WebQuest
Advanced level
"My carbon budget   "

by I.C. Don Milani

GRETA

TITLE OF THE WEBQUEST:	My carbon budget
WEBQUEST LEVEL	Advanced

Introduction

In order to tackle the complex issue of climate change, many different aspects need to be considered and analyzed in depth. One of them is the **carbon budget** which the work you are going to do has been set on. A carbon budget can be defined, in brief as the amount of CO_2 and other greenhouse gas emissions that can be released over a given period of time by a country or a sector.

In this activity you will find that carbon is one of the fundamental elements for life on Earth: it is present in many different forms, both organic and inorganic, and its cycle has kept the concentration of CO_2 in the atmosphere more or less stable for thousands of years. Only in recent decades this balance has been broken, and man is the main cause. The concentration of CO_2 in the atmosphere is currently the highest ever recorded, at least in the last 800,000 years!

Carbon dioxide, one of the main greenhouse gases, is released by almost all sectors of human activity: transport, industry, heating, agriculture and livestock farming.

Each person, on the other hand, contributes to release carbon into the atmosphere, both directly and indirectly. You can easily **calculate your carbon footprint** through the analysis of your lifestyle and family lifestyle, with respect to: energy and food consumption, waste production, mobility, etc.
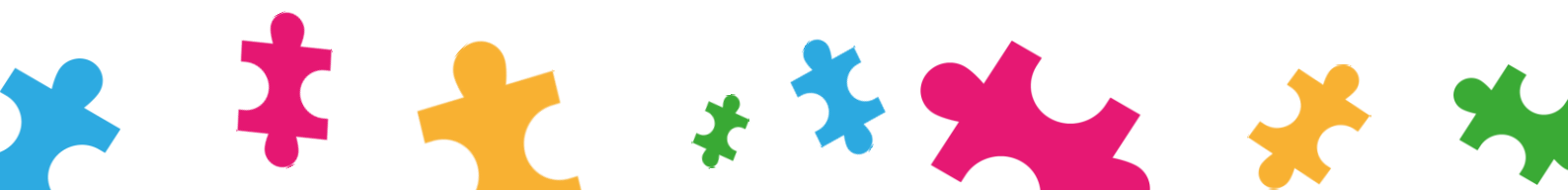
Finally, you will discover that the school building, as a place where resources are consumed and waste is produced, has an impact on the carbon balance, and you will try to find solutions to reduce its weight.

It is only by acting on everyone's lifestyle that it is possible to have a significant impact on global carbon emissions and help limit the increase in global warming and associated climate change.

Activities

Your city has decided to become carbon neutral by 2030, and as far as education is concerned, this challenges all schools to propose the best actions to reduce the carbon consumption of their school building.

To start this activity you will first have to do some research to understand what the carbon budget and carbon footprint are, calculating it for your household, and then move on to analyze those factors that contribute to producing greenhouse gases in your school. After that, you will have to try and design - together with your team - actions that would help your school reduce carbon emissions and to actually propose them to the Mayor, trying to convince him to undertake them.

In this WebQuest you will be guided through a series of activities that will help you and your classmates learn about the issues addressed. You will complete the activities in small groups of 4 people. When you finish the knowledge phase, you can move on to the design phase of the proposal, which will be selected among others created by the other groups to be presented to the Mayor himself! You know that this is bound to be a good way of contributing positively to the protection of the environment. Let's start!

Process

Step 1: What is carbon balance?

The first step will be to start with some research. You want to understand the concept of carbon balance, how it affects climate change, and how everyone can reduce their carbon footprint by implementing more careful and sustainable behaviors.

To find the information you need, click the following links:

The carbon budget: https://www.themarsicanbear.com/2020/02/05/carbon-budget-che-cose/#:~:text=Con%20il%20termine%20Carbon%20budget,Celsius%20rispetto%20ai%20livelli%20preindustriali.

The carbon cycle: https://s.deascuola.it/minisiti/genesis/ciclo_carbonio/index.html

The carbon footprint: https://www.youtube.com/watch?v=V6hhwtU6bq0

Now you can switch to calculating your carbon footprint (get help from your family for some data): http://scuolaperilclima.ectrldev.com/web/guest/test-co2

Now that you understood what we're talking about, let's see what a school should do to be more sustainable and less climate-impacting.

What an energy audit for a school is: http://www.scuolasostenibile.com/audit-energetico-diagnosi-energetica

Energy efficiency: https://www.kdzenergy.eu/

Correct waste delivery: https://www.nonsprecare.it/come-fare-la-raccolta-differenziata

Step 2: Analysis of the situation in your school

Now that you've taken all the information about what the carbon balance means and how you can reduce carbon emissions, along with your classmates you'll need to capture data about the school's energy consumption, through these steps:
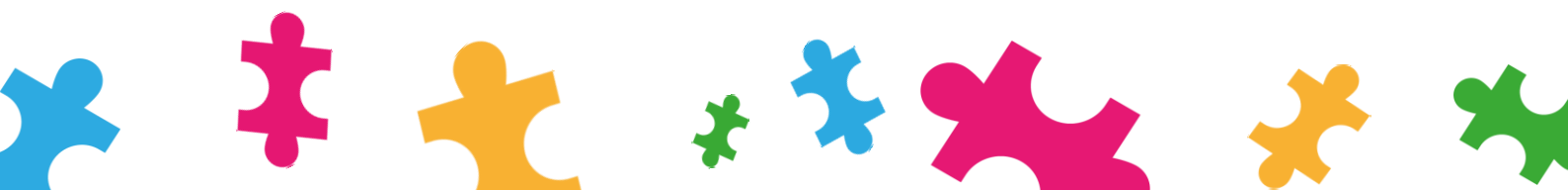
Analysis of the school's energy consumption through the reading of electricity for a week: https://www.green-school.it/tools/view/152

Electrical system check list:
file:///C:/Users/iness/Downloads/Check%20list%20sopralluogo_%20analisi%20del%20sistema%20elettrico.pdf
 Thermal system check list:
file:///C:/Users/iness/Downloads/Check%20list%20sopralluogo_%20analisi%20del%20sistema%20termico.pdf

verification of the correct waste delivery made in the school: https://www.ecolanspa.it/doc/guida.pdf

Step 3: Draft proposals

At this point, after comparing all the data collected among the different groups, you and your team will have all the information you need to be able to design one or more solutions to reduce carbon emissions within the school.

Here are some thoughtful cues:
https://anteritalia.org/green-school-cinque-esempi-edifici-scolastici-sostenibili-italia/
https://pedibus.ch/it/andare-a-scuola-a-piedi-fa-bene-al-morale-2/
https://www.menorifiuti.org/2017/11/23/serr-2017-le-azioni-delle-scuole-ditalia-per-la-riduzione-dei-rifiuti/

Step 4: Mind map and presentation.

Now that you've been searching for all the information you'll need to deliver your presentation, it's time to brainstorm. The great thing about this step is that, not only will you decide what you're going to present, but it will also help you remember the information better, with a visual representation. You can choose to decorate your mind map to help you with this process as well. You really hope that you can make a difference in your school and implement a reduction in your carbon footprint.

With your group, why not draw a mind map of all the important points you will cover in the presentation of your work?

For more information **about how to create a mind map,** see the following links:

How to make a mind map: https://www.lucidchart.com/pages/how-to-make-a-mind-map
How to make a mind map: https://www.mindomo.com/it/
Mental mapping basics: https://simplemind.eu/how-to-mind-map/basics/
Group map making: https://www.wisemapping.com/

For **examples of mind maps,** click on the following link:
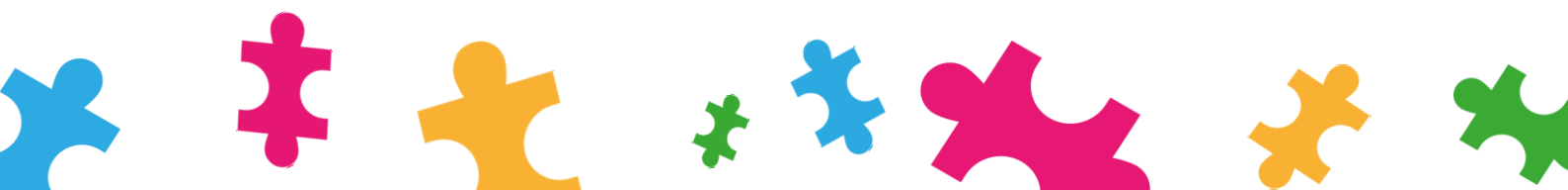
Examples of mind maps: https://www.mindmeister.com/blog/mind-map-examples/

Now that you've brainstormed with your team about what to consider and what improvements may be done, you'll focus on your presentation – it's time to design. For an effective presentation you could use visual aids and videos to strengthen your ideas and make the message more incisive. To learn **how to create an engaging presentation,** click on the links below, and choose with your team the one you're congenial to:

How to create a presentation:
https://prezi.com/
https://www.powtoon.com/

https://www.canva.com/it_it/
https://www.genial.ly/
https://www.microsoft.com/it-it/microsoft-teams/group-chat-software

Once you've created your presentation, it's time to test its effectiveness with your team. Don't forget to give everyone a chance to talk and, most importantly, don't forget to smile!
Now that your presentation is ready, you can socialize it to your classmates before proposing it to the mayor.

Step 5: Selection of the final proposal

The day has come! It's time to choose the eco-presentation to be submitted to the Mayor. It will help you by choosing to fill out the following tab:

To be completed for each proposal	Excellent 4	Different 3	Good 2	Enough 1	Report partial values
GRAPHIC APPEARANCE					
PROPOSED ORIGINALITY					
FEASIBILITY OF THE PROPOSAL					
ACCURACY AND CLARITY OF EXHIBITION					
EFFECTIVENESS IN REDUCING EMISSIONS					
CALCULATE THE TOTAL					

The proposal that has achieved the best results will be submitted to the Mayor!
You have worked hard to find appropriate solutions and for this reason you hope to win the competition.
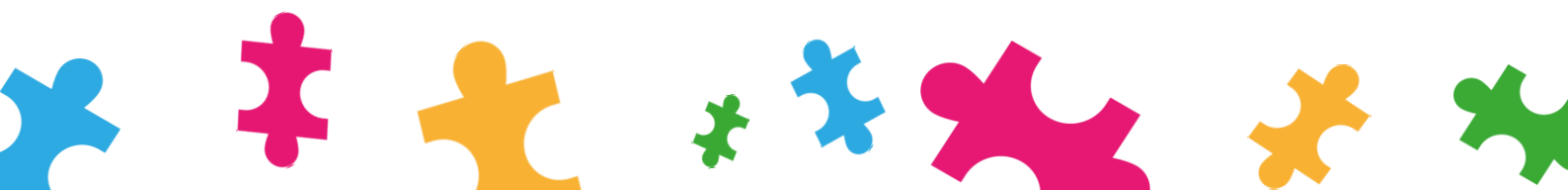If your team turns out to be the chosen one, they'll need to organize the presentation.
For more information **about how to cover a presentation,** click the following links:
Presentation capacity: https://www.youtube.com/watch?v=8IbheB2-ixM
Tips for presenting: https://www.duarte.com/presentation-skills-resources/tips-for-kids-to-nail-presentations/

Good luck!

Individual Self-Assessment Address Book

STUDENT _____

Put an X in the box you choose

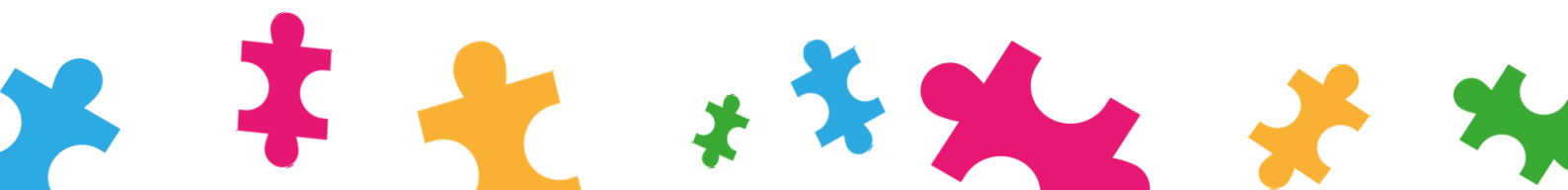|	NEVER	SOMETIMES	Enough	All the time
Have I shown any interest in the activities carried out?				
Have I respected my role and the assigned task?				
Was I involved in team work?				
Did I collaborate with the group?				
Did I ask for help with my job if I was in trouble?				
Did I help the distressed comrades?				
Did I respect the rules of good communication while waiting for my turn to speak?				
Have I met the time required to finish my work?				
Would you recommend the project to your partner?				
Have you encountered any difficulties during the project?				

What did you like the most?

_____
_____

What did you like the least?

_____

—

_____

—

Briefly describe the path that led you to the realization of the final product.

_____

_____ – _____
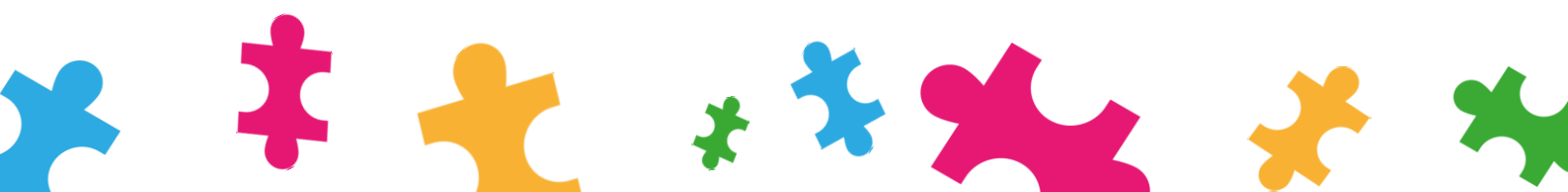
_____ – _____

_____ – _____

_____ —— _____

_____ —— _____

Conclusion

Congratulations! You and your team have successfully made your presentation and learned so much about how to limit carbon consumption. The winning team will also have the opportunity to submit their proposals directly to the first citizen.

By making others know how to limit carbon consumption, you're encouraging them to make smart choices, and that can have a significant impact on climate change and global warming. It is important to discuss with others why we should all learn to reduce consumption in order to protect our planet.
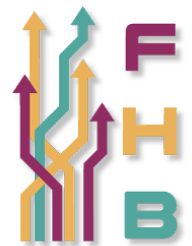
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Challenge-based Learning in Primary Schools for Climate Change Awareness

Istituto Comprensivo "Don Milani" di Lanciano

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