Carbon Literacy Training

Session 3: Solutions(1) Mitigation, Adaptation and Individual Action

Adapted for the University of Worcester by
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Troubled and positive futures – what (in)actions did you decide?

Troubled Future	Positive Future
1. Lack of knowledge	1. Political cooperation with accountability
2. Lack of political cooperation	2. Innovation
3. Inequity at decision making levels	3. Transitioning to renewable energy
4. Deforestation	4. Developed countries deliver climate finance to developing countries
5. Lack of investment in innovation	5. Protection and restoration of forests

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Reflections and moving forward:

	Session 1 - Science	Session 2 - Impacts
The Problem	• Learn about the science of climate change • Your individual carbon footprint	• Examine the impacts of climate change • Explore the distribution of impacts and reflect on climate justice • Consider possible future scenarios

	Session 3 – Action 1	Session 4 – Action 2
The Solutions	• 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

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

Summary film: from problems to solutions

Climate Change Committee (CCC): UK Climate Change

https://www.youtube.com/watch?v=EOW4fG-qlWU

Session 3: learning outcomes

- Understand climate change mitigation
- Explore actions at the national and global level to mitigate climate change
- Understand which actions have a higher and lower carbon impact
- Explore **high impact solutions** that can reduce individual carbon footprints
- Understand climate change adaptation

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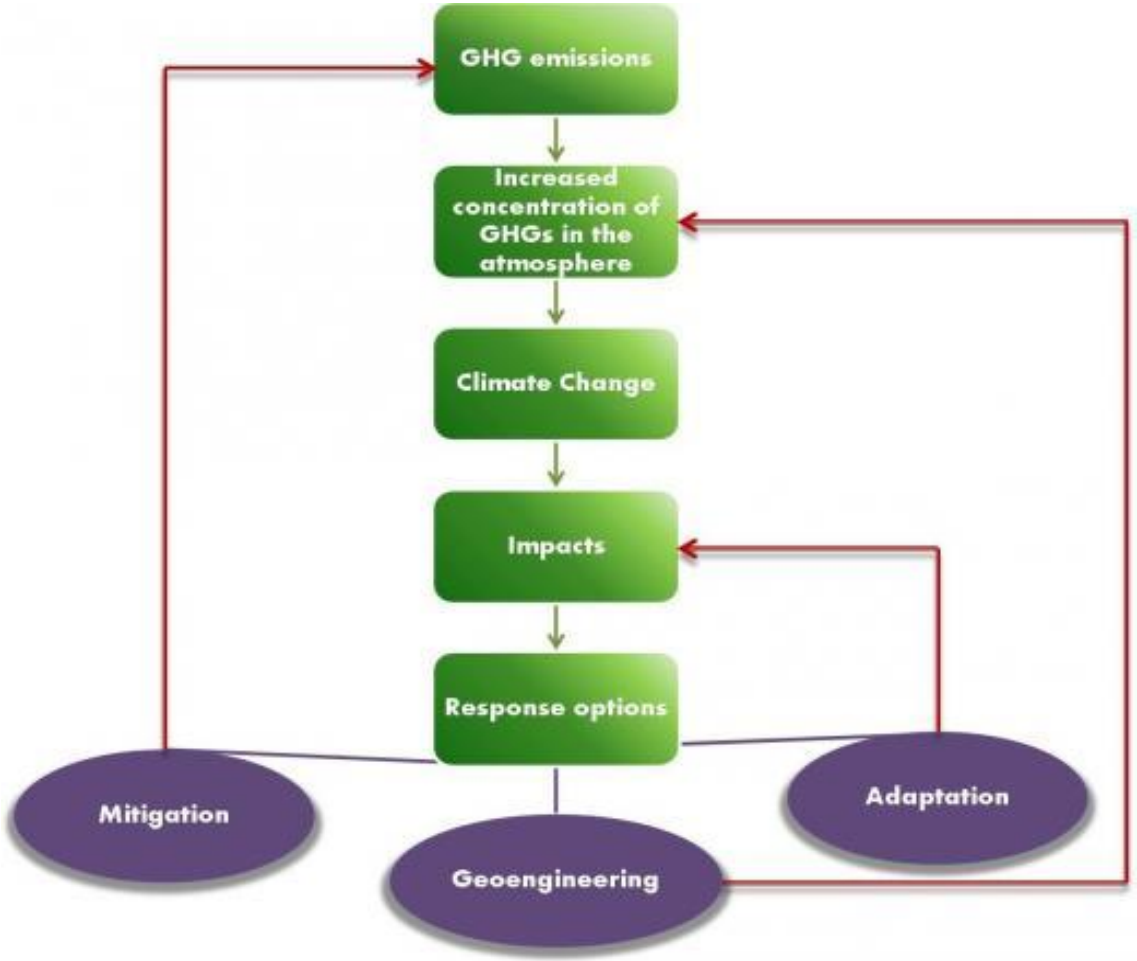
Climate change solutions



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What is climate change mitigation?

Mitigation refers to activities which **reduce the rate** of climate change. The focus is on:

- reducing Green House Gas (GHG) emissions
- preventing new GHG emissions being released
- preserving and enhancing sinks and reservoirs of GHGs

Thereby preventing / reducing climate change and avoiding its impacts.

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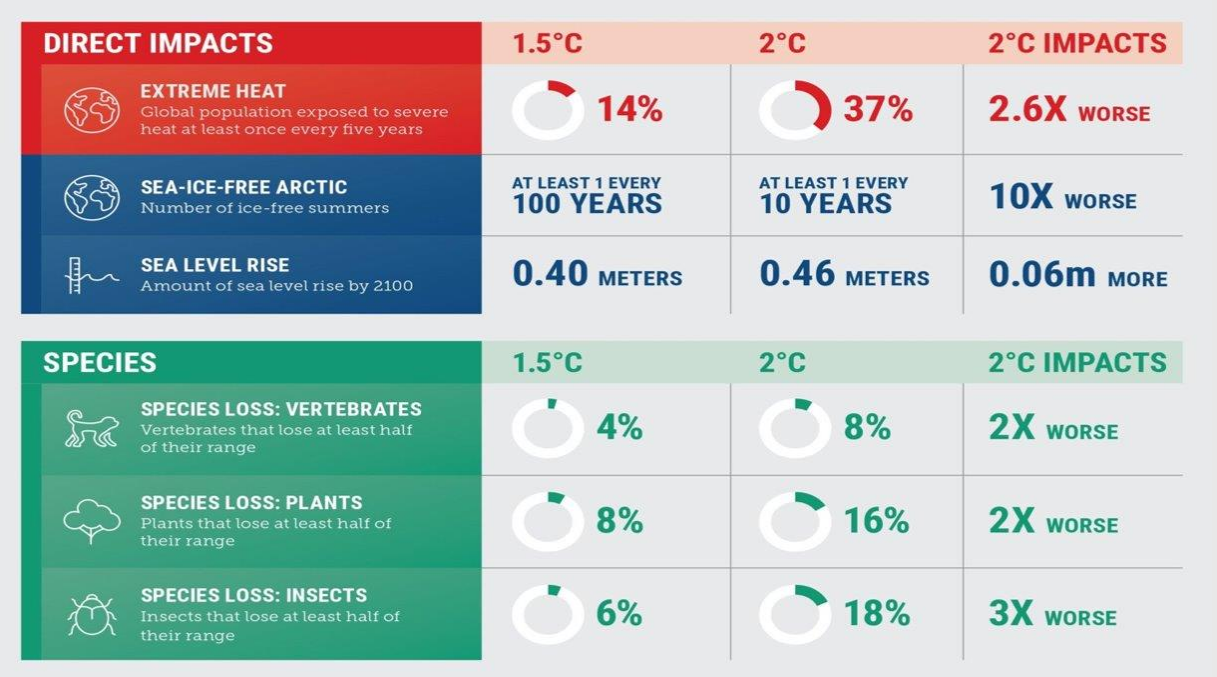
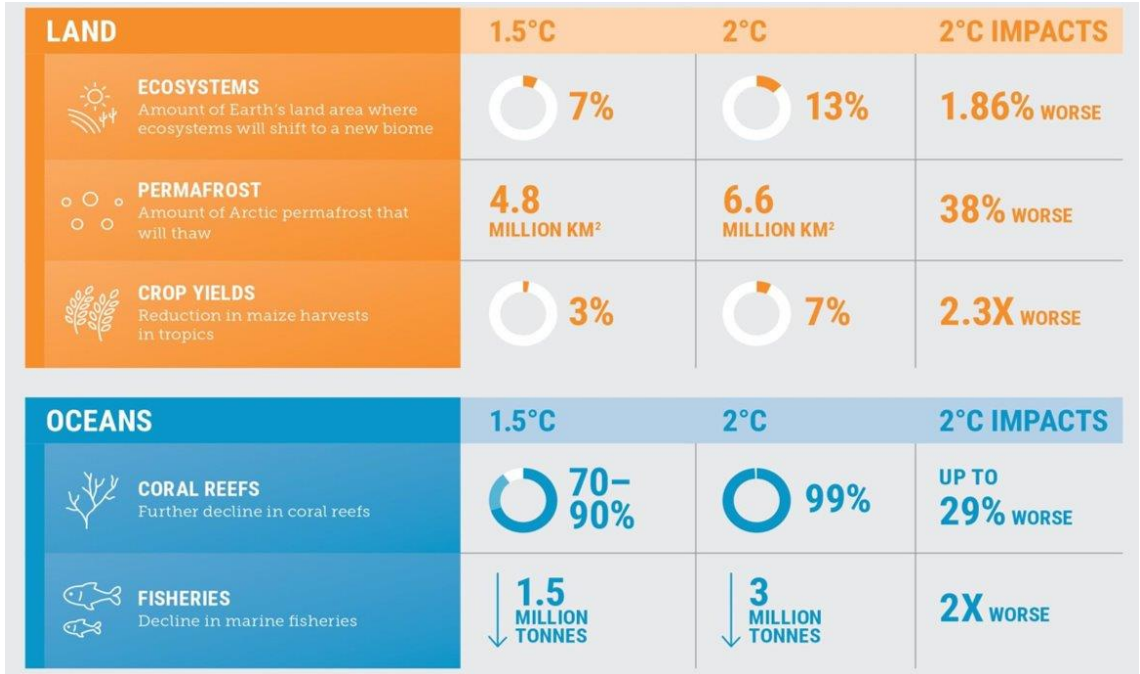
Why is mitigation important?

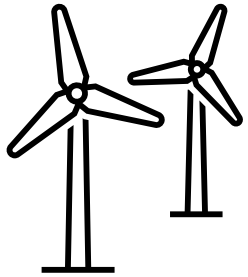
- Reducing greenhouse gases is essential to prevent global temperatures exceeding 1.5ºC (and the catastrophic impacts that this would cause)

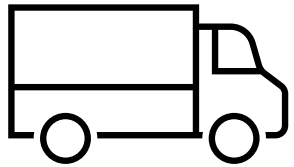




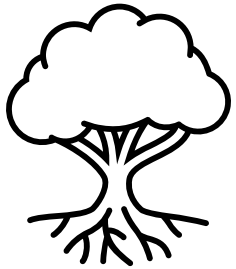
Solutions - mitigating climate change

There are many high and low-tech solutions for mitigating climate change already in action, in progress or in R&D phase. Examples include:





- Renewable energies and Heat Networks
- Electric heat pumps (ground, air, water)
- Electric vehicles
- Hydrogen for HGVs
- Hydrogen boilers (link to Worcester Bosch video about hydrogen-ready boilers: https://www.worcester-bosch.co.uk/hydrogen)
- Afforestation/reforestation and peat restoration & rewilding
- Improved public transport hubs and cycle networks
- Carbon capture and storage



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Responsibility for mitigating climate change

Responsibility for mitigating climate change is linked to multiple stakeholders:

- Global institutions
- Governments national and local - e.g. public services
- Businesses (of all sizes in all sectors)
- Non-Government Organisations (of all sizes in all sectors)
- Individuals

“Our choices matter both at home and at work ”

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What is being done at the local / national level to mitigate climate change?

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Worcester City Council's Environmental Sustainability Strategy 2020

Residential Buildings

We will:

- Improve the knowledge of our housing stock to ensure best targeting of measures to reduce emissions from power and heating
- Widely communicate and promote government initiatives and funding opportunities to residents, su as the Green Homes Grant vouchers
- Seek opportunities for city wide decarbonisation of heating through the use of hydrogen, seeking to capitalise on the local development of hydrogen boilers
- Ensure that our private sector housing standards officers are fully trained to identify fuel poverty ar are able to support residents to access funding for energy efficiency measures
- Increase promotion of the successful 'Warmer Worcestershire' campaign to signpost more residents towards the support and funding which is available
- Encourage behaviour change from residents through communications, specific applications or programmes and through working with local action groups
- Explore working with local estate agents to provide enhanced information to homebuyers on opportunities and costs of energy efficiency measures, over and above the information provided in EPC
- Enable and support local generation opportunities, such as a bulk buying solar PV scheme

Return to 'Finding your wo

Worcester CITY COUNCIL

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Carbon Neutral Worcester

Worcester City Council's Environmental Sustainability Strategy 2020

Transport

We will:

- Improve walking and cycling safety and connectivity across the city, seeking to increase the percentage of journeys under two miles undertaken via active travel means (walking or cycling). A key milestone being the creation of Kepax Bridge
- Provide additional safe and secure cycle parking across the city centre
- Encourage the adoption of electric vehicles and other zero emission vehicles, through local incentives and infrastructure, making use of the green number plates initiative
- Enable residents without off-street parking to own an electric vehicle through affordable and accessible charging provision in council owned car parks (in line with current County Council policy, on street chargepoints are not proposed in this strategy)
- Work with local taxi operators to facilitate the transition to zero emission taxis and introduce a new licensing strategy to support this
- Investigate support and incentives for employers to install electric vehicle chargepoints, electric bike schemes and implement active travel plans

Return to 'Finding your way' page

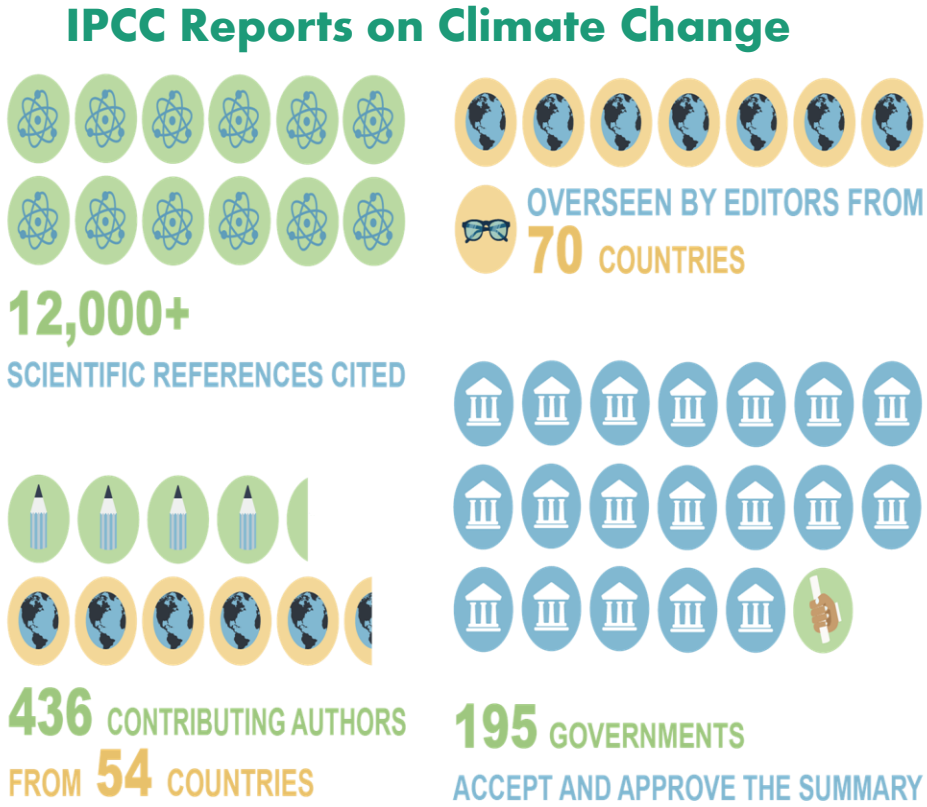
What is being done at a global level to mitigate climate change?

Global governance to mitigate climate change via the UN.

Key events and actions include:

- Launch of Intergovernmental Panel on Climate Change (IPCC) (1988)
- Kyoto Protocol (1997)
- Paris Agreement (2015)
- Annual COPs attended by nearly all countries – most recent COP26 in Glasgow

…… and 193 countries have signed up to the **UN's Sustainable Development Goals** framework



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UN Sustainable Development Goals

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Understanding the impact of solutions

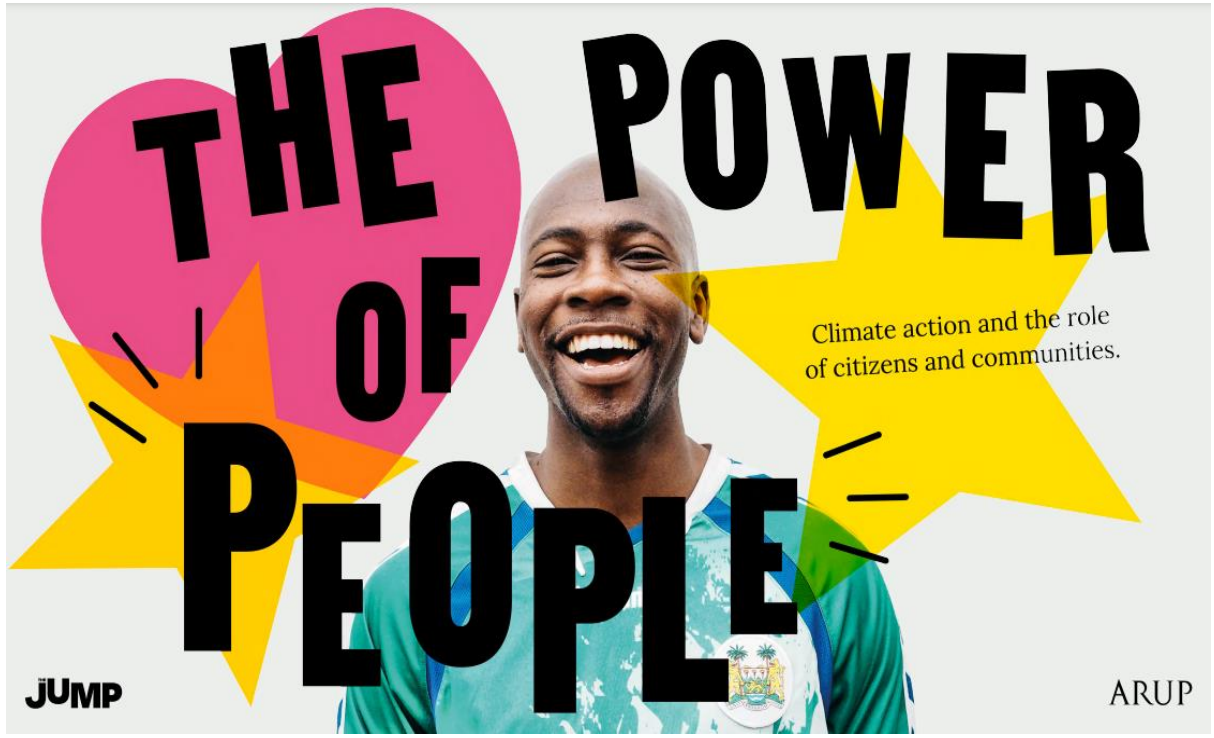
Solutions to mitigate climate change are found at multiple levels, including:

1. Our food
2. How we move people and goods
3. Our homes and cities
4. How we use our land
5. Electricity use
6. Materials and waste management
7. Empowering women

We can use the Project Drawdown/ CNN quiz to explore different solutions at these levels and compare their impacts.

https://edition.cnn.com/interactive/2019/04/specials/climate-change-solutions-quiz/index.html

Individual action on climate change



THE CONCLUSIONS

1 Citizens have primary influence over 25-27% of the savings needed by 2030 to avoid ecological meltdown, by making key lifestyle changes!

Achieved through reducing vehicle ownership, changing eating habits, reducing flying, reducing the number of new clothes purchased, and keeping electronics and appliances for as long as possible. This is the JUMP that all citizens and communities can make, **click here** to get help making these changes.

2 The 25-27% is actually a minimum figure for the impact of citizens, because citizens can also have indirect influence on large portions of the remaining 73%.

Citizens can also have indirect influence over government and industry, encouraging them to make the changes needed. For instance through consumer demand or political activity to influence policy. This is the JUMP that all citizens and communities can make, click here to get help having an infleunce.

3 At the same time, government and industry still have most responsibility

Government and industry are still responsible for the large majority of needed emissions reductions, **73%**. For example by decarbonising electricity supplies.

They also have a role in facilitating the transitions needed by individuals to ensure the **25-27%**. For instance, by ensuring there are accessible, affordable low carbon transport options. There is no one lead actor: we need all a ction from all actors now!

4 Individual action is particularly relevant between now and 2030, the most important decade for climate action.

Given the time it takes for robust and urgent action by governments and industry to deliver deep reductions, it is vital that citizens take these actions by 2030.

5 For the changes led by citizens and communities, it is higher income groups that must take faster and bigger action

Lower income groups tend to exhibit lower levels of high impact behaviour such as flying and multiple vehicle households. As a result, when considering lower income groups, the responsibility for making shifts is lower than high income groups, dropping from covering **25-27%** of emissions to just **9%**.

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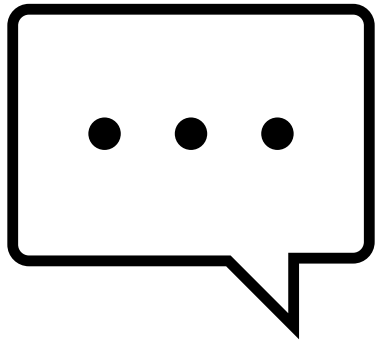
Case study one: carbon cost of drink choices

- Open up the BBC Food Carbon Footprint Calculator
- In the box marked **which food would you like?** Enter your favourite drink and in the box marked **how often do you have it?** Select the option suitable for you
- Scroll down and see how this compares to the footprint of other drinks
- After you've done this, explore how your daily milk consumption compares to other milk types

Have any of the results surprised you? Please share any comments in the chat box



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5-minute break time!

Photo credit: Rumman Amin (Unsplash.com)

Case study two: carbon cost of food (protein) choices

Working in small groups we are now going to explore the differences in carbon footprint of the bottom half of a cottage pie made with several types of protein!

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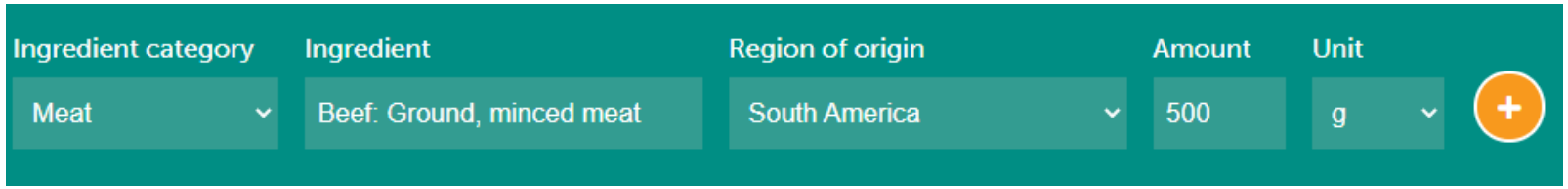
Cottage Pie – The impact of protein choice on Carbon Footprint

Use the calculator to identify the carbon footprint of the following protein options (to serve **4** people)

Start with:

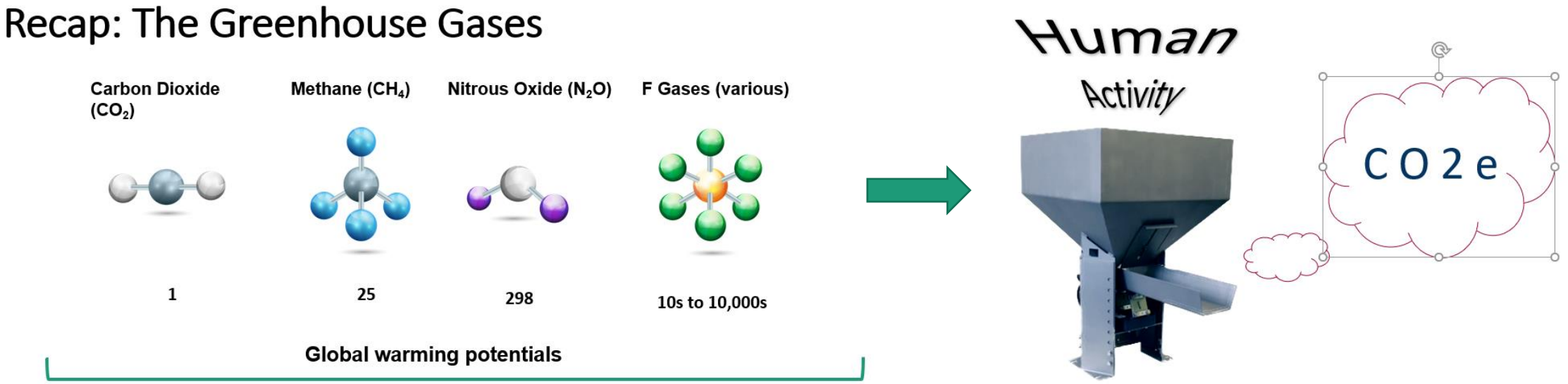


1. How does this change when you swap region of origin to UK within 50 miles?
2. How does this change if you use half the amount of local beef mince and add 250g lentils (pulses) from Asia instead?
3. How does the carbon footprint change if you use 500g UK (>150 miles) Quorn?
4. How does the carbon footprint change if you use 100g of cauliflower, 100g carrots, 100g sweet corn and 200g tinned tomatoes (>150 miles)?
5. Have a discussion in your group about the relative impact of these different food choices and whether you might make changes to your diet in response to this.

https://www.vegansociety.com/take-action/campaigns/plate-planet/carbon-calculator

Case study two: communication and transport

- Activity - comparing the carbon equivalent cost of different ways of communicating.
- Using CO_2 equivalent

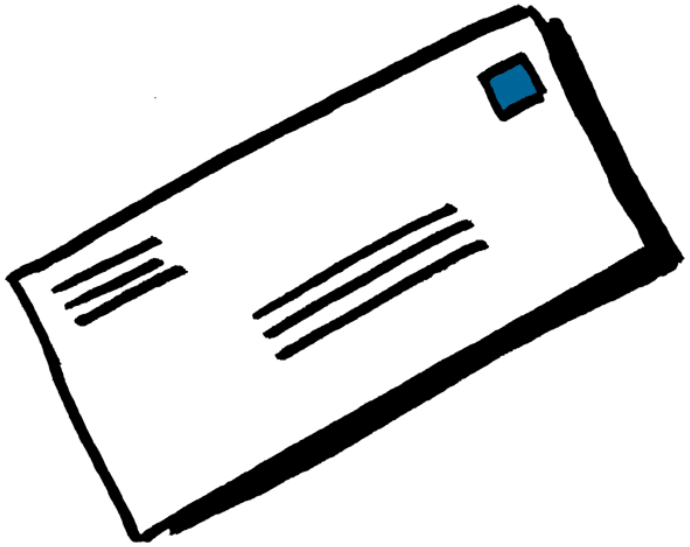


Carbon of everyday activities

≈

18g
CO2e

Sending a letter



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200g CO2e

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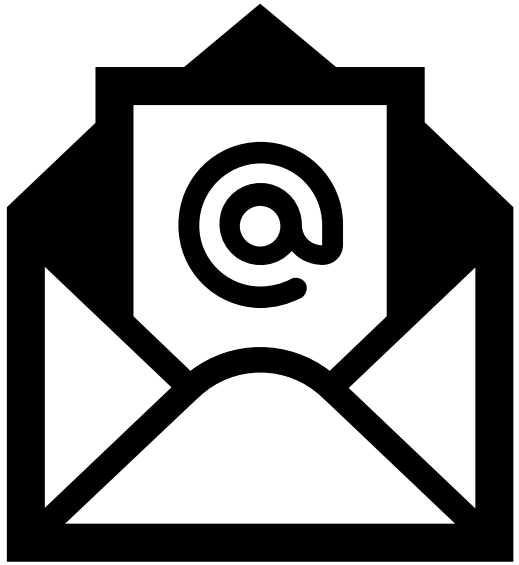
Sending an email



≈

4g CO2e

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Texting a friend/colleague

≈

0.014g CO2e

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Cycling a mile to a meeting

≈

90g CO2e

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Going to the same meeting my bus

≈

150g CO2e

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…and taking a taxi

≈

710g CO2e

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London to Glasgow and back for a conference by train

Credit: Tomek Baginski Unsplash

6,667

≈

120,000g CO2e

London to Glasgow and back for a conference by plane

27,778

≈

500,000g
CO2e

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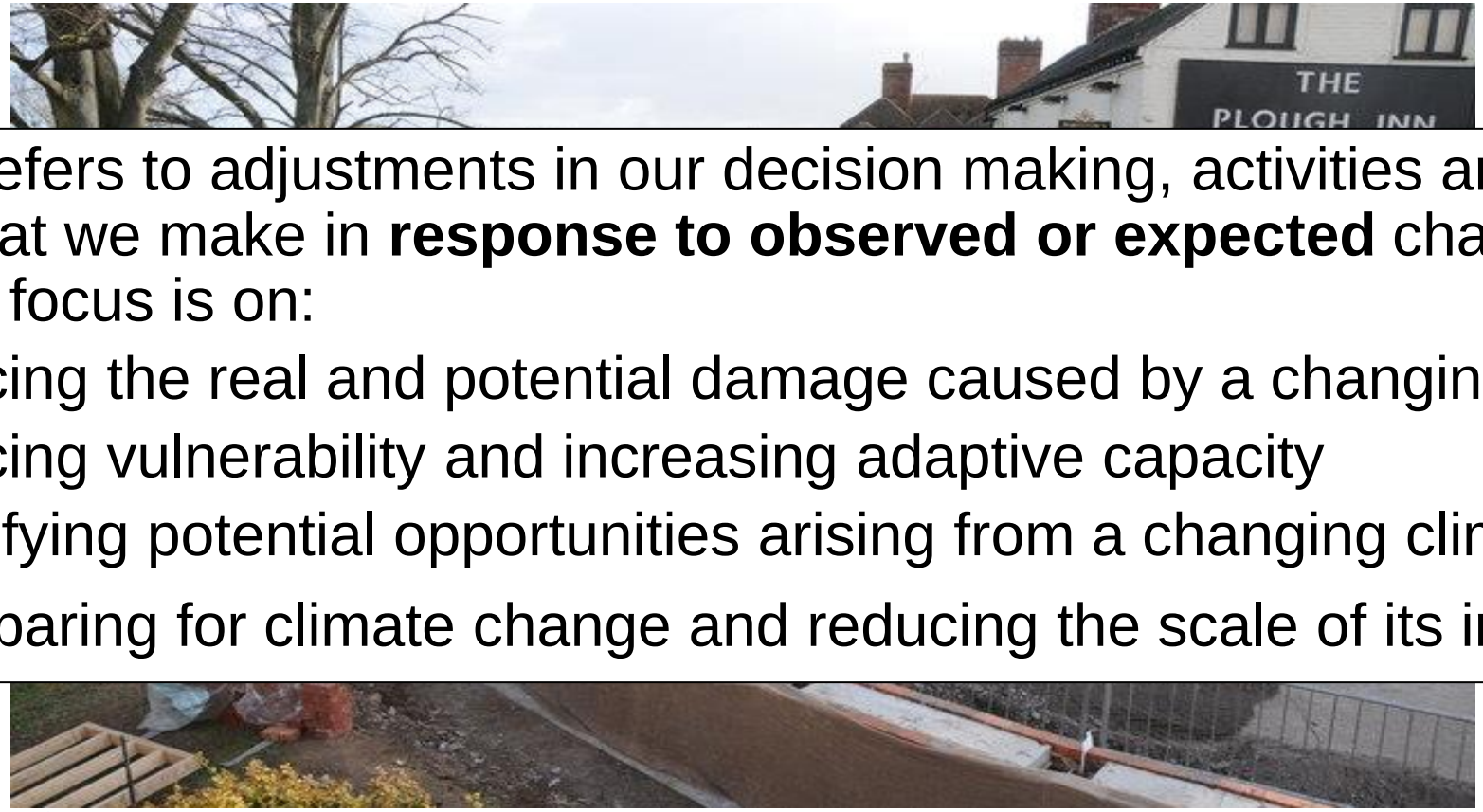
More actions you can take

1. Make your **voice** heard by those with influence
2. Adopt **energy saving** behaviours to reduce your energy use (and bills)
3. Invest your **money** wisely
4. Cut **consumption** and **waste**
5. Respect and protect **green spaces**

Activity: individual actions

- Read through the actions you can take for climate change. Remember the food, communication and transport case studies.
- As you're reading through the actions, consider which of these you could adopt both at home **AND** in the workplace.
- In breakout rooms, discuss the actions you could take as an individual both **at home and in the workplace**. Be sure to note down at least one action you could take at home and one you could take at work.

What is adaptation?



Adaptation refers to adjustments in our decision making, activities and structures that we make in **response to observed or expected** changes in climate. The focus is on:

- reducing the real and potential damage caused by a changing climate
- reducing vulnerability and increasing adaptive capacity
- identifying potential opportunities arising from a changing climate

Thereby preparing for climate change and reducing the scale of its impacts.

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Why is adaptation important?

- Climate change impacts are already happening
- Global average temperatures will continue to rise even if we put strong effective mitigation strategies in place now – ‘committed warming’
- Ethics & climate justice – poor and vulnerable in society most at risk

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Solutions: climate change adaptation

There are many high and low-tech solutions for adapting to the changing climate already in action, in progress or in the R&D phase. These are rarely 'one size fits all' solutions, most need to be tailored to specific people and places.

Examples include:

- setting up **early warning systems** for extreme weather events
- building **flood defences**
- switching to **drought resistant** crops
- genetically engineering more **weather resistant** crops
- changing planning **laws**
- increasing **rain-water storage**

https://www.youtube.com/watch?v=mbHIzuFTAAg

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Responsibility for climate change adaptation

Responsibility for adapting to climate change is linked to the same multiple stakeholders that were identified for mitigation.

- Global institutions
- Governments national and local - e.g. public services
- Businesses (of all sizes in all sectors)
- Non-Government Organisations (of all sizes in all sectors)
- Individuals

“Our choices matter both at home and at work”

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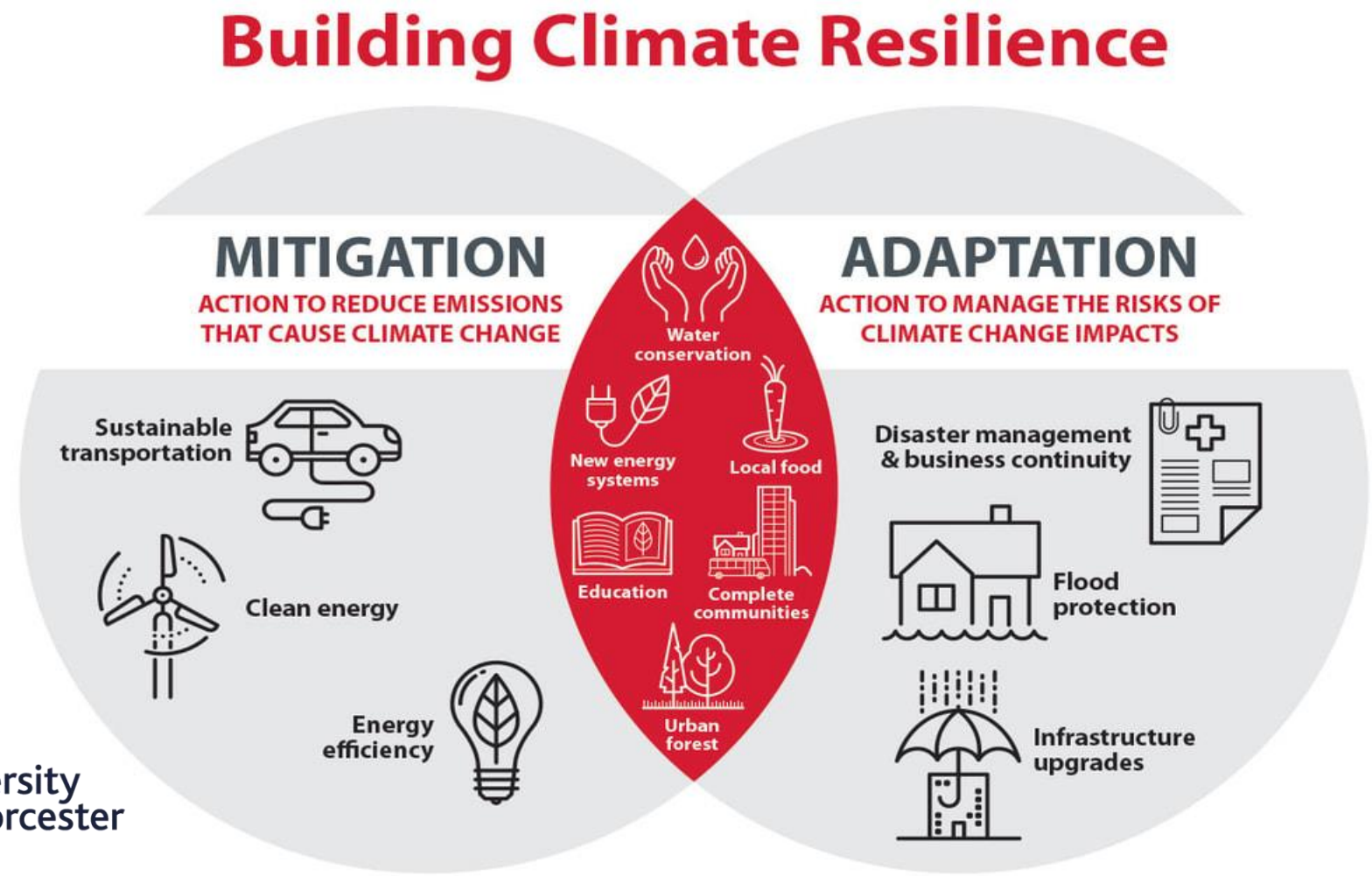
Summarizing adaptation and mitigation



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Preparation for next session – your assessment

If you are planning to submit your assessment form, we recommend that you fill in your details and **complete questions 6,7 & 8** before next week so we can share ideas for individual actions we have pledged.

We recommend that you **make your individual action workplace-focused** if you are looking to pursue certification from the Carbon Literacy Project (but please don't let this stop you from adopting individual actions in your personal life too!).

Your action should be impactful and significant to you e.g. if you already regularly speak to colleagues about climate change then this would not be a suitable action for you.

The assessment form can be accessed using the link: https://ucw.onlinesurveys.ac.uk/carbon-literacy-assessment-form-june-2022

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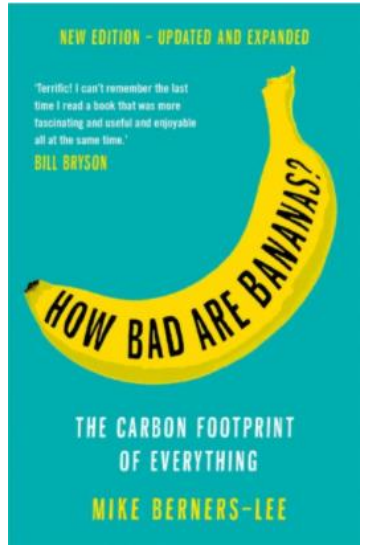
Resources on climate change mitigation and adaptation

- How bad are bananas? The carbon footprint of everything by Mike Berners-Lee
- The Power of People – report by Jump and Arup
- Can you reach net zero by 2050? Interactive game by the Financial Times
- Nine things you can do about climate change by Grantham Institute
- Adapting to a changing climate – video by the United Nations



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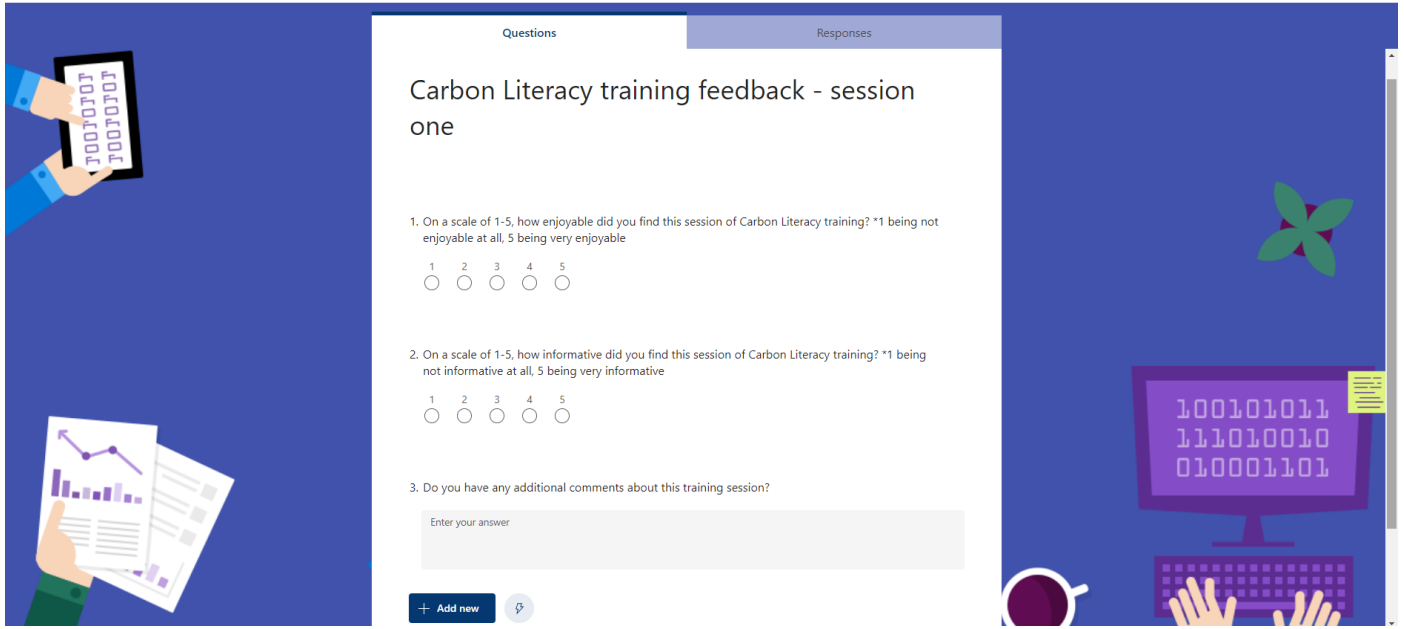
Feedback

We'd love to hear more about how you found this training session. Please use the link to answer three quick questions that will help with our continual improvement of the training.



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