PROJECT SEAGRASS

CLIMATE CHANGE ACTIVITY GUIDE AGES 11-14

OVERVIEW

This activity guide introduces the topic of climate change. The activity within this guide allow you to explore the greenhouse effect with your students.

KEY INFORMATION

- Indoor or outdoor activity
- Group activity
- Time – 5 minutes
- Practical

- **Lesson Objective:** to learn what climate change is and its effects
- **Curriculum links:** Geography/Science

LEARNING TIPS

This 'Climate change' guide goes well with Project Seagrass activities in the '**Photosynthesis**', '**Seagrass restoration**' and '**Sustainability audit**' guides.

INTRODUCTION

Let's tackle climate change. A daunting topic!

We'll kick off with one of the elements that forms the basis of all living things. This wonder element, key to life if you are a human, a dinosaur or even a mushroom, is **carbon**. Everyone and everything is built from carbon. When a living thing dies, the carbon from its body gets buried back into the earth, ready for it to be built back into a new living thing. Remains of creatures that first roamed the earth are now buried deep into the ground. Over **millions of years** and huge amounts of **pressure**, the carbon in these creatures remains have changed into oil, coal and gas. These are called **fossil fuels** and there is

KEY WORDS

Carbon - An essential element for all living things

Climate change – A change in the average weather conditions, such as temperature and rainfall, over a long time

Finite resource - Something that there is only a limited amount of

Fossil fuels - The remains of living organisms that have been changed over millions of years into oil, coal and natural gas, which we use as an energy source

Greenhouse effect - Gases such as carbon dioxide stop the suns warmth from escaping earth's atmosphere

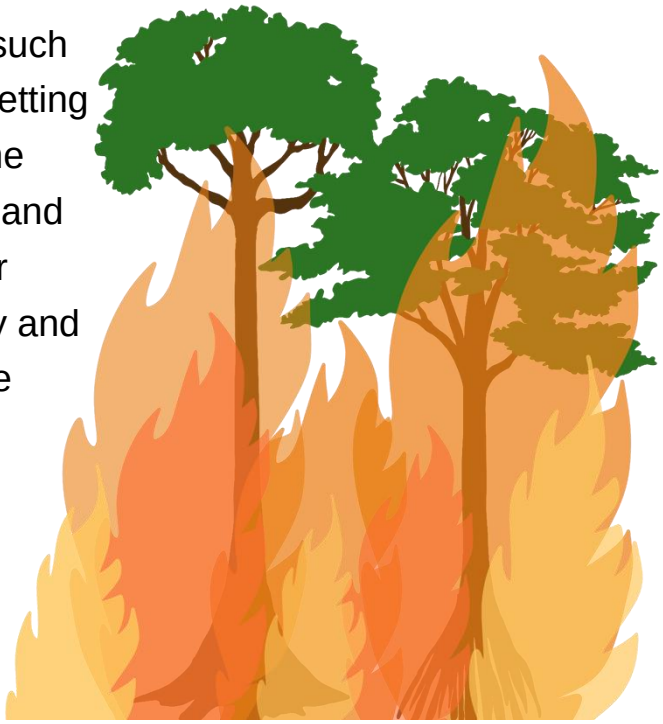
only a limited amount of them on earth, meaning they are non-renewable, finite resources. We use fossil fuels to power every part of our lives. To gain power from fossil fuels we burn them, which releases the carbon back into the atmosphere in the form of carbon dioxide.

FUN FACT!

In 2020, 11% of humans were estimated to be vulnerable to climate change impacts.

Earth needs some carbon to keep forming the basis of life, but too much in the atmosphere can be damaging. By releasing all the carbon locked up in fossil fuels we are tipping this delicate balance. Adding more carbon dioxide into the earth's atmosphere is like adding more and more blankets to it. The earth needs a little blanket so that some of the sun's rays are trapped and stop it from freezing over. However, if there's too much carbon dioxide it's like wrapping too many blankets around the earth with no way for the heat of the sun to escape. This is called the **greenhouse effect**.

As the earth becomes warmer our average long term weather patterns such as rainfall and temperature begin to alter, this is called **climate change**. Warmer temperatures lead to melting ice caps causing rising sea levels and changes to our seasons, such as when flowers bloom and animals hatch, upsetting their natural cycles. It also causes more extreme weather events, such as big floods, hurricanes and forest fires. Alongside burning fossil fuels, other human activities such as deforestation, industry and waste management also add to the greenhouse effect, speeding up climate change.

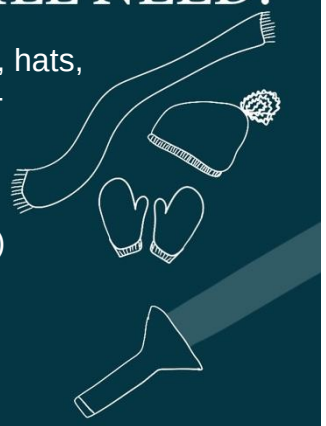


ACTIVITY:

YOU WILL NEED:

Lots of blankets, hats, scarves, gloves- anything warm!

Torch (optional!)



HEALTH AND SAFETY
Remove items if starting to overheat!

1) Choose one student to pretend to be the earth and another pretend to be the sun.
2) The sun keeps zapping its rays at the earth, warming it up. This can be shown by flashing the torch or waving their hands towards the earth.
3) Add the first blanket, check how the earth is feeling. Highlight how one blanket keeps the ‘earth’ comfortable with everything functioning correctly.
4) Add more and more blankets, hats and gloves and check on the earth. They should now feel too hot and very uncomfortable!
5) Explain how the blankets are represented carbon dioxide and other greenhouse gases. The earth needs a blanket to keep comfortable by trapping some of the sun’s rays. However, as we add more greenhouse gases to the environment, we are adding more blankets around the earth, making it uncomfortably hot and unable to function as too many of the sun’s rays are trapped inside. This is the greenhouse effect!
6) Unwrap the earth before it melts!