community about global warming.





Your display can include:

- A. Posters about global warming causes and effects:
 - a. Example 1: https://www.ecoschools.gr/sites/default/files/styles/large-960/public/school-news/3039-img_20191004_121804.jpg?itok=3JMTcfl7
 - b. Example 2: <https://bit.ly/39BKrte>
 - c. Example 3: <https://bit.ly/2MCgQae>
 - d. Example 4: <https://www.youtube.com/watch?v=HgMsSwKZnYA>

- B. Crafts and models showing global warming process
 - a. <https://www.youtube.com/watch?v=PKcSDFDBBM>
 - b. <https://www.youtube.com/watch?v=XiXBhowVf04>

- C. Cooling the earth by planting
 - a. Cress world map: <http://bit.ly/3rlqWLV>
 - b. Sprout houses: <https://thestemlaboratory.com/sprout-house/>

EVALUATION

Now you are ready to test your knowledge taking the Global Warming quiz by clicking here: <https://quizizz.com/join?gc=52202028>

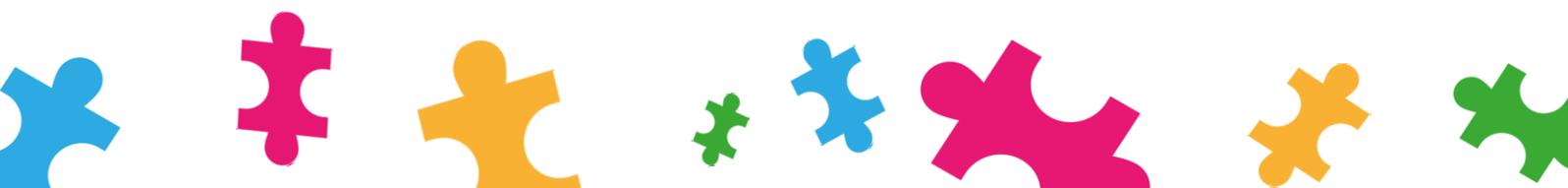
Additionally you can take the European Commission quiz on global warming and climate change by clicking here: <https://ec.europa.eu/clima/sites/quiz/index.html>

CONCLUSION

*Grandfather and Grandmother
Creek Lane
Island, 19009*

Our beloved grandchild,

We thank you from the bottom of our hearts for all you do to bring the earth's climate back into balance. We are sure that through your efforts and the efforts of your classmates there will be a time when the children will swim again in the cool waters of the river of our village. The earth will cool down and the water will flow again abundantly. We are well aware that our generation is responsible for the current situation since we made reckless use of fossil fuels and flooded the atmosphere with greenhouse gases. We also did not properly assess the value of green in climate conservation and thus we cut down trees to build our towns and villages and to get more arable land. In this way we deprived





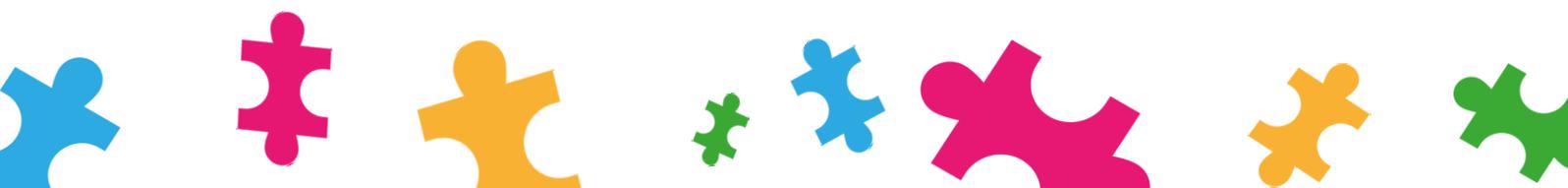
the earth of the moisture needed to preserve life. We have still recklessly wasted energy and filled the land and the sea with waste that will remain there for over a hundred years to come. Nevertheless, we realize that you are equipped with knowledge and skills to combat climate change and we feel confident that your own generation will make this planet a better place to live.

With love,

Your grandma and grandpa



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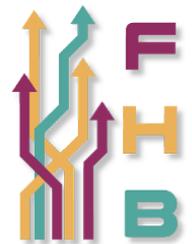


GRETA

Challenge-based Learning in Primary Schools for Climate Change Awareness



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