

ENERGY & CLIMATE WORKSHEET

Interactive worksheet series for 10-14 year olds produced by WAME
Internet access needed to complete the worksheet



ENERGY AND CLIMATE CHANGE

by Pia Lovengreen Alessi

Climate change, not weather change, is causing the world to get warmer. It will continue to get warmer as long as we continue to emit Green House Gasses (GHG) into the atmosphere. This warming has dramatic consequences for life on this planet including our oceans, weather, food production and our health.

The primary reason for the increase in GHGs over the last century is the increase in burning of fossil fuels for the production of electricity and heat in homes and in industry and for transportation of persons and goods in a globalised world. Let's learn more about the causes of climate change and understand how we can all take action.

THE CARBON CYCLE AND THE GREENHOUSE EFFECT

Origins of Green House Gasses

The amount of GHGs, mainly carbon dioxide (CO₂), produced by natural sources is offset by natural carbon sinks (absorption) and has been so for thousands of years. Before the influence of humans, CO₂ levels were quite steady because of this natural balance.

ACTIVITY 1:

Watch the video "[The Carbon Cycle](#)" and complete the differentiated list below with natural and human induced sources of GHG emissions as well as list the natural sinks that help with absorption of GHGs.

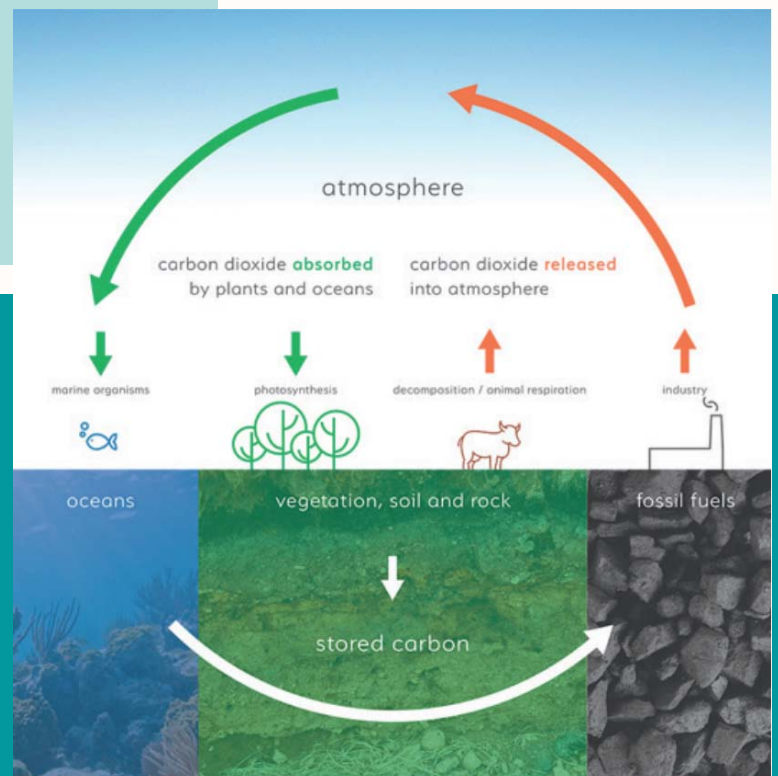
Natural GHG emissions (released)

Human induced GHG emissions (released)

Natural GHG sinks (absorbed)

Useful resources:

- [The Carbon Cycle video](#)
- Carbon Cycle image below



"WE CANNOT SOLVE OUR PROBLEMS WITH THE SAME THINKING WE USED WHEN WE CREATED THEM."

ALBERT EINSTEIN

PRIMARY SOURCES OF ENERGY

Renewable and non-renewable sources

Useful resource:
[Renewable power](#)

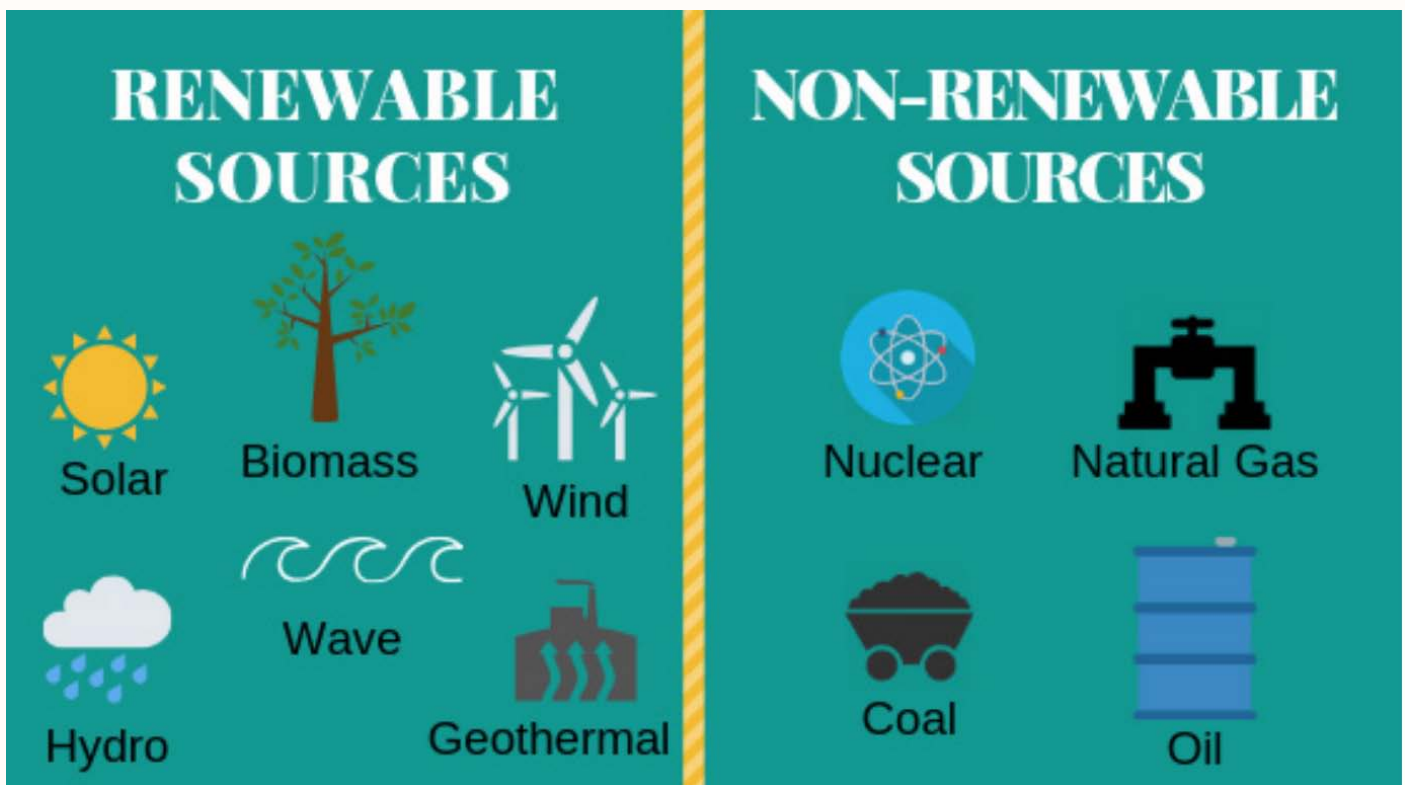
OK, it is now clear that the burning of fossil fuels is the main source of GHG emissions. We can all reduce our fossil fuel consumption by installing more efficient technologies (consume less for the same result), more sustainable technologies (reduce the negative impact on the environment, for instance by using renewable energy in place of fossil energy) and developing better habits.

ACTIVITY 2:

Use the diagram below and identify what kind of energies you use at home for heating/cooling, cooking and transportation? Could you reduce your consumption of any of these? Or perhaps use renewable instead? Think about it! Research it! Explain briefly below:

Sources of energy you use today:

Where can you reduce or change source of energy:



THE CLIMATE CONVERSATION

Then and now

The industrial revolution has given humanity an unprecedented quality of life and has doubled life expectancy in many places.

But all these advances have come with a global cost that we are only truly acknowledging today, that of increased GHG emissions and climate change. We are already starting to observe some elements of climate change today.

ACTIVITY 3:

Engage in a conversation around climate change with an elderly family or community member and tell them you are trying to document some of the changes that has happened over the last 10-30 years. Pick one or several topics highlighted below and note down the most striking points your interviewee raises. After the conversation try to document the main changes in a drawing you share with your interviewee and your peers explaining what you learnt.

Topics to talk about : Weather, food, transport

Space to make a drawing
Print this page or use regular white paper

THE SDG7 AND SDG13 NEXUS CHALLENGE

Origins of Green House Gasses

Currently, over 11% of the world population have no access to electricity. The world distribution of this energy poverty largely coincides with the world distribution of overall extreme poverty. To “Ensure access to affordable, reliable, sustainable and modern energy for all” (SDG7) is a big challenge in itself, but even a bigger challenge as we must make sure it does not lead to increased GHG emissions (SDG13).

ACTIVITY 3:

Watch the video about electrification in rural Mozambique (in sub-Saharan Africa) below and respond to the questions

Useful resource:

[Rural electrification in Mozambique](#)

Which of the following benefits of having access to energy do you think is the most important (better health, education, income, communication, other). Explain briefly below:

Do you think it is possible to provide access to energy to all without having a negative effect on the climate? Explain briefly below: