



Carbon Literacy Training

Session 1: Introduction
to Carbon Literacy and
the Science of Climate
Change

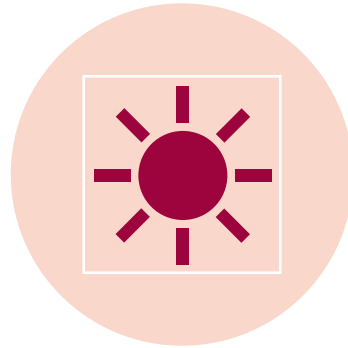


Adapted for the University of Worcester by Katy
Boom, Sian Evans, Gill Slater, Ruth Whittaker

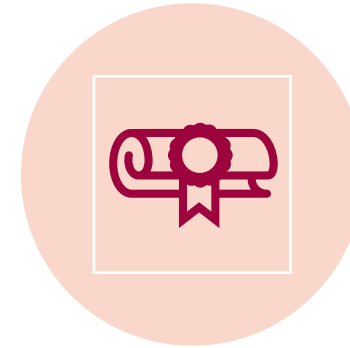
What is Carbon Literacy?



An awareness of the **carbon dioxide costs** and impacts of everyday activities and the ability and motivation to **reduce emissions** on an individual, community and organisational basis.



The focus of this course is **to empower you** to choose your own climate solutions.



To be awarded certification, you must complete eight hours of training and pass a short assessment to the required standard.





Certification

To apply for certification from the Carbon Literacy Project, you need to attend all three sessions (6 hours) and complete the assessment form.

More information about the assessment form will be provided throughout the sessions.

If you have any question regarding the training or assessment, please contact g.slater@worc.ac.uk or ruth.whittaker@sanctuary.co.uk



Carbon Literacy Project

74,503
citizens
certified



258 certified
training
professionals



5,848
organisations
engaged



149,006
actions
pledged



602
courses
designed



204
Carbon
Literate
Organisations

268,000 t^{CO₂e}
carbon
saved



13 Sectors



9 Toolkits



25
nations
delivering

5-15% carbon
savings
per-person



During the training you will:

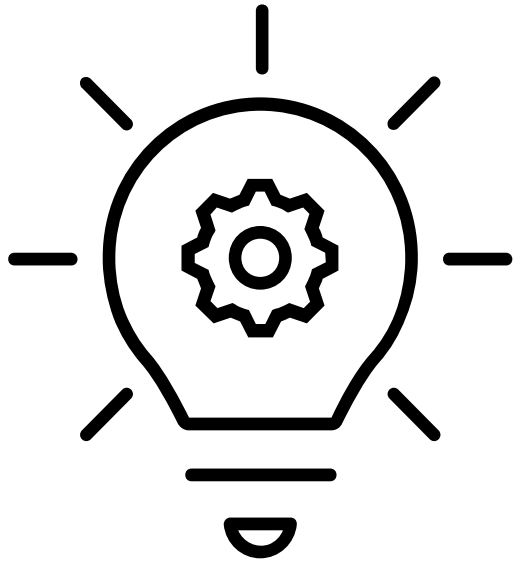
	Session 1 - Science	Session 2 - Impacts
The Problem	<ul style="list-style-type: none">• Learn about the science of climate change• Your individual carbon footprint	<ul style="list-style-type: none">• Examine the impacts of climate change• Explore the distribution of impacts and reflect on climate justice• Consider possible future scenarios
The Solutions	Session 3 – Actions <ul style="list-style-type: none">• Learn about action on climate change (including mitigation and adaptation) at various scales• Compare high and low carbon footprint actions• Devise high impact individual strategies• Consider ‘multisolving’ climate solutions• Devise high impact group strategies	



“Providing you with the tools to make a difference....”



Session one: learning outcomes



- Introduction to the training
- Introduction to the basics of climate science
- Calculating your individual / household carbon footprint



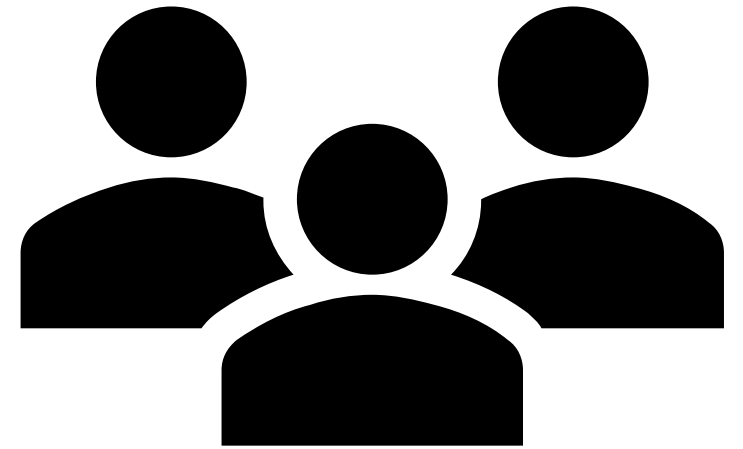
Introduction

This is an introductory video summarises the latest report from IPCC report. Released in March 2023, it sets out all the science and suggest unless really urgent action is taken NOW, have we missed the 1.5-degree target. Today's session will cover all this in more depth and help you come up with impactful actions.



Activity: Getting to know you

- a.) Introduce yourself to the group
- b.) Give one reason why you are attending the training
- c.) Highlight one thing from the video that stood out for you



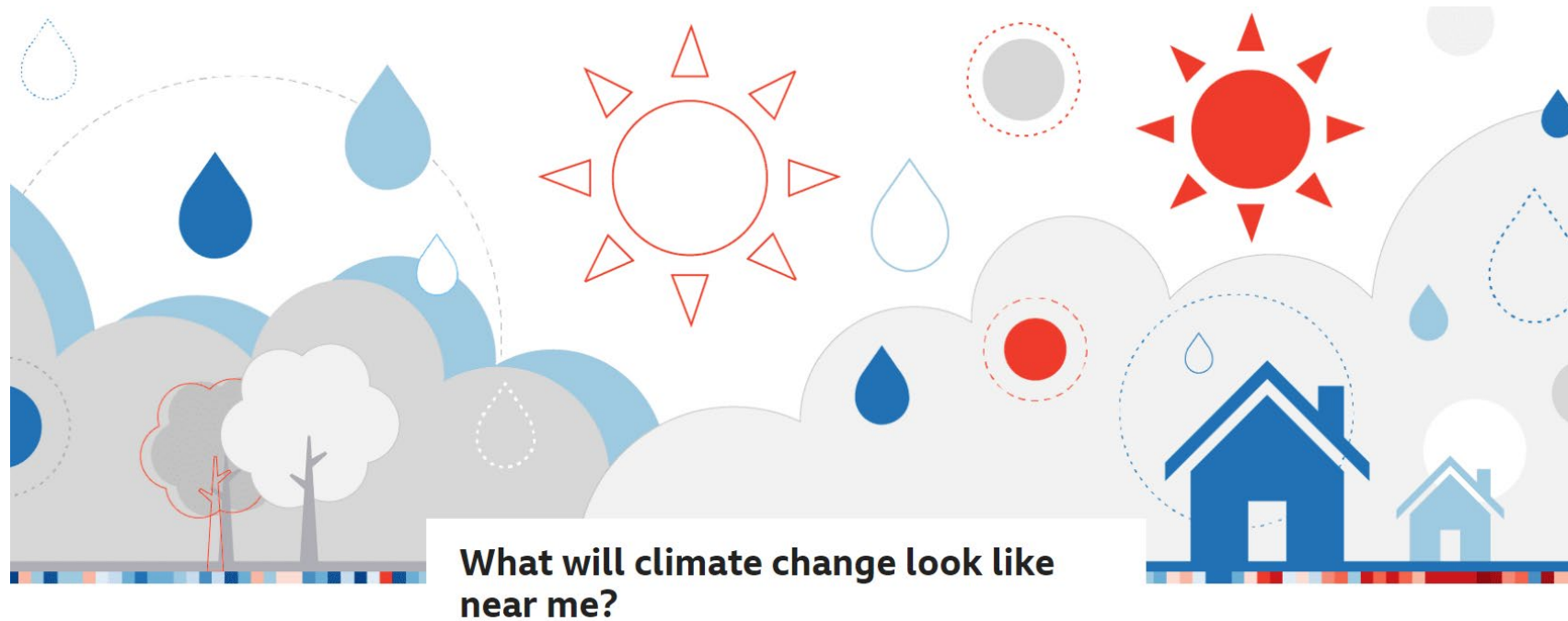


What is happening locally?



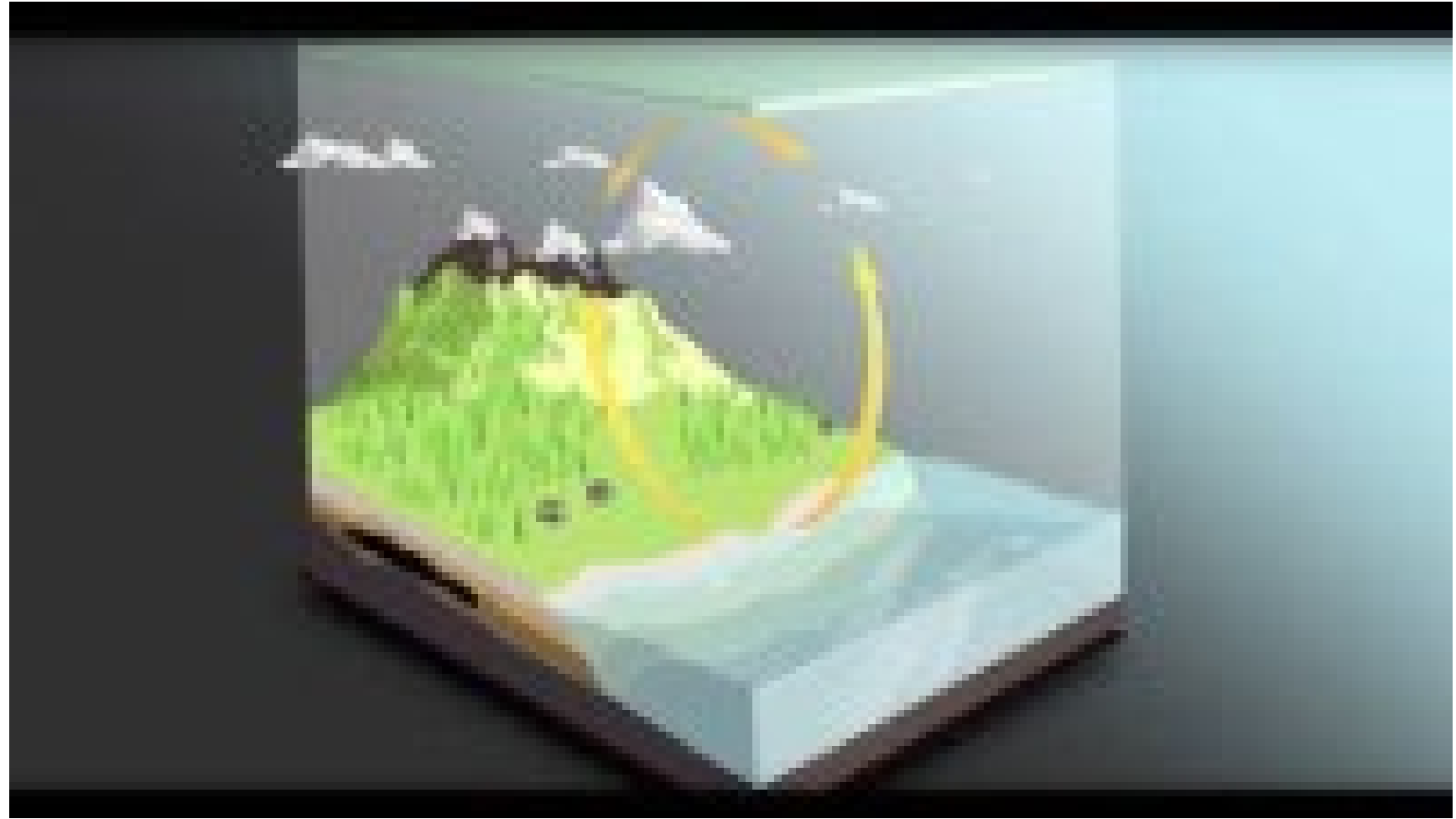
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What are the predicted impacts for UK?



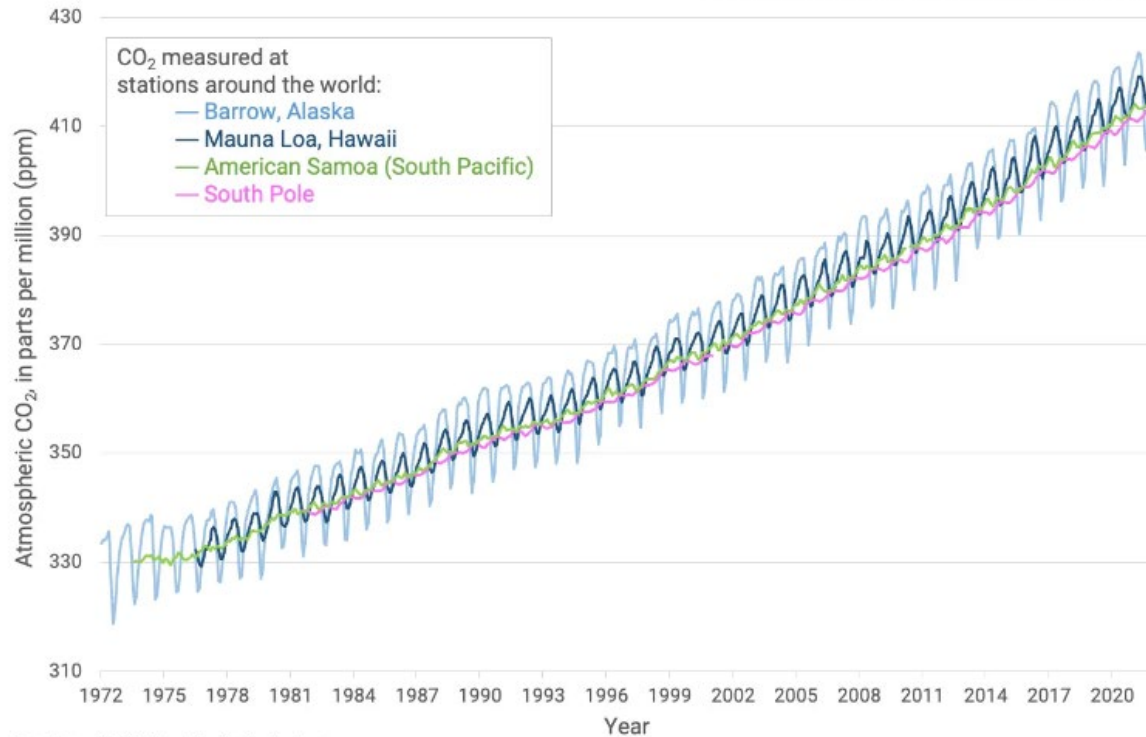
- <https://www.bbc.co.uk/news/resources/idt-d6338d9f-8789-4bc2-b6d7-3691c0e7d138>

The carbon cycle



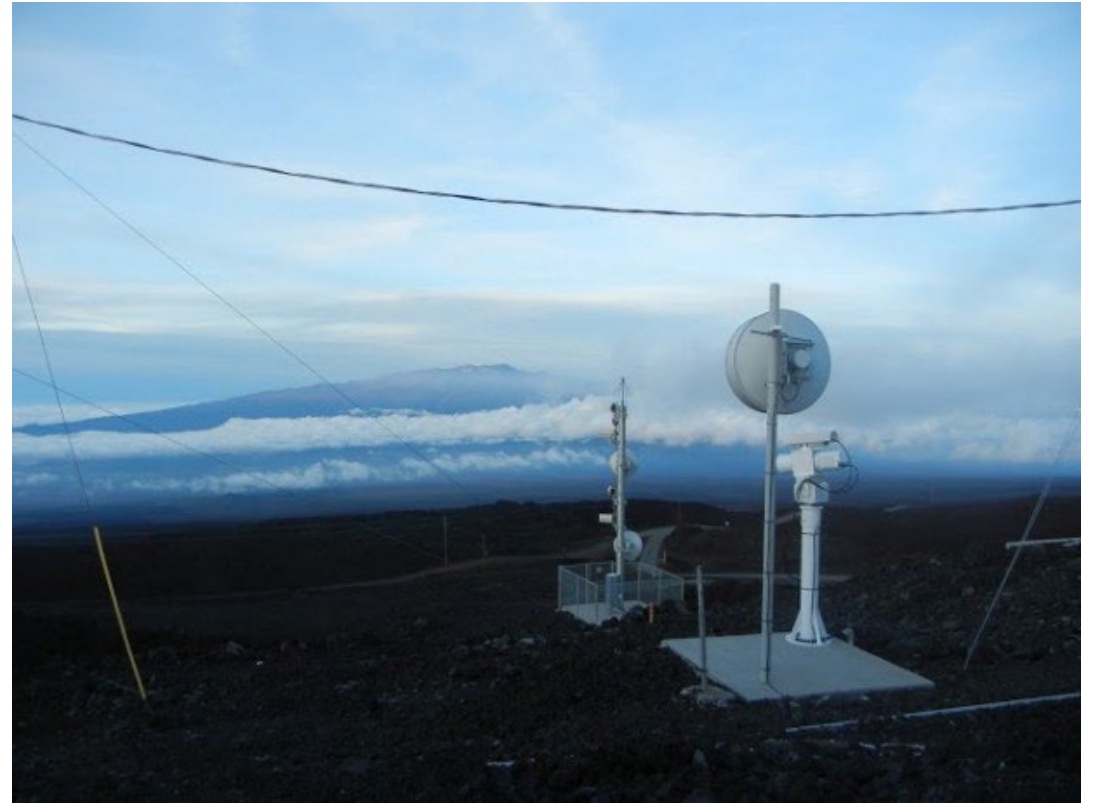
CO₂ levels are rising

**No Matter Where One Measures CO₂,
It Shows the Same Trend**

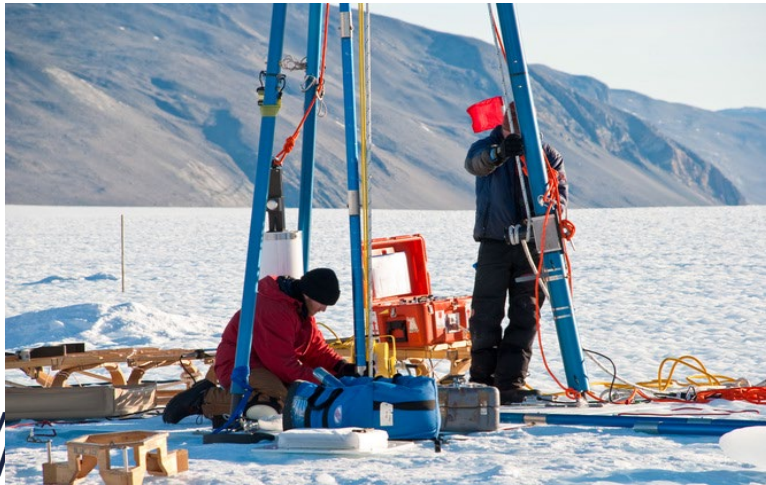
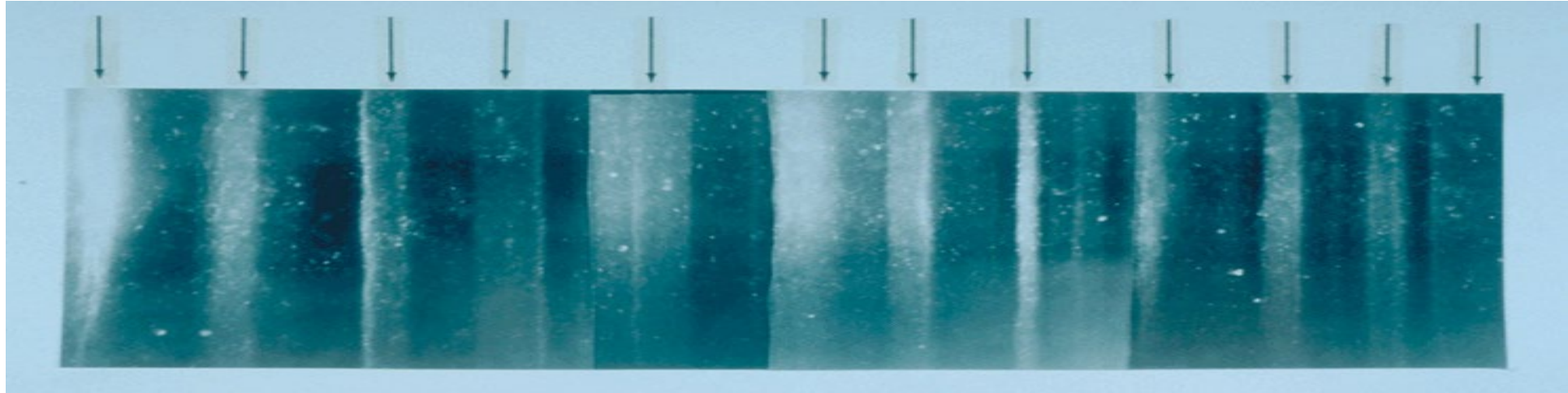


Data from NOAA Global Monitoring Laboratory
Monthly averages from flask samples

CLIMATE.NASA.GOV

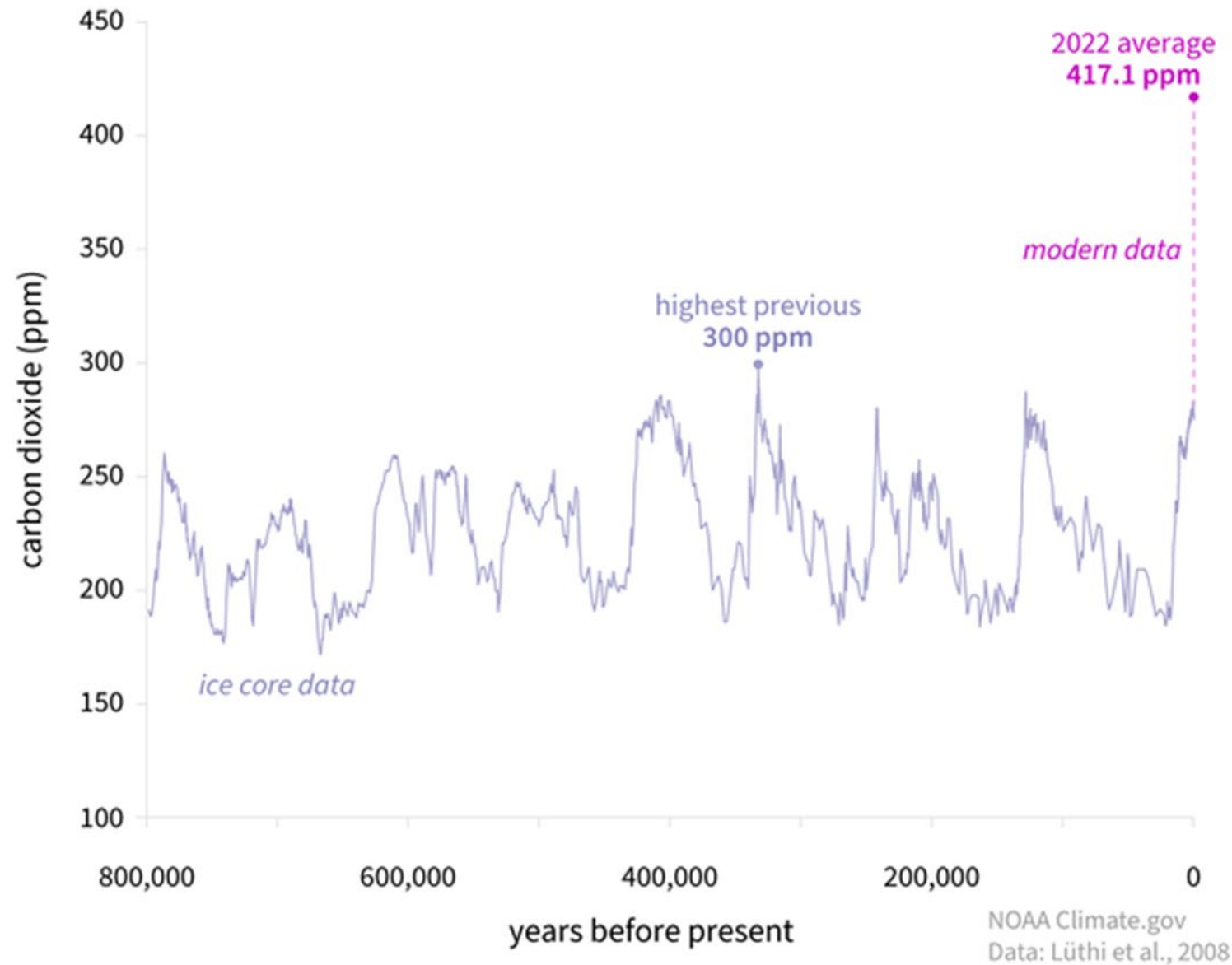


What do ice cores measure?



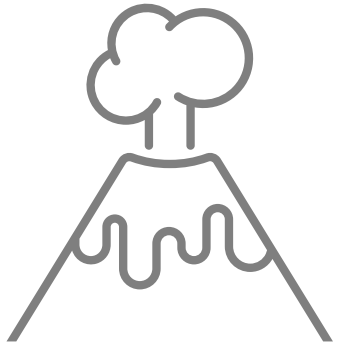
**Ice cores reveal historic
levels of CO₂**

CARBON DIOXIDE OVER 800,000 YEARS



Natural v anthropogenic (man-made) climate change

The causes of climate change can be considered in two broad categories: natural causes and anthropogenic causes.



Natural causes refer to natural phenomena that are not related to human activity which cause climate change, including volcanic and solar activity

Anthropogenic causes refer to human activities that cause climate change



Natural or anthropogenic?

Changes to
Earth's orbit

Burning gas to
generate energy

Intensive
agriculture

Deforestation

Using aerosols

Causes of climate change

Solar flares

Driving petrol/
diesel vehicles

The aviation
industry

Sending waste to
landfill

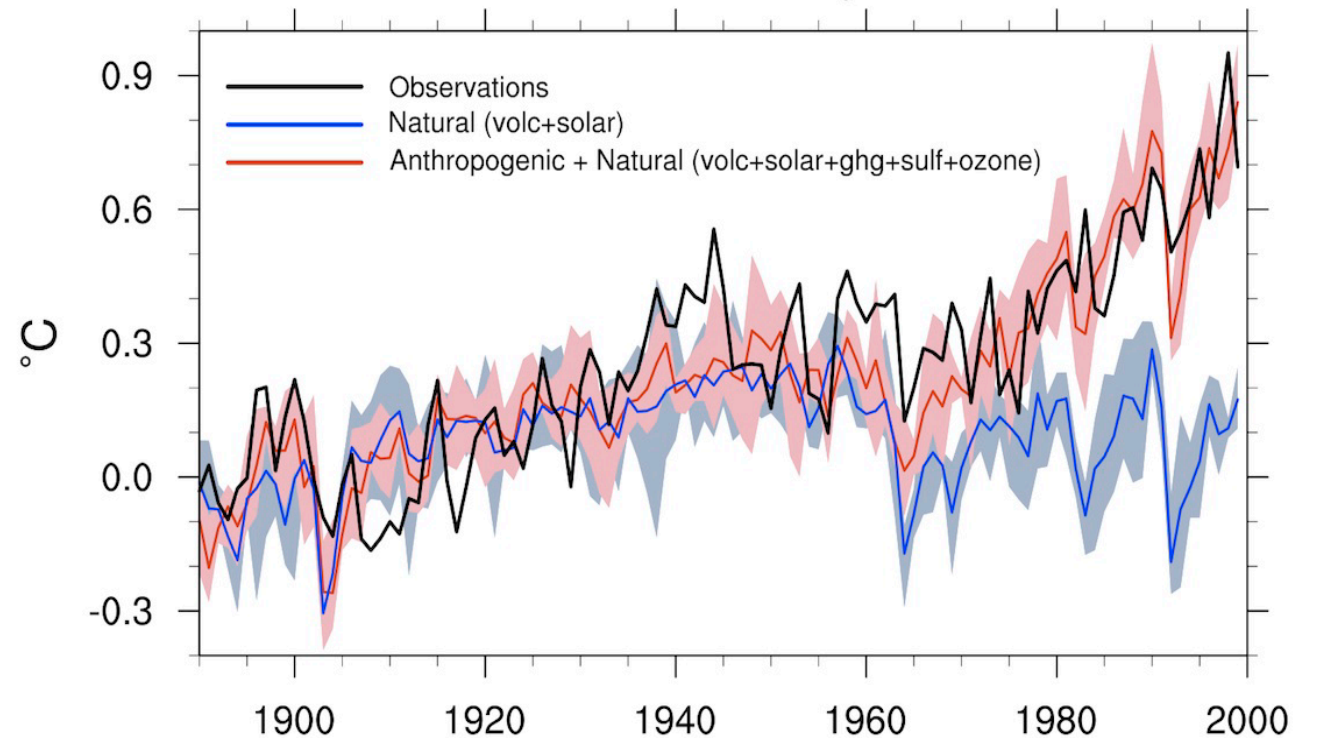
Volcanic
eruptions

Anthropogenic climate change

In 2021, the Intergovernmental Panel on Climate Change said:

It is *“unequivocal that human influence has warmed the atmosphere, ocean and land”*.

Parallel Climate Model Ensembles
Global Temperature Anomalies
from 1890-1919 average



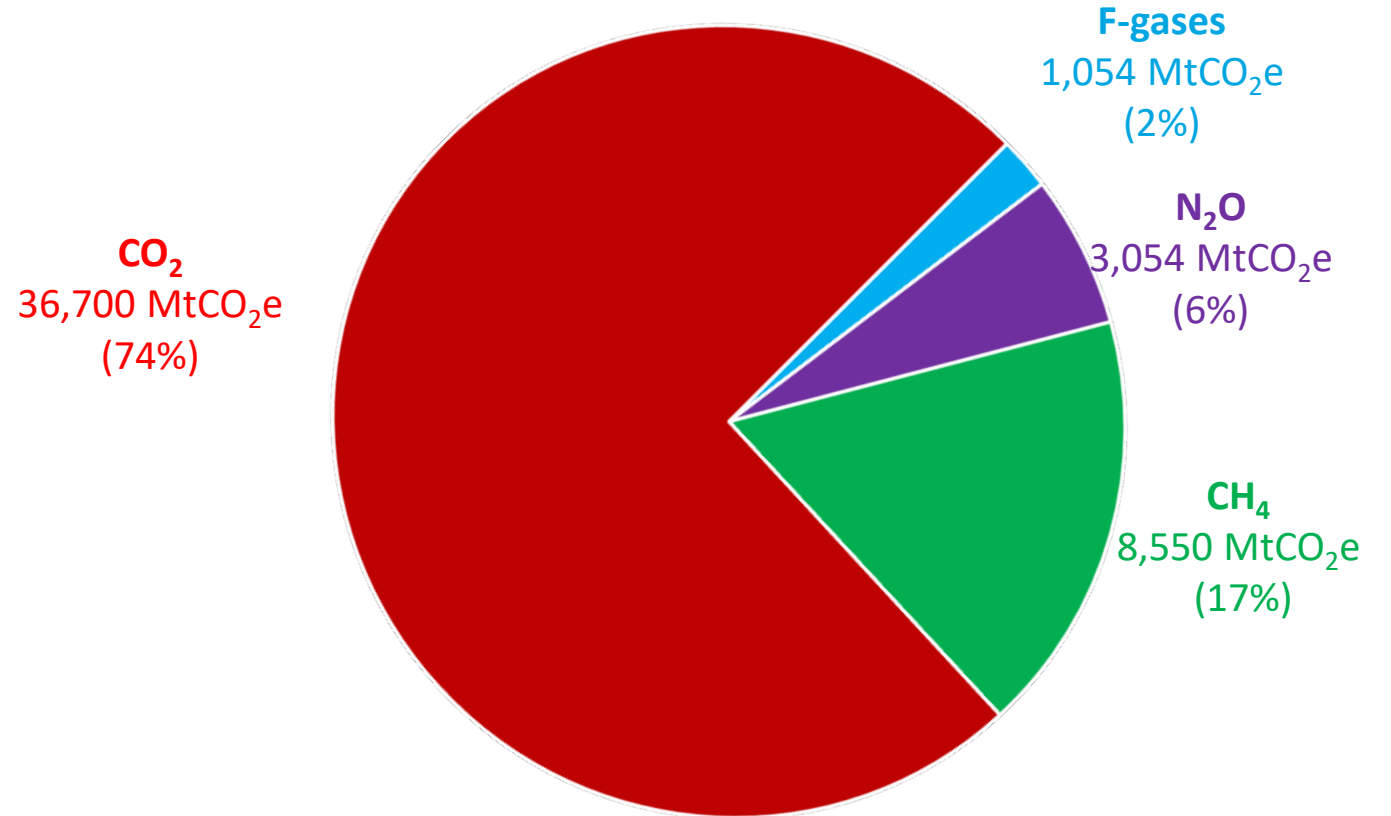


**5-minute
break time!**

Greenhouse Gas Emissions by gas

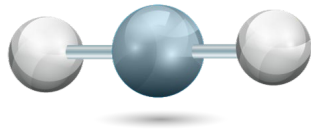


Carbon Dioxide accounts for **74%** of total Greenhouse Gas Emissions



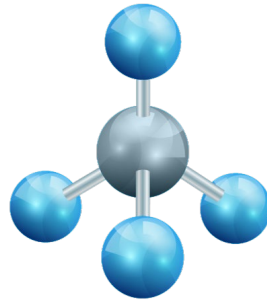
Global Warming Potentials and CO₂e

Carbon Dioxide
(CO₂)



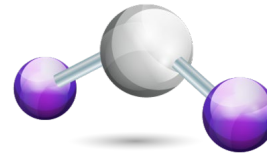
1

Methane (CH₄)



28

Nitrous Oxide (N₂O)



273

F Gases (various)

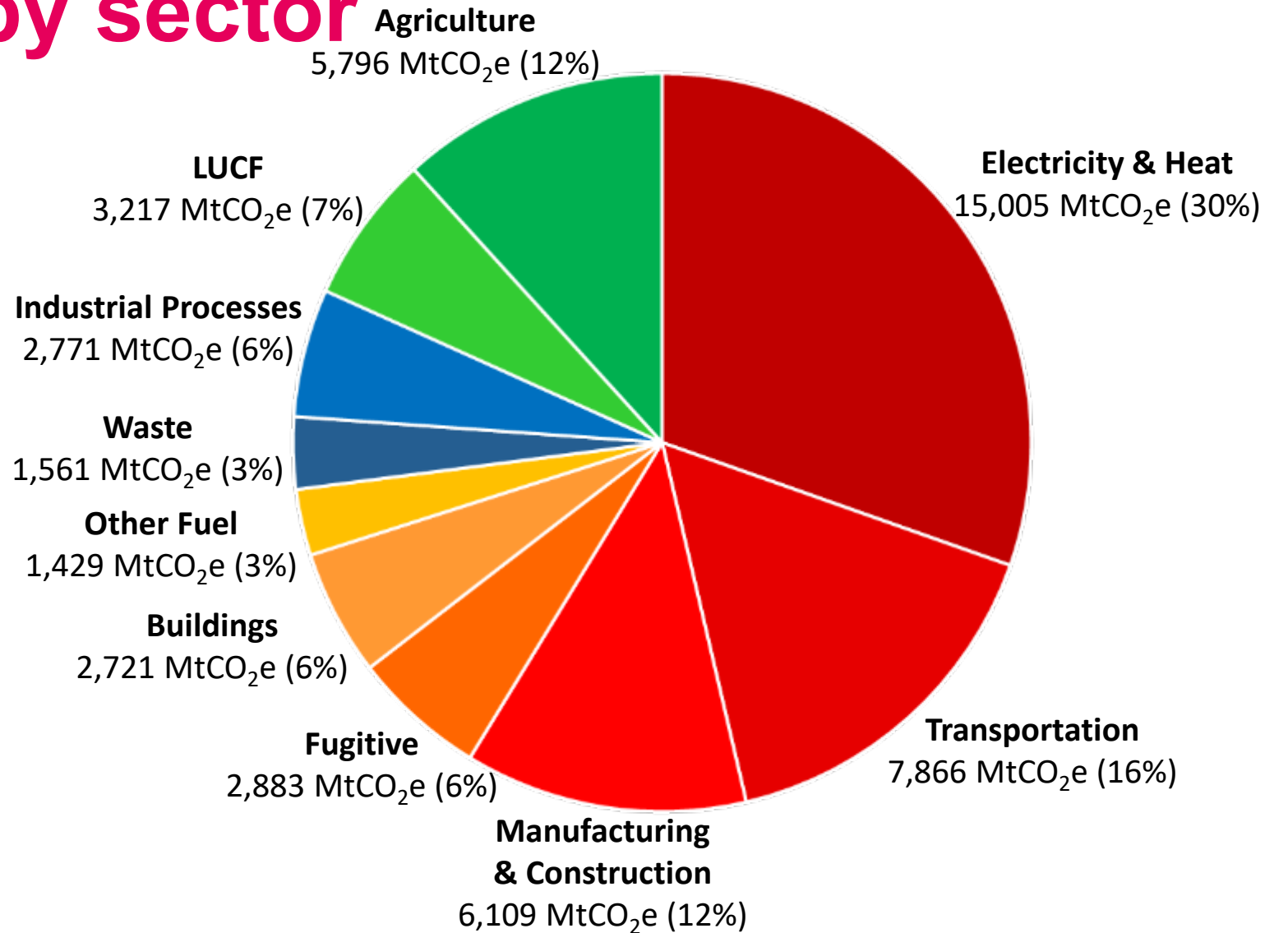


10s to 10,000s

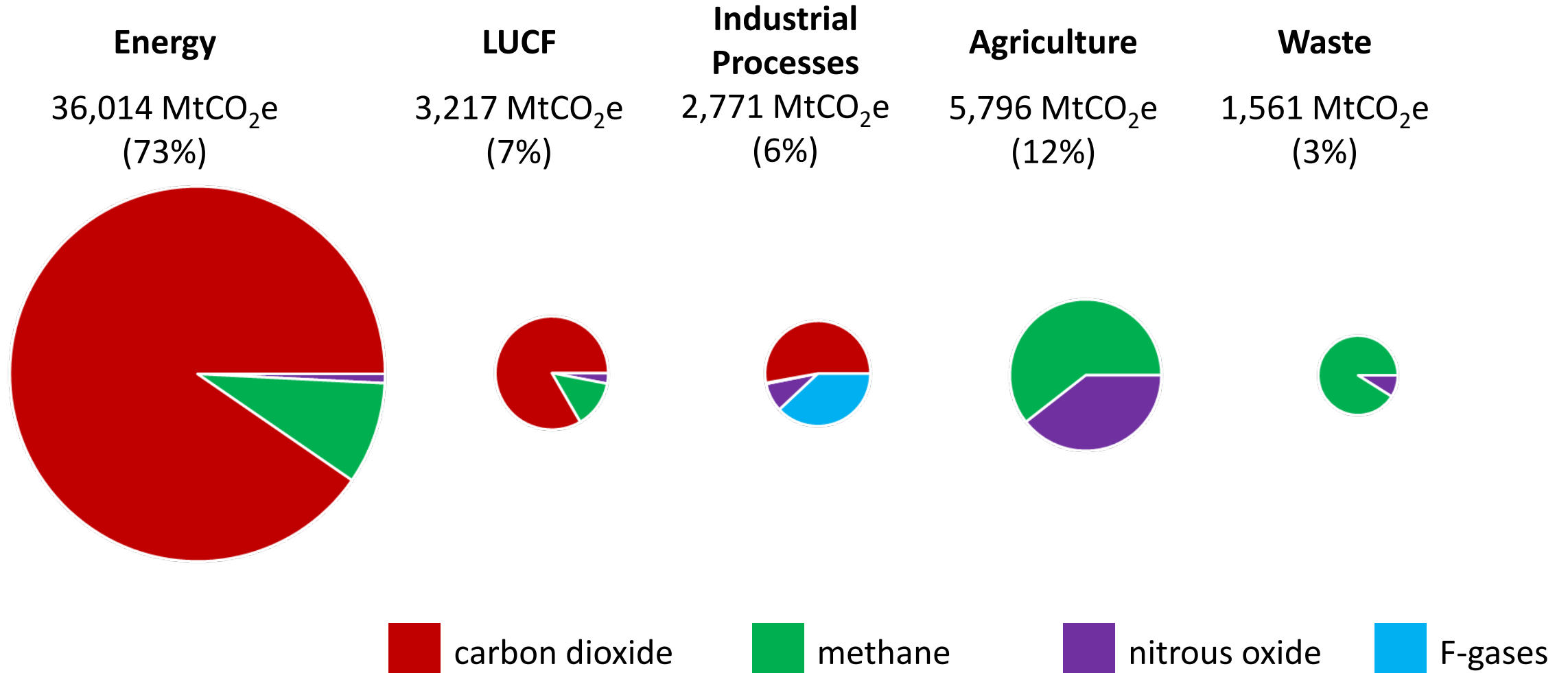
Global warming potentials

GHG emissions by sector

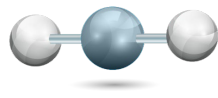
Energy
accounts for
73%
of global GHG
emissions



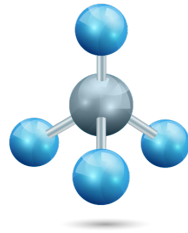
GHG emissions by sector & gas



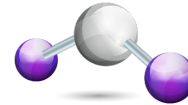
Activity: which activity releases which greenhouse gas?



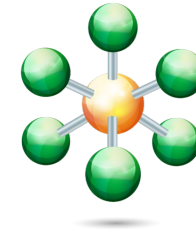
Carbon Dioxide



Methane



Nitrous Oxide



F Gases



Match the greenhouse gases with their sources.

What about embodied carbon emissions?

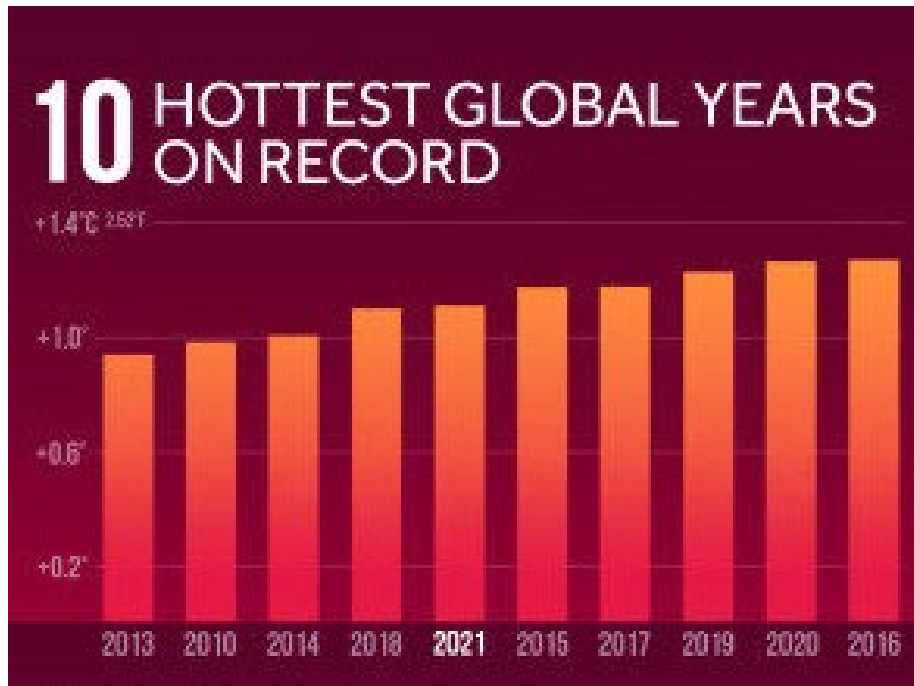
Embodied carbon means all the CO₂e emitted in producing goods and services from extraction to final disposal, or 'cradle to grave'.



For example, the embodied carbon of a building can include all the emissions from:

- **Extracting, transporting and manufacturing** construction materials
- The **building process** and **refurbishment**
- **Deconstructing** and final **disposal** of the building materials

Summary of climate science



- Emissions of greenhouse gases have risen since the industrial revolution
- These emissions have enhanced the greenhouse effect leading to rising average global temperatures
- The United Kingdom recorded its hottest ever year in 2022, with an average temperature of 10.03 degrees Celsius. Since the start of temperature recording in 1884, the 10 warmest years recorded in the UK have all been from 2002 onwards.

Your own carbon footprint

Please work through the WWF carbon footprint calculator and reflect on your results and take a 5-minute break.

<https://footprint.wwf.org.uk/>

WWF FOOTPRINT CALCULATOR

ADOPT DONATE MEMBERSHIP

HOW BIG IS YOUR ENVIRONMENTAL FOOTPRINT?

Our world is in crisis - from climate change to the pollution in our oceans and devastation of our forests. It's up to all of us to fix it. Take your first step with our UK based environmental footprint calculator.

TAKE THE QUESTIONNAIRE

BRINGING OUR WORLD BACK TO LIFE

METHODOLOGY CONTACT US TERMS & CONDITIONS DATA PROTECTION VISIT WWF.ORG.UK COOKIE SETTINGS

WWF FOOTPRINT CALCULATOR

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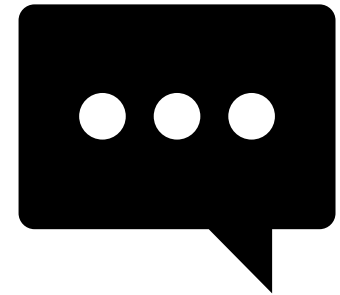




Group discussion of carbon footprint results

If you are happy to share your results, feel free to pop them in the chat box.

- Was your footprint larger or smaller than you expected?
- Was there any result that surprised you?
- Has this prompted you to make any immediate changes?



Climate change action and inaction



What is behind inaction?

Political preference

It's too complicated

It's too late!

Fake news

Confusing science



Time constraints

'They' will fix it

Financial constraints

I'm not sure how to act

It doesn't match my world view

It's not my responsibility

I'm just one person

**‘But I’m only one
person, I can’t
make a difference’**

IF YOU THINK YOU'RE
TOO SMALL TO MAKE
A DIFFERENCE, YOU
HAVEN'T SPENT A
NIGHT WITH A
MOSQUITO.



-African Proverb



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Your accreditation form

To gain certification from the Carbon Literacy Project, you will need to complete the form.

You **do not** need to start the assessment form now - we recommend you don't begin the assessment until you have completed the first two sessions of the training.



Next session on Friday @1.00 we will:

- Examine the impacts of climate change
- Explore the distribution of impacts and reflect on climate justice
- Consider possible future scenarios

If you have any questions about the course, you can contact Gill g.slater@worc.ac.uk or ruth.whittaker@sanctuary.co.uk





Homework

Before the next session,

Review your local impacts

Review your personal carbon footprint

watch this video: <https://www.youtube.com/watch?app=desktop&v=EOctluyVfnA>

In the video, there is a discussion about communities that emit the least carbon emissions also being those that are most likely to suffer the most severe impacts of climate change.

- Can you list two countries that you think will be most impacted by climate change?
- Can you list two countries that you think will be least impacted by climate change?
- What does this reveal to you?

