
CARBON LITERACY FOR LOCAL AUTHORITIES

TRAINER GUIDE

WORKSHOP PATHWAY V2 (**DISTANCE DELIVERY**)

COURSE CODE: CC000157

Legal Terms and Conditions

The Carbon Literacy Public Sector Local Authorities Toolkit and all its components are covered by a **Creative Commons 4.0 Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) Licence** and this formulation of materials is **Copyright © The Carbon Literacy Trust 2020**.

This toolkit and materials are designed and curated **for the purpose of certified Carbon Literacy training within UK Local Authorities and approved partner organisations**. The contents are **distributed free of charge and licenced and in many cases sub-licenced by many contributing organisations for that purpose only**. The **rights and copyrights of contributing parties still apply**.

The decision as to what constitutes an approved Local Authority or partner organisation rests exclusively with The Carbon Literacy Trust and its delivery partner(s).

You may not modify or distribute this course or its contents without full attribution and/or outside the terms of this licence.

You may not use these materials for commercial purposes.

You **may** be granted rights to use the materials for commercial purposes beyond this licence, but **if you wish to do so please contact: The Carbon Literacy Trust via info@carbonliteracy.com**



Local Authorities- Detailed Trainer Guide

This guide will provide you with all the information you need in order to carry out the CL4LAs Distance Delivery course. Please note that it is not meant to be read as a script but to be used as a guide for the activities. For more succinct delivery notes (flashcard style), please see the slide notes underneath the PowerPoint slides. This guide will provide instructions for every section of the training, including how to set up your training online and how to run the various activities.

Highlighted in blue- customisation needed by trainer/ organisation/ note for trainer

Optional content is **highlighted** in the running order and detailed notes are written in this colour (under trainer discretion whether to include or not).

The scientific and policy content around climate change is subject to change as data and political policy evolves. This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

Materials checklist

- Slide deck (the slides have notes which are a condensed summary of this trainer manual. For more in-depth information on a particular slide or to create your own notes refer to the relevant section in this trainer manual).
- Trainer manual
- Activity materials (PDF). ***Please inform learners that the Activity PDF is interactive and that they can type/write/tick in the boxes.* Trainers must ensure that learners have access to the Activity PDF throughout the course.**
- Participant details and evidence form. [You can access the participant details and evidence form here](#)
- Certificate request form. [You can access the certificate request form here](#)
- Pre and post course surveys

Layout of trainer guide

Name of section

Timing

Material/preparation

Purpose/aim of activity

(Group size)

Delivery notes – the content which actually needs to be presented to the learners in each section- key points

Additional notes- supporting information on the topic (science/facts/data/stats)



Preparing for your session

Video Conferencing Software

To fulfil the group enquiry element of The Carbon Literacy Standard, the training will require access to a video conferencing tool which has:

- Breakout rooms
- A chat facility
- A screen share function

Any video conferencing application with these tools can be used to deliver the training.

We have used Zoom and (Microsoft Teams on occasion) in these reference notes as convenient examples of video conferencing applications used by many Carbon Literacy Trainers.

Solo & Supported Trainers

Solo Trainer = a trainer working without a 'Trainer Facilitator'.

Supported Trainer = a trainer working with a 'Trainer Facilitator'.

Trainer Facilitator = another supporting person who helps to manage the online experience e.g. security / breakout rooms / chat box etc.

Group Facilitator = a learner nominated by their breakout group (other learners) to share a screen and to take notes.

Training using video conferencing software is best facilitated with a 'Trainer Facilitator'. We highly recommend having at least one 'Trainer Facilitator' to assist with technical issues. We are aware that this may not always be possible and have made provision for 'Solo Trainers' who can choose simplified options for group activities. These activities are clearly marked for either solo or supported trainers.

If you would like to be connected to other trainers to help with facilitating your training please contact info@carbonliteracy.com.



Tips for using video conferencing

Zoom

- **Screen sharing**

You can give all learners the option to screen share (Zoom toolbar – Security – Allow participants to share screen). If you choose to disable this function, only you and anyone you select as a co-host will be able to share their screen.

- **Sharing videos during a training session**

You will need to ensure you have selected the correct setting for video sound to be audible to your learners. (Zoom toolbar – Share computer sound) (Zoom toolbar - optimise share for video).

- **Using breakout rooms**

Zoom can allocate learners randomly to breakout rooms or you can manually place them in a specific breakout room. It may be too time consuming to allocate learners individually to a breakout room during a training session. You can create breakout room allocations prior to the session, but several different variations for different activities will not be possible.

- **Setting up polls**

The polling feature for meetings allows you to create single choice or multiple choice polling questions for your meetings. You will be able to launch the poll during your meeting and gather the responses from your attendees.

To set up a poll during a call (Account Management>Account settings> Meeting> Polling).

To set up a poll before a session (Schedule meeting>Meeting Management> Poll> Add).

- **Selecting a ‘Group Facilitator’**

When selecting Group Facilitators try to ask learners with prior experience of Zoom and screen sharing.

- **Muting learners’ audio**

You can mute learners in the Participants Panel on the Zoom toolbar both individually and as a group (useful if there is feedback or noise being caused by a learner’s microphone).

- **Facilitating interactive sessions**

If you are using breakout rooms in Zoom be aware you cannot share links to documents in the chat once learners have entered the breakout room. You must share links to documents **prior to** learners entering the breakout room or enter each breakout room and share the link in situ. You can share brief messages to all breakout rooms at once via closed captions (subtitles) but not live links.



Microsoft Teams

- **Prepare your notes**

You can easily make meeting notes on Microsoft Teams.

- **Role in the chat**

All learners should be able to access the chat. The chat will be used throughout the training. If they can't access the chat you might need to change the meeting settings.

- **Screen sharing**

You and your learners should have access to screen sharing. You can restrict screen sharing, however this is not recommended as learners might need to do this during activities.

- **Muting learners' audio**

You can mute learners in the Participants Panel via the Teams toolbar, both individually and as a group. Learners should also be able to mute their own audio.

- **Setting up polls**

To set up polls you need to add the Microsoft forms feature to the chat. Once this has been added setting up polls is easy and can be done whilst the training is happening. The results are collected live and shown to learners in the chat.

- **Using breakout rooms**

Since the December 2020 desktop application update, breakout rooms are now a main feature in Teams meetings. You can easily find the breakout room button in the right-hand corner of any call- here you can choose how many rooms you want and also if you want to automatically (random) or manually assign learners their rooms. You might also want to rename the rooms to reflect the discussion. You can send out announcements to all breakout rooms and you have control over learners moving in and out - [for more detailed instructions see here](#)

- **Using a facilitator**

If you have a facilitator working with you, they can answer questions in the chat. If you are working alone, ask learners to note their questions down for a question & answer section or you can choose to scroll through the chat at intervals or at the end of the session. It can be overwhelming trying to answer the chat box questions and manage the session at the same time.



Security

Zoom

- **Using the Zoom 'waiting room'**

A waiting room can ensure that only those on your invite list attend. Be aware people can be left in the waiting room if you forget to admit them e.g. after a break (which will be more likely if you are delivering alone). To turn off the waiting room – Zoom toolbar – Security.

- **Ejecting unwelcome attendees**

Go to participants in the Zoom toolbar.

- **Locking a training session**

When you lock the meeting, no new participants can join, even if they have the meeting ID and password. (Zoom toolbar – Security – Lock Meeting)

Microsoft Teams

- **Admitting learners to the meeting**

Teams will notify you as new learners join the meeting. You can change meeting options and set up a waiting room (lobby) via Participants - People - Manage Permissions.

- **Meeting link**

Only the learners should have received the meeting link. You need this link to access the call - you have the power to remove participants so you can always do this if needed.

Generic

- **Meeting link and password**

Providing learners with the meeting link and password only a day or two in advance minimises the likelihood of links being passed to unwanted attendees. Ask your learners not to share the meeting link and password.

- **Emergency contact**

You can consider providing learners with a mobile number they can contact you on via text if they encounter problems accessing the meeting on the day.

- **Group numbers for training**

The training group should generally not exceed 15 people. Beyond this number the interactive criteria for The Carbon Literacy Standard becomes difficult to meet. It is possible to host sessions with more than 15 learners, however for every 5 extra learners we would recommend an extra facilitator.

- **Module delivery**

We advise that the training should be delivered in two sessions where possible, with



modules 1 and 2 delivered together and modules 3 and 4 delivered together at a later date. It is possible to split the training into 4 modules, but for continuity try not to leave longer than a week between sessions.

Preparation checklist

Preparing for your session	Done
Is my internet functioning? Do I have a back up if the internet fails (e.g. tethering to a mobile phone)?	
Is the room I will be delivering from free of noise and interruption?	
Do I have a functioning webcam and microphone? (separate headphones can be helpful)	
Do I need a second screen for presentation ease? E.g. to view trainer manual / PowerPoint Presenter View	
Are all the documents I need printed out or easily accessible on my computer? (PowerPoint, Activity Materials, Trainer notes / Manual)	
Have I closed all unnecessary tabs on my computer? (this can avoid confusion when screen sharing)	
Am I comfortable with the lighting and backdrop my presentation room provides? Is my table and chair at the right height for the video cam?	
Have I added the correct information to the 'blue slides' and kept words to a minimum on these slides?	



Zoom Keyboard shortcuts for Windows

Alt + I	Open the invite window
Alt + R	To start recording
Alt + P	To pause recording
Alt + S	Start / stop screen share
Alt + Shift + S	Show / hide windows and applications available to share
Alt + T	To pause / resume a screen share
Alt + A	Mute / unmute your audio
Alt + V	Turn on / off video
Alt + M	The host can mute everyone
Alt + F	Enter / Exit full screen mode
Alt + Y	Raise and lower hand
Alt + C (H default)	Show / hide In-meeting chat panel
Alt + U	Show / hide participants panel
Alt	Show / hide meeting controls
Alt + Shift + T	Screenshot
Ctrl + T	Jump to type talk to someone



Prior email notifications for learners

Using Zoom as an example.

Contact learners prior to your training session with relevant guidance. For example:

- **Ensure learners have downloaded Zoom:**

<https://zoom.us/download>

- **Ask learners to familiarize themselves with Zoom**

In particular:

- How to use the Chat. (Zoom toolbar – Chat)
- How to share a screen. (Zoom toolbar – Share screen – Select screen to share)
- How to turn on ‘subtitles’ (closed captions). (Zoom toolbar – Switch ‘Show subtitle’ on)
- How to ask for help in a Zoom Breakout Room. (Zoom toolbar – Ask for help – N.B. this function is only available during a breakout room session)
- How to alter the screen size for viewing comfort (Zoom toolbar – View option)

- **Inform learners if you intend to record your training session**

You need to ask for consent if you are recording a session e.g. if you intend to use sections for education or comms purposes.

- **Provide learners with an emergency contact number**

Provide learners with a means of contacting you if they need assistance logging into the training session. If you are training alone, be aware you will probably be unable to answer a call so providing a number you can access texts from may be useful.

- **Let learners know when you will send out the meeting link and password**

Inform learners you will send the meeting link and password (the day) prior to the meeting. Ask your learners not to share the meeting link and password.

- **Send learners document links to download**

It may be easier to provide learners with the documents they need for the training session prior to the event in an email. This can include documents from the activity pack for breakout sessions and their copy of the ZB Evidence Form.

- **Advise learners to arrive 5 minutes before the training session begins**



Video links and timings

On slides where a video is to be presented to the group, paste the URLs in the chat box so that learners can watch them in their own browsers. This avoids lagging or audio issues from screensharing the video in the presentation. If you are using a facilitator they can paste these URLs in the chat box so that you don't have to exit slide presentation mode.

Please make learners aware that they may be disturbing other learners if they talk during video playback (you cannot independently turn down the sound of many video conferencing packages, meaning discussion will be heard whilst other learners try to listen to videos on their PC). If a learner is struggling to access video content ask them to resolve this silently in the chat with the trainer. Please ask learners to write in the chat box when they have finished watching the video.

Assure learners who have difficulty accessing links during the training that they will be sent the URLs in a follow up email.

Title	Duration	Section	URL
The Carbon Cycle	1 minute 46 seconds	Module 1	https://www.youtube.com/watch?v=E8Y6L5TI_94
Global Impacts: Climate Change The Facts Documentary	Play ONLY 11.59 - 16.43 (4.30 minutes total)	Module 1	https://www.youtube.com/watch?v=q9WYLPgyuqo
UK Impacts	Stop after 4 minutes 35 seconds	Module 1	https://www.youtube.com/watch?time_continue=10&v=1k-5_WKUtBM
The Carbon Map (Equity and Vulnerability section)	1 minute 25 seconds	Module 2	https://www.carbonmap.org/
Climate Vulnerability	3 minutes 13 seconds	Module 2	https://www.bbc.co.uk/news/av/embed/p079s2j4/48373540
Co-Benefits Video	1 minute 35 seconds	Module 2	https://www.youtube.com/watch?v=VBjif6QwuZD4&feature=youtu.be



Carbon Budget Video	1 minute 40 seconds	Module 3	https://www.youtube.com/watch?v=blsTXGFdeDk
Buildings: Nottingham's Energiesprong Homes	3 minutes	Module 3	https://vimeo.com/318259730
Transport: Nottingham City Council	1 minute 30 seconds	Module 3	https://www.youtube.com/watch?v=7NsMWUEsO4w
Transport: London Borough of Waltham Forest	2 minutes 30 seconds	Module 3 (Optional)	https://youtu.be/h7-sqmJjPY4
Talking about Climate Change	4 minutes	Module 4	https://www.youtube.com/watch?v=RkklaXhbTuA
Time to Act	3 minutes 49 seconds	Module 4 (Optional)	https://youtu.be/2Cc8E3BWOqA

Running Order Colour Coding:

Breakout room activity

Activity (non breakout room) N.B. Chat box exercises are NOT highlighted but are clear in the notes

Videos are part of this section (links shown above and also in the trainer manual and slide notes)

Slides requiring additional input from the trainer / Optional slides

*Polls are best prepared in advance and you will need to have PDFs for activities easily available to provide to learners.



Workshop Pathway: Day 1

	Activity	Activity duration (hrs:mins:secs)	Example Time
Module 1	Intro & What is CL?	0:10:00	9:30:00 AM
	Who is CLP/Why CL?	0:05:00	9:40:00 AM
	Tackling the climate crisis in our sector	0:02:00	9:45:00 AM
	All or nothing?	0:15:00	9:47:00 AM
	Training Outline	0:02:00	10:02:00 AM
	Weather vs climate	0:02:00	10:04:00 AM
	The Carbon Cycle	0:04:00	10:06:00 AM
	The Greenhouse Effect	0:02:00	10:10:00 AM
	Greenhouse Gas Game	0:15:00	10:12:00 AM
	UK GHG Emissions	0:02:00	10:27:00 AM
	How is the Climate Changing?	0:08:00	10:29:00 AM
	The Scientific Consensus	0:05:00	10:37:00 AM
	BREAK	0:10:00	10:42:00 AM
	Global impacts	0:14:00	10:52:00 AM
	Climate change impacts in the UK	0:06:00	11:06:00 AM
	UK climate change impacts (trainer to research local examples)	0:15:00	11:12:00 AM
	Hotter summers/winters what's the issue?	0:03:00	11:27:00 AM
	Local climate change impacts	0:05:00	11:30:00 AM
How's everyone feeling... any questions?	0:05:00	11:35:00 AM	
Module 2	Module overview/ recap	0:02:00	11:40:00 AM
	The Carbon Map	0:15:00	11:42:00 AM
	Climate vulnerability	0:10:00	11:57:00 AM
	BREAK	0:10:00	12:07:00 PM
	The role of Local Authorities	0:03:00	12:17:00 PM
	Opportunities in our area	0:03:00	12:20:00 PM
	Climate Change & COVID-19	0:05:00	12:23:00 PM
	Ashden Co-benefits video	0:03:00	12:28:00 PM
	Co-benefits of climate action	0:35:00	12:31:00 PM
	Finishing Time:		1:06:00 PM
Total Session (M1&2) Time		3:36	



Workshop Pathway: Day 2

	Activity	Activity duration (hrs:mins:secs)	Example Time
Module 3	Introductions/Tech check	0:05:00	1:30:00 PM
	Carbon Budget video	0:03:00	1:35:00 PM
	International policy	0:02:00	1:38:00 PM
	UK policy	0:03:00	1:40:00 PM
	Local Authority Carbon Budget and local climate strategy	0:10:00	1:43:00 PM
	What is a footprint?	0:01:00	1:53:00 PM
	Individual footprints: WWF discussion	0:08:00	1:54:00 PM
	Food, Travel & Energy at Home (optional)	0:15:00	2:02:00 PM
	Actions graphic	0:02:00	2:17:00 PM
	Reducing your Council's Carbon Footprint (insert logo)	0:10:00	2:19:00 PM
	Emissions under our influence- how is your local area doing? (add local images if available)	0:05:00	2:29:00 PM
	What does a Low Carbon local area look like?	0:30:00	2:34:00 PM
	BREAK	0:10:00	3:04:00 PM
	Climate action in practice	0:10:00	3:14:00 PM
Module 4	Taking action, individual vs group actions	0:05:00	3:24:00 PM
	Spheres of influence	0:10:00	3:29:00 PM
	Prioritising actions	0:02:00	3:39:00 PM
	Dragons den (reduce categories down to those relevant to your training group)	0:30:00	3:41:00 PM
	BREAK	0:10:00	4:11:00 PM
	Developing your action plan	0:20:00	4:21:00 PM
	Talking about CC: video	0:05:00	4:41:00 PM
	Talking about CC: slides	0:07:00	4:46:00 PM
	Use your voice	0:01:00	4:53:00 PM
	Where can we go for help?	0:01:00	4:54:00 PM
	Wrap up : Video (optional)	0:05:00	4:55:00 PM
	Wrap up Slides	0:05:00	5:00:00 PM
	Finishing Time		5:05:00 PM
Total Session (M3&4) Time	3:35:00		
Total Training time (M1,2,3&4)	7:11		



Learners enter the video conferencing room

Lead trainer and trainer facilitator (if applicable):

- It may be advisable to mute learners' audio or advise them to turn off their audio when they are not speaking.
- Mark off in your register who has arrived.
- Ask learners to put their name (and job role where appropriate) on their screen (Zoom – top right of their avatar screen).
- Advise learners if you would like them to leave their video on during the training session. Be aware this is not advised if they have limited connectivity / bandwidth.
- Inform learners how you intend to answer questions.
- Notify learners if you are recording the session.
- Trainers can help learners keep to time by giving them clear feedback limits e.g. "Please feedback on this question, keep your answer to 2 minutes." This can be 'gamified' by advising learners you will 'count down' their feedback (e.g. you have 1 minute remaining).



Introduction to CL4LAs course; What is Carbon Literacy?

Material:	Slides
Timing:	32 minutes
Purpose of the activity:	Welcome participants, provide background to The Carbon Literacy Project and overview of training
Preparation:	Once you are familiar with this manual, you can use the slide notes in the PowerPoint for delivery.

- Welcome the participants
- Introduce yourself

SLIDE: Legal Terms and Conditions

The Carbon Literacy Public Sector Local Authorities Toolkit and all its components are covered by a **Creative Commons 4.0 Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) Licence** and this formulation of materials is **Copyright © The Carbon Literacy Trust 2020**. This toolkit and materials are designed and curated **for the purpose of certified Carbon Literacy training within UK Local Authorities and approved partner organisations**. The contents are **distributed free of charge and licenced and in many cases sub-licenced by many contributing organisations for that purpose only**. The **rights and copyrights of contributing parties still apply**.

The decision as to what constitutes an approved Local Authority or partner organisation rests exclusively with The Carbon Literacy Trust and its delivery partner(s).

You may not modify or distribute this course or its contents without full attribution and/or outside the terms of this licence.

You may not use these materials for commercial purposes.

You **may** be granted rights to use the materials for commercial purposes beyond this licence, but **if you wish to do so please contact:**

The Carbon Literacy Trust via info@carbonliteracy.com

SLIDE: Legal Terms and Conditions

If you wish to share the slide deck with learners, please include this slide. Please ask learners not to share the slides with anyone and remind them that the materials are licenced for the purposes of certified Carbon Literacy training with UK Local Authorities.

SLIDE: Acknowledgements

These materials are funded by the Greater Manchester Combined Authority, the UK Government Department of Business, Energy & Industrial Strategy and Westford Mill.



SLIDE: Writing group contributors

Organisations who contributed towards the creation of this Carbon Literacy course

SLIDE: Housekeeping

Video conferencing tips, answering questions, mute audio when not speaking, breaks, finish time.

Audio:

Mute audio unless you need to speak (Alt A – Windows).

Engagement:

- Learner videos on (trainer discretion) – so we can engage with people's faces (if you have internet problems then turn off).
 - Learners to add name (top right in your avatar screen) – job role / company.
 - Learners to avoid working / internet browsing / using their phones.
- The course offers certification in Carbon Literacy.
A clear standard to be met and an evidence form to complete.

Questions:

- We do have a lot to get through so may not be able to answer questions immediately.
- Explain how you will answer questions.

Share your thoughts and feelings in the chat:

- Climate change can feel overwhelming > it can be helpful for learners to express their thoughts and feelings in the chat.

Viewing comfort (Zoom)

- Use the central bar in your screen to alter viewing dimensions or Zoom toolbar – View option.

Screen Sharing (Zoom)

- Bottom panel – click share screen icon.
- Choose the window that you want to share.
- Click share in the bottom right of that screen.
- To end click the red 'stop share' in the top middle.

If the sessions are recorded:

- We will let you know during sign up if the training session is being recorded.
- Sections might be used for:
Development and improvement of future training sessions.
Publicity purposes such as for social media or website use.



- Please let me know if you would prefer not to be included.

Breaks / Close

- Breaks will be at...
- We aim to finish at...

SLIDE: What is Carbon Literacy?

- Creating a low carbon culture, where citizens understand the scale of the problem and feel empowered to take action on climate change as well as support and accept climate mitigation policies.
- Carbon Literacy is defined as: “An awareness of the carbon costs and impacts of everyday activities and the ability and motivation to reduce emissions, on an individual, community and organisational basis”

SLIDE: Carbon Literacy Training

- Participants must attend a ‘day’s worth of learning’. The training must first have been accredited by The Carbon Literacy Project to show it meets The ‘Carbon Literacy Standard’.
- To receive certification you will complete a short assessment form where you will design and commit to your specific actions.
- *Important to emphasise that Carbon Literacy training requires active participation and input from learners.*

SLIDE: Carbon Literacy Infographic

- Project overview
- The Carbon Literacy Project is a large-scale education programme originating in Manchester. Appropriate for the world’s first industrialised city, it now aims to become the world’s first Carbon Literate city.
- As of July 2021 over 20,000 people are certified as Carbon Literate.
- The data on this infographic will periodically change. Please go to <https://carbonliteracy.com/about-us/> to download the most up to date infographic.

SLIDE: Why Carbon Literacy in our organisation & sector? ACTIVITY

5 mins

Read through the slide

- What are our *organisational* values?
- Big influence in the public sector- changes we make are felt in society
- Duty/ Moral / Ethical imperative- Climate change is having the greatest impact on the most vulnerable here and abroad, so there is a social justice element to tackling it
- Political/social will- Climate change is one of the most important issues we face



- Government/sectoral targets BUT the urgency is driven by the science, not politics or values
- Financial Savings- the business case
- To be the best!- Loyalty & Pride – staff recruitment & retention

In the chat – ask participants why Carbon Literacy is relevant to their Local Authority. Ask them to use the point on the slide to support their answers. Read out comments back to the group. If time permits, select one or two learners, to feedback further on their response.

SLIDE: Tackling the Climate Crisis in our sector

- Insert quote; 'Strong inspirational quote from the Leader or CE of your Local Authority, that says this is an emergency/crisis, that resolving it benefits everyone in your area, and that it's everyone's job to act on it...'
- This should be someone that participants value the opinion of, a respected figurehead in your sector.
- This figurehead can change depending on the sector/group being delivered to.

SLIDE: All or Nothing? ACTIVITY: 15 mins

Suitable for both Solo & Supported Trainers (see page 4 for an explanation of solo and supported trainers)

Explain the game:

- Ask people to refer to the Activity PDF (if already provided) or copy and paste the PDF into the chat. Ask learners to download and open the PDF.
- Explain to learners they will be allocated into breakout rooms at random. Ask learners to select a group facilitator in their breakout rooms to share a screen with the PDF and to take notes.
- Explain the aim of the game:
 - This is an icebreaker > the winner is the **fastest team**
 - Ask the learners to try to identify **EITHER**:
 - ONE action they all do to help with climate change
 - OR**
 - ONE action none of them do.
 - Ask learners to exit the breakout room as soon as they have completed the task.
 - They have a **maximum of 5 minutes** until the breakout rooms are closed automatically.
 - The winning team is the fastest team to return to plenary

Play the game:

- Split learners into groups of 3 or 4 in break out rooms to play the game as discussed.
- Be aware (Zoom) that if you are working with a trainer facilitator, they will be allocated to a breakout room at random as well as the learners. Once the trainer facilitator enters the breakout room they can support the team and then move between rooms to support others.
- Learners exit the break-out rooms as soon as they have completed the task.
- They have a **maximum of 5 minutes. After 4 minutes (Zoom has a 1 minute delay)** close all the breakout rooms.
- When the learners have all returned to the plenary ask the group facilitators to share what action



they all do or don't do in the chat.

N.B.: a word on addressing the emotional aspect of CL training. Many learners often experience a shock when they first learn about the scale and nature of the climate crisis. It is important to let learners know that they can come and talk to you as the trainer at any time during the training and that there will be frequent breaks if they would rather speak in private. Also good to emphasise that the beginning of the training is the problem section (scary part), however part 2 is the solutions section where learners are empowered and discover what action can be taken to address the issue.



Training Overview

Material:	Slides
Timing:	2 minutes
Purpose of activity:	Inform learners on the structure of the training as well as learning objectives.
<p>SLIDE: 'By the end of your training you will have...'</p> <ul style="list-style-type: none"> Provide an overview of the training and briefly cover what you will do in today's session. <p>SLIDE: Module 1</p> <ul style="list-style-type: none"> Explain to learners what will be covered in Module 1. 	

Module 1

Weather vs climate

Material:	Slide
Timing:	2 minutes
Purpose of activity:	Basic definition of the difference between weather and climate. Important that learners understand that extreme weather is a result of changes in the climate .
<p>SLIDE:</p> <ul style="list-style-type: none"> Weather is the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term changes in the atmosphere (minutes/hours/days) whereas climate is longer-term changes (months/years). Different regions can have different climates. To describe the climate of a place, we might say what the temperatures are like during different seasons, how windy it usually is, or how much rain or snow typically falls. This is a good analogy to use: Weather is what you're wearing, climate is what's in your wardrobe. Your wardrobe changes over time but your outfit changes daily. 	



The Carbon Cycle

SLIDE: 4 minutes

VIDEO: https://www.youtube.com/watch?v=E8Y6L5TI_94 - **Make sure to paste link into chat box- do not play in trainer presentation.** Please ask learners to write in the chat box when they have finished watching the video.

- The carbon cycle is key to maintaining the balance of carbon dioxide in the air.
- The imbalance in the carbon cycle is a result of humans burning fossil fuels (carbon stored over millions of years) and releasing billions of tons of carbon dioxide into the air each year.
- Burning of fossil fuels has fuelled the development of much of modern society.

The Greenhouse Effect

SLIDE: 2 minutes

- Energy from the sun is transmitted through space and reaches Earth.
 - Some energy is reflected back into space, from clouds and icecaps and other shiny surfaces.
 - The energy that isn't reflected passes through the atmosphere and is absorbed by the Earth's surface.
 - Infrared radiation absorbed by the greenhouse gases causes the Earth to warm up.
 - Greenhouse gases then re-emit the heat energy - into space and back to Earth. The heat is effectively trapped and warms the Earth – causing the greenhouse gas effect.
1. Greenhouse gases occur naturally in the Earth's atmosphere. They trap the heat and energy from the sun which ensures the Earth is warm enough to sustain life. Humans have been increasing the concentrations of greenhouse gases by burning fossil fuels. This causes an increase in heat energy and causes a rise in global temperatures.
 2. You could think of this process as adding extra blankets to the world to help learners understand.



Activity: Greenhouse gases and their sources
(Suitable for both Solo and Supported trainers)

Material:	Slides, Chat box
Timing:	15 minutes
Aim of activity:	Introduce the greenhouse effect, greenhouse gases and their sources.

*This exercise has been adapted, with express permission, from an original activity created by Manchester Metropolitan University and available in the **Manchester Met Carbon Literacy Toolkit for Universities and Colleges**. This toolkit has been released under a Creative Commons – Non Commercial – No Derivatives 4.0 International License (CC BY-NC-ND 4.0) - see <https://creativecommons.org/licenses/by-nc-nd/4.0/>. Use of either the original or modified activity should abide by the terms of this license and must be attributed to Manchester Metropolitan University, where the Manchester Met logo should appear on the associated slides. Please contact the creators of these activities (Rachel Dunk and Jane Mork) at Manchester Metropolitan University using the following email address (carbonliteracy@mmu.ac.uk) or if you have any questions about the use of this activity.*

SLIDE: The Greenhouse Gases

- The 4 main greenhouse gases we are going to focus on are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and a group of fluorinated gases (F-gases).
- Greenhouse gases are emitted in different quantities and some are more potent than others. i.e. their ability to trap heat in the atmosphere. This is also known as their global warming potential (GWP).
- Methane has a warming potential 25 times greater than CO₂.
- The length of time they stay in the atmosphere differs between the greenhouse gases. Methane lasts for about a decade on average in the atmosphere, which is much less time than CO₂.
- CO₂ is the greatest contributor to global warming due to the quantity of CO₂ that is emitted into the atmosphere.

From now on when we use the term 'carbon' we are referring to all these greenhouse gases.

SLIDE: Which activity releases which greenhouse gas?

- The purpose of the activity is to match the greenhouse gases with their main sources.

Go through each GHG individually starting with carbon dioxide. Click through the slide to reveal ticks



which match up the greenhouse gas to its sources.

Carbon Dioxide (CO₂):

Ask learners to write in the chat box which sources produce **carbon dioxide**

- Click to reveal the sources (ticks)
- Expand on the answers from learners with the notes below:
 - **Burning of oil, coal and gas (fossil fuels).** (This also produces small amounts of methane and nitrous oxide)
 - **Manufacture of cement.** The cement industry accounts for 8% of global greenhouse emissions. In order to make the main ingredient in cement (clinker, limestone) needs to be heated in a kiln to high temperatures (calcination). Carbon dioxide becomes a waste product of this process. **This accounts for 50% of cement's carbon emissions.** Another 40% of the emissions stems from the fossil fuels needed to **heat the kiln** to high degrees required for the calcination process. The final 10% comes from the fuels needed for the **transportation and mining of materials.**
 - **Deforestation.** When trees are logged or burned they release their carbon into the atmosphere therefore contributing to carbon emissions.

Methane (CH₄):

Ask learners to write in the chat box which sources produce **methane**

- Click to reveal the sources.
- Expand on the answers from learners with the notes below:
 - **Decay of organic waste in landfills**
 - **Livestock** (Cows and other grazing animals host microbes in their stomachs that help them break down and absorb the nutrients from tough grasses. Those microbes produce methane as their waste, which is burped out). N.B. This will be explored a little more later on in the training when we look at the footprint of our food.

Nitrous Oxide (N₂O)

Ask learners to write in the chat box which sources produce **nitrous oxide**

- Click to reveal the sources.
- Expand on the answers from learners with the notes below:
 - Excess synthetic **fertilisers**: Synthetic fertilisers contain nitrogen. When too much fertiliser is applied to the soil, microbes will convert the excess nitrogen into nitrous oxide.

F-Gases (guess which of the remaining two sources produces the most F-Gases)

Ask learners to write in the chat box **which of the remaining two sources produces the most F-Gases**



- Click to reveal the sources.
- Expand on the answers from learners with the notes below:
 - Refrigeration - 79% of F-Gases
 - Aerosols - 5% of F-Gases
 - Man-made F-gases have been used as a replacement for ozone depleting gases called chlorofluorocarbons (CFCs). Whilst the F-Gases are not a threat towards the ozone layer, they are really potent greenhouse gases (10-10,000 times more potent than CO₂) and contribute towards global warming.

A note on Global Warming Potentials:

The GWPs used here are the 100 year Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5) values. They do indeed change over time and are re-evaluated by the IPCC on a periodic basis. See: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf page 87 for more details

Note: Many of these activities release more than one type of GHG, but in this activity learners should state the main GHG which each particular action emits the greatest proportion of.



Greenhouse gas emissions in the UK

This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

SLIDE: UK Greenhouse Gas Emissions 2019

2 minute discussion/explanation

These are the main sectors for domestic emissions in the UK.

- The graph excludes lifecycle emissions from bioenergy grown overseas, the UK's share of international aviation and shipping, plus the CO₂ generated when making **goods that are imported into the UK.**
- This last factor is particularly important to note, as the past few decades have seen a dramatic rise in exports of consumer goods from countries such as China, which has a very coal intensive electricity generation mix.

Waste Management

Includes emissions from > waste disposed of in landfill sites, waste incineration, and the treatment of wastewater.

Most significant source > landfill sites.

Between 1990 and 2019 > emissions decreased by 71% > due to improvements in the standards of landfilling, changes to the types of waste going to landfill and an increase in the amount of landfill gas being used for energy.

Agricultural Sector

Includes emissions from > livestock, agricultural soils, stationary combustion sources (the direct combustion of fuel for heating and other uses) and off-road machinery.

Most significant sources > emissions of methane due to enteric fermentation from livestock (a digestive that occurs particularly in cattle) > nitrous oxide emissions due to fertilisers.

Between 1990 and 2019 > emissions decreased by around 13% > driven by a fall in animal numbers plus a decrease in synthetic fertiliser use.

Residential Sector

Includes emissions from > fuel combustion for heating and cooking, garden machinery, and fluorinated gases released from aerosols and metered dose inhalers > the main source is natural gas for heating and cooking.

Emissions vary between years, depending on how much heating is needed.

Business Sector

Includes emissions from > combustion in industrial/commercial sectors, industrial off-road machinery, refrigeration and air conditioning.

Between 2018 and 2019 emissions decreased by 3% due to falls in industrial combustion and from refrigeration and air conditioning.

Emissions from industrial processes increased by 2% in 2019, compared to 2018, caused by increased emissions from the production of ammonia, cement and halocarbons.



Energy Supply

Includes emissions from fuel combustion for electricity generation and other energy production sources.

Now second largest emissions sector > decrease due mainly to decline in the use of coal at power stations and an increase in the use of gas, which has a lower carbon content so results in fewer emissions > also a growth of renewables & greater efficiency resulting from improvements in technology.

Transport

Includes emissions from road transport, railways, domestic aviation, shipping, fishing and aircraft support vehicles.

Largest emitting sector > emissions only 5% lower than in 1990 > increased road traffic and miles / larger vehicles has offset improvements in vehicle fuel efficiency.

For full breakdown of sectors:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957887/2019Final_greenhouse_gas_emissions_statistical_release.pdf

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957687/2019_Final_emissions_statistics_one_page_summary.pdf

This slide can be used as a discussion point in the chat box with learners.

- Do any of these sectors surprise you?
- Why do you think transport is the largest? etc.

Read out the most relevant comments



How is the climate changing?

Material:	Slides
Timing:	8 minutes
Purpose of the activity	Making learners aware of the scientific data showing changes in climate and greenhouse gases

This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

Slides with graphs which show how the climate is changing globally; run through the titles.

SLIDE: Level of CO₂ over time

This graph shows global carbon dioxide levels during ice ages and warm periods for the past 800,000 years. **This is the most important graph of the set.**

- This shows atmospheric carbon dioxide concentrations and is based on ice core data (in parts per million [ppm]) for the past 800,000 years.
- The movement in carbon dioxide levels highlight the coming and going of ice ages (lower levels) and warmer interglacials (higher levels).
- Throughout these cycles, atmospheric carbon dioxide was never higher than 300 ppm BUT in 2019, it reached 409.8 ppm (black dot).
- It's important to highlight that there has never been this much CO₂ in the atmosphere over this time period.

At no time in the last 20 million years have levels of carbon dioxide increased as rapidly as at present.

SLIDE: Greenhouse gases over the past 250+ years

- This graph shows the atmospheric concentrations of methane and nitrous oxide – the other 2 important long-lived greenhouse gases
- The data for the past 250+ years shows these GHGs have increased substantially since about 1750.
- These increases in greenhouse gas concentrations and their marked rate of change are largely attributable to human activities since the Industrial Revolution (1800).

Source: <https://www.acs.org/content/acs/en/climatescience/greenhousegases/industrialrevolution.html>



SLIDE: Global average temperature change

This graph shows the global temperature change between 1880 and 2020.

- According to the World Meteorological Organization (WMO), the global average temperature is now more than 1°C warmer than it was before widespread industrialisation.
- The global average temperature for the first 10 months of 2018 was 0.98°C above the average temperature between 1850-1900.
- In the past 22 years we have seen 20 of the warmest years on record, with 2015-2018 making up the top four.

SLIDE: Global sea level change

This graph shows global sea level change between 1880 and 2020.

- The global mean sea level has risen by about 21–24cm since 1880, with about a third of that rise being observed in the last 25 years.
- The rising sea level is mostly due to a combination of meltwater from glaciers, ice sheets and the thermal expansion of seawater as it warms.

Source: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>

SLIDE: Arctic sea ice change

- This graph shows the minimum area of sea ice from 1979 to 2019.
- Every summer the Arctic ice cap melts down to what scientists call its "minimum" before colder weather causes ice cover to increase.
- In 1980 the minimum Arctic sea ice area was 7 million sq km, but in 2019 it was 3.66 million sq km, almost half of the 1980 area.

Source: <https://svs.gsfc.nasa.gov/4786>

SLIDE: Leading to more extreme weather...

- This graph shows that rising temperatures can have several impacts on weather.
- Higher temperatures increase the evapotranspiration rate, which is the total evaporation of water from soil, plants and water bodies. This can directly affect drought frequency and intensity of droughts.
- A warmer atmosphere can also hold more water vapour. The atmosphere now holds 4% more water vapour than it did 40 years ago. This increases the risk of extreme rainfall events.



These changes don't automatically generate extreme weather events on their own but they increase the odds of extreme events occurring. *N.B. This point is particularly important when discussing climate change impacts.*

The Scientific Consensus

Material:	Slides
Timing:	5 minutes
Purpose of activity:	Making learners aware of the scientific consensus behind the severity of the climate crisis. Trainers are unlikely to encounter climate change denial but it's still very important to emphasise the credibility of the science.

This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

SLIDE: Why are we so confident about the science?

- The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
- The IPCC is written by scientific experts from across the world and is used to create climate targets and greenhouse gas limits.
- It was established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP).
- Through the IPCC, thousands of experts from around the world synthesise the most recent developments in climate science, adaptation, vulnerability, mitigation and synthesise it into major 'assessment' reports every 5–7 years.

SLIDE: The IPCC: Intergovernmental Panel on Climate Change

This infographic summarises the 2014 report on 'Impacts, Adaptation, and Vulnerability'.

This is a massive [possibly the biggest ever] scientific project of its kind. The project is peer reviewed. 195 governments across the globe have accepted and approved the final summary showing that the days of climate denial and scepticism are long gone.

SLIDE: The scientific consensus on climate change...

The personnel in this example are interchangeable depending upon the audience.

SLIDE: Emission trajectories

- This is what our current international pledges & policies are putting us on track for in terms of warming...
- Discuss the difference between current policies and pathways that we need to be on.



- Go through from top to bottom, no climate policies (i.e. catastrophe), current policies (business as usual), pledges (still over shooting by at least half a degree), and then the pathways we need to be on.
- Both the current policy and pledge trajectories lie well above emissions pathways consistent with the Paris Agreement temperature goal.
- There is a substantial gap between what governments have promised to do and the actions they have taken.
- This discussion should help learners understand that what we are already doing is not enough and would not lead to a desirable future – we must do more.
- The graph shows the gap between where we are and where we need to be to avoid the worst effects of the climate breakdown.
- ‘Optimistic net zero targets’ assumes that the countries that have adopted or discussed net zero targets will achieve their targets.

The graph will need to be updated regularly with changing policies. Please download the most recent edition here: <https://climateactiontracker.org/global/temperatures/>

More details on where current policies are leading

Ice free Arctic summers:

- The Arctic keeps our world’s climate in balance.
- The Arctic has warmed about twice as much as the global average over the past few decades.
- Arctic sea ice acts as a huge white reflector bouncing some of the sun’s rays back into space. This is called the Albedo effect.
- Without Arctic sea ice the climate will be warmed further by feedback effects. As the sea ice melts there’s less ice to reflect the rays, and more heat is absorbed by the ocean, magnifying the warming effect.
- The Arctic also helps to circulate the world's ocean currents and move cold and warm water around the globe. This is crucial for weather circulation patterns.
- Permafrost melt in Arctic regions poses another major positive feedback loop as the frozen soil contains methane.

Data extracted from around 70 peer-reviewed climate studies shows how global warming is projected to affect the world and its regions. Source: <https://interactive.carbonbrief.org/impacts-climate-change-one-point-five-degrees-two-degrees/>

Major heat waves:

- Extreme heat can increase the risk of other types of disasters.
- Heat can exacerbate drought.
- Hot & dry conditions increase the likelihood of wildfires.
- Urban air surface temperatures near buildings, roads and infrastructure are much higher than



air temperatures close to natural surfaces- the urban heat island effect.

- Rising temperatures pose a threat to people, ecosystems and the economy.
- Heat stress occurs in humans when the body is unable to cool itself effectively and is a key factor in causing heat-related illness and mortality.

Source: Arnell, N.W., Lowe, J.A., Challinor, A.J. et al. Global and regional impacts of climate change at different levels of global temperature increase. *Climatic Change* 155, 377–391 (2019).

<https://doi.org/10.1007/s10584-019-02464-z>

Global agricultural drought

- Resource shortages result in mass migration away from the most vulnerable locations.
- We know from human history that migration often leads to conflict and war.
- Studies from the International Institute for Applied Systems Analysis looked at climate induced migration and conflict. It concluded that Syria's civil war was driven by the impacts of climate change such as reduced rainfall causing conflict in resource deprived areas e.g. failed crops and rising food prices.
- Impacts such as this will also be felt closer to home, as the UK currently imports 40% of its food from countries which are more vulnerable to the impacts of extreme weather events.

Sources: Abel, G.J., Brottrager, M., Crespo Cuaresma, J., Muttarak, R. (2019). Climate, conflict and forced migration. *Global Environmental Change*. DOI: 10.1016/j.gloenvcha.2018.12.003 [pure.iiasa.ac.at/15684]

Arnell, N.W., Lowe, J.A., Challinor, A.J. et al. (2019). Global and regional impacts of climate change at different levels of global temperature increase. *Climatic Change*. 155, 377–391

<https://doi.org/10.1007/s10584-019-02464-z>

Area burned by wildfires

- The average area burned by wildfires during a Mediterranean summer has increased by 97% since 2000.
- Increases in global temperatures will lead to more intense wildfires, which last longer and cause more destruction.
- The rate of biodiversity loss rapidly increases as land and habitats are destroyed.
- During 2020 we saw catastrophic wildfires in Australia and the Amazon region.

Source: Data extracted from around 70 peer-reviewed climate studies to show how global warming is projected to affect the world and its regions. <https://interactive.carbonbrief.org/impacts-climate-change-one-point-five-degrees-two-degrees/>

Break- 10 minutes



Global Impacts

Material:	Slides, Video
Timing:	14 minutes
Purpose of activity:	Making learners aware of the impacts of climate change globally and their interrelation with other global issues.

SLIDE: Global impacts

VIDEO: Short clip from David Attenborough's Climate Change The Facts Documentary

- <https://www.youtube.com/watch?v=q9WwLPgyuqo> - play ONLY 11.59 - 16.43 (4.30 mins total)

Ask learners what impacts were identified in the videos- wildfires, sea level rise and flooding etc.

N.B: explanations for the increase in these impacts is covered in more detail in the UK climate change impacts section, however if learners ask for some explanation...

Increase in wildfires

- Rising temperatures = more moisture evaporating from the ground, drying out the soil, and making vegetation more flammable.
- At the same time, winter snowpacks are melting about a month earlier, meaning that the forests are drier for longer periods of time, creating a longer growing season.
- These hot, dry conditions increase the likelihood that wildfires will occur and also be more intense and burn for longer once they are started by lightning strikes or human error.

Sea level rise & increasing flooding

See earlier notes on extreme weather & global sea level rise

- If business as usual continues, by 2100, it's estimated our oceans will be one to four feet higher. This will flood coastal systems and low-lying areas, including entire island nations and the world's largest cities, including New York, Los Angeles, Miami, Mumbai, Sydney, and Rio de Janeiro.

SLIDE: Pathways to our future

- **There are five slides in this sequence.**
- The pathways are based upon findings from the IPCC Special Report on 1.5°C of warming.
- The slides summarise the two most divergent storylines.
- Late, uncoordinated action- major actions are eventually taken, including massive investments in renewable energy, but these efforts are uncoordinated and limited.
- Forest services - services provided by forests that benefit the environment e.g. trees



absorbing CO₂ and soil carbon storage.

For more information about impacts associated with each storyline and for information about the third storyline, please go to:

https://www.ipcc.ch/site/assets/uploads/sites/2/2020/10/IPCC_SR15_Worlds_Apart.pdf

**Climate change impacts in the UK**

Material:	Video
Timing:	6 minutes
Purpose of activity:	This section gives the participants an opportunity to understand the impacts of climate change across the UK.

Video: Climate change impacts in the UK**Play Video:**

Stop after 4 mins 35 seconds.

https://www.youtube.com/watch?time_continue=10&v=1k-5_WKUtBM



Activity: UK climate impacts

Material:	Slides and Activity PDF
Timing:	15 minutes
Purpose of activity:	This activity gives participants an opportunity to explore their personal experience of changes to the climate in the UK, particularly in their local area.

ACTIVITY: UK impacts, Suitable for both Solo & Supported Trainers

(Solo trainers who prefer not to use breakout rooms can ask learners to share their experiences in the chat box or select learners to share verbally)

The aim is for learners to explore how they might be affected by local climate change impacts.

Use smaller groups to encourage the discussion and exploration of further ideas. *N.B. – this might be a sensitive issue for some learners as they might have personally experienced impacts.*

Prior to the session, the trainer should research examples of local or regional climate impacts they can share with the learners to help facilitate the activity and prompt learners.

- Put learners into **breakout rooms** and ask them to discuss the climate impacts of flooding/heatwaves and drought/wildfires, particularly in the last five years. **Let learners know they have 10 minutes to discuss** (*one topic each room*)
- Ask the groups to choose a group facilitator to take notes and give feedback when they return to the plenary.
- Ask learners to **share any local experiences** they have had of climate impacts.
- Then ask learners to discuss climate impacts on the UK as a whole, considering areas such as:
 - **Financial and economic impacts** (including insurance)- e.g. towns now prone to flooding (Hebden Bridge) may find flood insurance difficult to obtain.
 - **Impacts on transport.** - e.g. the landslide that caused the fatal train derailment in Northeast Scotland.
 - **Impacts on infrastructure.** e.g. hospitals and care homes are not designed to cope with extreme heat.
 - **Impacts on health and wellbeing.** e.g. heat stress will impact vulnerable members of the community.
- If time allows:
 - Who in our communities will be most affected?
 - How are vulnerable communities faced with greater impacts?

Once learners are back in the main room ask for brief **feedback** from each breakout room via the group facilitators (5 minutes).



If time is short ask for three specific points and let the group facilitator know that they only have 1 minute to feedback.

This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

SLIDE: Hotter summers, what's the issue?

2 minutes

- Increased risk of **drought**, and **extreme events** - the UK could experience **warmer, drier summers** in the future.
- Predicted warmer and wetter winters in the UK may result in **longer growing seasons**, which will in turn see a greater abundance of vegetation, or **available fuel for a wildfire**.
- Heightened **pressure** on **healthcare services**
- The UK could also face **threats to its water security** and supply.
- **Lower food yields & increased pests = increased food bills**
- Greater **impacts** on **low income households**
- More people are dying of heat stress.
- Hospitals, homes and care homes are not designed to deal with extreme heat.

Quote, 'optional'.

"What we now think of as an extremely hot summer, where people are dying of heat stress and it is extremely uncomfortable in homes, hospitals and much of transport, that is likely to be a typical summer by the middle of the century and would be a cool summer in the 2080s." (Lord John Krebs, chair of the CCC's adaptation sub-committee)

SLIDE: Wetter winters, what's the issue?

2 minutes

"Flooding in UK over the past 50 years is worst in Europe as climate change 'increases the amount of rainfall'"

- Intense flooding will become more frequent in the UK due to climate change, the Environment Agency has warned.
- As of 2018, Met Office records show that there have been 17 record breaking rainfall months or seasons since 1910 - but that nine of them have occurred since 2000.
- In late 2015 and 2016, the UK suffered a series of major floods that wreaked havoc in parts of Cumbria, Lancashire, Ireland, Northern Ireland, Scotland, Wales and the Isle of Man.



Climate change impacts in “your local area”

Material:	Slides
Timing:	5 minutes
Aim:	To highlight how climate change impacts learners’ personal and working lives.

SLIDE: Climate change impacts in “your local area”

Find a few local (or regional) examples of extreme weather events. *Remember to keep text on the slide to a minimum.* Engage with a powerful image where possible.

E.g.

- Flooding
- Storms
- Wildfires
- Heat stress/ heatwaves

Report on...

- **Impact-** loss of life, damage to houses, businesses, infrastructure etc.
- Link to **past weather events** in the area- increasing flooding events?
- Any **abnormal features** e.g. time of year- Saddleworth fires in February 2019.

SLIDE: Case study example- Partial collapse of Whaley Bridge Dam

- Thousands of residents in the Derbyshire town of Whaley Bridge were evacuated amidst fears the dam could collapse after it was damaged by floodwaters in 2019.
- Bob Ward, a policy director at the Grantham Research Institute on Climate Change and the Environment, said: “This is an example where our infrastructure is not up to scratch and we are not acting quickly enough to upgrade it....We have a flood defence system fit for the climate of the 20th century when we need it fit for the 21st century. We are going to see more record rainfall, more flooding along our coasts and rivers, and we are just not prepared for that.”

SLIDE: Case study example- Saddleworth Moorland fire

- An area of around 1.5 km² was burning on Saddleworth Moor near Marsden after Britain saw its hottest winter day on record at the time of the event (February 2019).
- West Yorkshire Fire and Rescue said it was one of the biggest moorland fires they have ever had to deal with.
- The National Trust said "At present it is estimated that an investment of more than £200,000 in restoring this special habitat has been lost". The helicopter deployed to take water from nearby reservoirs to the fire cost £2,000 per hour.

As well as stating the facts and impacts make sure you engage learners when reporting these



events. E.g. Does anyone remember X event? Was anyone involved?

SLIDE: It's about prevention and adaptation

Read through the slide...

- **Prevent future costs** & improve resilience of council services– prevent & **adapt to extreme weather** e.g. investing in flood defences.
- This is about **how climate impacts** will **directly affect Local Authorities**- how it will impact learners' **jobs, livelihoods and communities**. It is better to act and prevent climate change now, than pick up the bill later.

SLIDE: *How's everyone feeling & break / opportunity to split the training into smaller sessions*

5 minutes

Share and discuss emotional points provoked so far - ask learners to summarise in one sentence in the chat and the trainer to discuss these with the rest of the group.

Try to end the session on a positive note asking individuals to write in the chat one positive thing they have learnt from the session.

This is a good place to explain to learners how Carbon Literacy is similar to a rollercoaster. This first part learning is about the science and impacts is the going down 'doom and gloom'... but it's important to highlight that part 2 is the action based 'doing' part where people feel empowered, positive and ready to take action on climate change.



Module 2

The Carbon Map

Material:	Slides, link to the Carbon Map, Activity PDF
Timing:	15 minutes
Aim:	To highlight the inequality of climate change and identify the most at risk individuals both globally and within the UK.

ACTIVITY: Explore the carbon map (5 minutes exploration, 10 minutes discussion)

<https://www.carbonmap.org/> - (if this link is not working google search 'carbon map.org' and select the top answer.)

- Copy and paste the link into the chat function.
- Ask learners to turn off their microphones and open the link in their browser.
- Ask learners to specifically explore the '**People at risk**' map option with '**GDP per person**' shading as this highlights how the wealthiest are least at risk from the impacts of climate change.
- Give the learners **5 minutes** to explore the map. You can ask learners to turn their camera on or show a 'hands up' when they have finished exploring the map.
- There is a page in the Activity PDF where learners can make notes.
- Feedback for 5 minutes as a plenary group. Ask learners what they noticed about the map.
- Ask learners to write directly in the chat or choose learners specifically to feedback to the rest of the room.

Prompting questions...

- Which countries have emitted the least greenhouse gases but are at high risk from climate change?
- The countries which have the largest share of emissions are developing countries. Should they be responsible for reducing their emissions rapidly whilst they're developing?
- This is a good place to discuss issues around responsibility. Should developed nations such as the UK step in, especially as the Industrial Revolution began in the UK?
- With the correct guidance could less developed nations industrialise using green energy, to significantly reduce their emissions?
- If countries such as China are manufacturing significant amounts of goods consumed in other countries, whose carbon budget should that be included within?



Key points to highlight from the map:

- **Who releases the most carbon vs who is most at risk:**

This shows that areas that **release the most carbon** (often the wealthiest nations are actually some of the **least vulnerable countries**).

- **Historic emissions:**

Despite many wealthy nations implementing policies to become net zero, **past emissions are still impacting our current scenario**. Nations that were major emitters in the past have a **historic responsibility** to help nations that are currently less developed.

- **Production vs Consumption:**

It is important to compare where the consumption of goods occurs to where emissions are produced.

Climate Vulnerability

Material:	Video, Slides, Chat box.
Timing:	10 minutes
Aim:	For learners to understand how the most vulnerable in our society contribute least to climate change and need extra support to adapt and mitigate against the consequences of climate change.

This is a slide that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

SLIDE: Equity and vulnerability

- Use this slide as a wrap up for the activity.
- Let learners read the graphic.
- The wealthiest 10% of global citizens earn over £27,600 annually and the wealthiest 1% earn over £79,300.
- Key points:
 - UK emissions are currently approximately **7.9 tons per capita**.
 - To restrict the global temperature rise to 1.5°C above pre-industrial levels, global average per capita emissions must fall to **2.1 tons CO2e by 2030** and **0.7 tons CO2e by 2050**.
 - Lifestyle and behavioural change is critical.



- This study is available at <https://climateoutreach.org/reports/unep-communicating-lifestyle-change/> and is based on data from this report: <https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920->

VIDEO: Vulnerable people in the UK (3 minutes 13 seconds)

<https://www.bbc.co.uk/news/av/embed/p079s2j4/48373540>

- Copy and paste the link to this video into the chat box and ask learners to turn their microphones and cameras off to watch the video.
- Once learners have watched the video ask them to write in the chat what they noticed about the individuals in the video.

Discussion points:

Individuals who are the most vulnerable to climate change in the UK are often from deprived backgrounds.

Air Pollution

- Individuals who are most at risk from air pollution live nearer to main roads in cities. These individuals are more likely to live in deprived areas and often have a lower carbon footprint due to their financial status.

Flooding

- Damage to homes and infrastructure in deprived areas is less likely to be insured or repaired.

SLIDE: Activity: Who is vulnerable within your Local Authority?

Ask learners to write in the chat box which groups within their communities are most vulnerable to the negative impacts of climate change.

Homeless - individuals have poorer access to healthcare and sanitation. They are much more exposed to extreme weather events and do not have the means to protect themselves against the changing climate.

Elderly and infants - both groups are often unaware that they must change their behaviour when extreme weather events occur e.g. Drinking more water when it is hot and ensuring they keep warm and dry during the winter months.

Sick – individuals with existing health conditions adapt less easily to climatic events. Furthermore rising temperatures can increase the spread of disease and exacerbate illnesses.



Marginalised groups including Black, Asian and Minority Ethnic communities - it is statistically proven that marginalised groups are more exposed to deprivation and poor living conditions, which impacts their health and wellbeing. As they are more likely to be experiencing food and fuel poverty, lack of access to healthcare and job insecurity, they are less able to mitigate against the impacts of climate change.



Break- 10 minutes

The role of Local Authorities

Material:	Slides
Timing:	3 minutes
Aim of activity:	Highlighting how the climate emergency affects councils and the local communities that they serve. There are serious impacts to be considered but also many opportunities!

SLIDE: Why should we do anything?(1)

Polls with multiple choice answers can be created in Zoom and Microsoft teams. If you have this facility available, create your poll in a meeting template prior to the training. If you do not have polling as an option, ask learners to answer in the chat box.

It's about creating resilient, self-reliant, healthy and prosperous communities. But how much influence do we actually have as Local Authorities?

Launch your poll to ask:

What percentage of UK emissions are internal public sector emissions?
a) 2% b) 5% c) 10% **Show poll answers**

Launch your poll to ask:

What percentage of UK emissions are under Local Authority influence?
a) 10% b) 25% c) 33% **Show poll answers**

Reveal the answer with the next slide

SLIDE: Why should we do anything?(2)

Direct Local Authority emissions – 2% of UK emissions.

However Local Authorities can influence around a third of emissions in their local areas - **big influence and power for change.**

'Emissions under our influence'- refers to buildings, energy, transport and waste in our boroughs. We need to make better use of our powers in areas such as procurement, planning, housing, education and transport to help drive reductions in society.

We look after the finances of towns/boroughs – have the responsibility to spend it wisely.

Reference:

'Around a third of the UK's emissions are dependent on sectors that are directly shaped or influenced by local authority, practice, policy or partnerships,' <https://www.theccc.org.uk/publication/local->



[authorities-and-the-sixth-carbon-budget/](#) (p 16)

SLIDE: What role do Local Authorities have?

These are some of the roles that Local Authorities have in their work and communities. Worth reminding learners about the vast influence, potential and reach that they have. Can add jobs/roles/areas to this list.

Opportunities in your area

Material:	PCAN cities data, Slides
Timing:	3 minutes
Aim:	To highlight the opportunities in your local area.

SLIDE: Opportunities in our area

- Select your area and capture the statistics from: <https://www.pcancities.org.uk/find-your-place>
- The slide example is for Leeds
- Use all data or just a few sets e.g. jobs, domestic energy bills.
- Highlights how climate action is an **opportunity** which can unlock money & jobs in communities.
- Talk through datasets.

Please be aware these datasets are from research conducted in 2014/2015 so data won't be completely representative of current opportunities, but it works as a good basis to inspire ideas.



Climate Change and COVID-19

Material:	Slides
Timing	5 minutes
Aim:	Learners can reflect on parallels and changes in <u>behaviour</u> during lockdown as well as considering how we can build back better.

SLIDE: Discussion point. Ask learners to comment on the question in the chat box:

- “What are the similarities or parallels that can be drawn with coronavirus and climate change?”
- Prompt for positive lessons and behavioural change.

Some answers might be: “Both are global problems.” “People are working from home / cycling / spending more time enjoying nature.”

- Read out and comment on some of the answers
- Select one or two of the most relevant answers (time dependent) and ask the learner to comment verbally.
- Go through mini lecture in the slides:

SLIDE: What have we learnt from the COVID-19 crisis?

We are vulnerable to big shocks to the system

The pandemic has shown our vulnerability and lack of preparedness as a society in a crisis. However climate change poses a much greater threat in terms of severity of impacts than COVID-19. More frequent extreme weather events such as flooding and droughts will put an even greater strain on our systems and services. We need to work to prevent this and become more resilient within our communities, and as a society. An example to use- COVID-19 is like a bright red Ferrari that's zoomed into our view and everyone's gawping at it, but meanwhile the juggernaut that is the climate crisis is still lumbering towards us.

We can unite behind the science

Both climate change and the COVID-19 pandemic require us to listen to experts, to unite behind the science and not play politics with people's lives. This means responding to the challenge at the appropriate scale and treating a crisis like a crisis with the urgency that is needed. Countries that took precautions and acted more quickly at the beginning of the crisis e.g. New Zealand, have had much better outcomes.

We can make rapid, wide scale change

COVID-19 has demonstrated how quickly government, academia and industry can collaborate to address challenges and solve problems during a global emergency.



We can pull together and change individual behaviour

When we work together, even small personal actions like physical distancing, can make a big difference and help us to overcome huge challenges. We have seen that selfless acts, personal responsibility and mass behaviour change are possible when they are in the national and global interest. This is a good counter argument for the 'I'm just one person, I can't make a difference' viewpoint.

We can maintain some of the positive habits we took on during COVID-19

Taking advantage of some of the inevitable responses to coronavirus, such as less unnecessary air travel for business meetings and more homeworking, supported by better video conferencing facilities, are powerful short-term actions worth embedding for the longer-term low carbon lifestyles. A possible discussion point here is: Has anyone changed their behaviour during lockdown? Do you think it will stick?

SLIDE: Climate Change and COVID-19

- COVID-19 has had a devastating global impact.
- However the impacts of climate change will be far greater – we must take rapid, large scale action.

SLIDE: How do we 'Build Back Better'?

There's a massive opportunity that we must take to rebuild the economy in a way that's truly sustainable.

- **Low carbon investment**

The recovery packages that will be invested in the economy post COVID-19 must be spent on low carbon infrastructure and actively pursue decarbonisation. This will be our last chance to stay within the 1.5°C carbon budgets. If we continue to invest in fossil fuel powered industries, we'll be locked into a high carbon future. Also negates the argument that 'there isn't the money to spend on new low carbon infrastructure' - that money will now be spent regardless to support the economy.

- **Addressing climate & social issues together**

We can solve climate and social issues at the same time using housing, transport, infrastructure and economic development budgets in a smarter way that delivers urgent climate action. For example, reducing levels of air pollution, will massively reduce the costs of NHS treatment and in turn, free-up money to be spent on home energy efficiency improvements or sustainable green transport.

- **Green jobs**

The increase in unemployment resulting from the pandemic can be addressed with the current skill shortage we now have in low carbon sectors, such as retrofitting housing stock. Clean energy infrastructure is very labour intensive in the early stages, generating twice as many jobs per pound of government expenditure as fossil fuel projects around the world.



This is followed by the co-benefits activity, to show learners how we can achieve these 3 strands of building back better...



Activity: Co-benefits of climate action	
Material	<p>SOLO TRAINER: Slides, Video</p> <p>SUPPORTED TRAINER: Slides, Video, Activity PDF & Slides & Breakout rooms</p>
Timing:	35 minutes (excluding break and video)
Aim of activity:	This activity gives the participants an opportunity to explore how action on climate change can deliver many local benefits (co-benefits) whilst also raising council revenue.
Task	Participants are asked to match co-benefits to each action.
Group size:	<p>SUPPORTED TRAINER: Two or three breakout rooms (teams of three to six people, dependent on numbers)</p> <p>SOLO TRAINER: Activity completed within the plenary</p>
<p>SLIDE: Co-benefits video (3 minutes)</p> <ul style="list-style-type: none"> Use this video to set the scene for the following activity. <p>https://www.youtube.com/watch?v=VBjf6QwuZD4&feature=youtu.be</p>	
<p><u>We strongly recommend that you read the instructions below carefully for this section in order to get the maximum benefit.</u></p> <p>The aim of this activity is for learners to understand the positive impacts felt elsewhere when taking climate action and all of the further benefits which are included when making low carbon changes.</p> <p>SLIDE: Scene Setting:</p> <p>Use the 'Setting the Scene' slide to explore current problems faced by Local Authorities. Follow with the next two slides to explain the concept of co-benefits.</p> <p>SLIDE: Co-benefits of climate action</p> <p>When reading out each co-benefit ask learners to discuss what they think each co-benefit means by using the chat box. <i>See below for less obvious answers.</i></p> <p>Equity & community</p> <p>Everyone would like to live in a cohesive, safe, confident, prosperous and happy community. Equity refers to fairness and equality in outcomes, regardless of status, wealth, race, religion etc.</p> <p>Resilience</p> <p>In relation to climate, resilience is the ability to prepare for, recover from, and adapt to impacts</p>	



(weather/resource/economy related).

Council capacity (the more difficult concept)

Actions that raise money for the council which can then be used for other green initiatives

e.g. The council invests in a solar farm and sells the excess energy to the grid. This extra income is invested in cycle lanes.

SLIDE: ACTIVITY: Co-benefits

- The rules of the game are explained using the retrofitting homes example.
- Read through the slide and explain the co-benefits of retrofitting homes.
- Answers: **Health, jobs & economy, equity & community, resilience.**

Supported trainers then move groups into breakout rooms to work through the PDF (see detailed instructions below)

Solo trainers miss out this breakout room discussion and remain in the plenary (see detailed instructions below)

Ensure learners understand they are not trying to explain all co-benefits for all climate actions. **They are selecting ONLY the co-benefits they feel match up with the action.**

SUPPORTED TRAINER (30 minutes):

Breakout rooms 15 minutes, plenary session 15 minutes -

- Split groups into breakout rooms.
- Ask each group to work through between 3 and 5 climate actions each so all actions are covered between the groups.
- Ask learners to open their Activity PDF on the Co-benefits Game section.
- **Ask a group facilitator to screen share the PDF in the breakout room.**
N.B. Learners MUST use a PDF viewer (e.g. Adobe Acrobat or a web browser) or interactive elements will not be present.
- Explain that they will work through the climate actions selected for their group, discussing and **ticking off on the PDF** the co-benefits match each action.
- **They are selecting and ticking the box of ONLY the co-benefits they feel match up with the action.**

The Trainer and Trainer Facilitator can move between each breakout room assisting in developing a thoughtful discussion. The aim of the game is to develop a deeper appreciation of the multidimensional benefits of climate action, not just to mark off 'correct answers'.

Plenary Discussion- 15 minutes

- Teams come back together in the plenary room and the trainer moves through each slide.



- Ask the Group Facilitator from each group to briefly explain the co-benefits they selected for their climate actions and why.
- Click to reveal the answers (remember there may be other valid responses to the question).

SOLO TRAINER (30 minutes):

- Talk through each of the slides explaining the example shown.
- **For each slide select one learner to discuss** which co-benefits they would choose for that particular climate action and why.
- Ask other learners to **write any ideas or thoughts they want to include in the chat box.**

Click to reveal the answers (remember there may be other valid responses to the question).

Additional information:

For further reading on co-benefits refer to the Ashden Climate Action Co-Benefits Toolkit. This is a toolkit produced to support Local Authorities on their climate change ambitions:

<https://www.ashden.org/programmes/co-benefits>



Module 3

Preparations for the following module:

Ensure learners are aware they need to complete their WWF Carbon Footprint calculator before the following session, as this will be discussed in Module 3. It takes around 10 minutes. It also might help if the trainer has calculated their own carbon footprint to put the learners at ease.

N.B. Learners should be as honest as possible and trainers should reassure them it is ok if their footprint is high – that's the point of the activity!

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



The Policy Position

Material:	Slides
Timing:	18 minutes
Purpose of activity:	This section breaks down the policy from the international level all the way down to the local level that Local Authorities operate at. Brings a sense of unity and ambition; shows that we are working together to tackle climate change and that everyone has their part to play.

This is a section that trainers are advised to review to ensure that the scientific and policy content is up to date before course delivery.

SLIDE: Carbon budget video 3 mins

<https://www.youtube.com/watch?v=blsTXGFdeDk>

Brief overview of carbon budgets which informs policy covered in this section.

SLIDE: What does the science say?

Brief explanation of October 2018 IPCC report and why it's important...

- In October 2018 IPCC produced a special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways. This was in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.
- To summarise this report into **one key finding**; 'if we are going to have a reasonable chance of keeping warming to 1.5 °C, we have until 2030 to cut global emissions by 50% based on 2010 levels. We then have another two decades (until 2050) to reach zero net emissions.'

Other key findings

- Limit global warming to 1.5°C to avoid a climate crisis.
- Rapid and deep emissions cuts are needed in **all** sectors, along with a wide portfolio of mitigation options and a major upscaling of investments- decarbonise the global economy.

SLIDE: International policy; The Paris Climate Agreement

- After two weeks of intense negotiations at the climate change summit in Paris in December 2015, an agreement was made between nearly 200 countries to cut emissions to attempt to limit the rise in global temperatures to less than 2°C. For the first time in history, the deal united almost all of the world's nations in a single agreement to tackle climate change.

SLIDE: Summary of The Paris Agreement

- To keep global temperatures "well below" 2°C above pre-industrial levels and "endeavour to limit" them to 1.5°C.



- To review each country's contribution to cutting emissions every five years so they scale up to the challenge.
- Rich countries need to help poorer nations by providing "climate finance" to adapt to climate change and switch to renewable energy.
- The next COP has been rescheduled for 2021 in Glasgow.

SLIDE: UK Policy

- As of June 2019, a new government plan was announced to cut emissions in the UK to almost zero by 2050. The actual terminology used by the government is "net zero" greenhouse gases by 2050. This net zero target is legally binding.

Net zero emissions

What do we mean by net zero emissions?

- In many sectors of the economy, technologies exist that can bring emissions to zero. In the electricity sector, this can be achieved by generating renewable and nuclear energy. A transport system that runs on electricity or hydrogen, well-insulated homes and industrial processes based on electricity rather than gas can all help to bring sectoral emissions to absolute zero.
- However, in industries such as aviation, the technological options are limited. In agriculture it is also highly unlikely that emissions will be brought to zero- some emissions from these sectors will likely remain. In order to offset these, an equivalent amount of CO₂ will need to be taken out of the atmosphere – negative emissions. Thus the target becomes 'net zero' for the economy as a whole.
- In December 2020, the UK Government pledged to reduce greenhouse gas emissions by 68% by 2030, excluding emissions from international aviation and shipping.
- In April 2021, the UK Government pledged to reduce greenhouse gas emissions by 78% by 2035, which is expected to become legally binding in June 2021. This new target is in line with guidance from the Committee on Climate Change on the UK's Sixth Carbon Budget (2033-2037). This is the first time the UK Government's greenhouse gas emissions target includes emissions from international aviation and shipping.

References:

<https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

<https://www.gov.uk/government/news/uk-sets-ambitious-new-climate-target-ahead-of-un-summit>

<https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

SLIDE: Current UK progress

- The UK has reduced domestic emissions by approximately 44% from 1990 levels.
- The thick black historical emissions line includes updated greenhouse gas inventory values and international aviation and shipping emissions. The pale grey line does not include these.



- Current government emissions projections (light blue line) show that the UK is **not on track** to meet 4th and 5th carbon budgets and is far from the net zero trajectory that the Committee on Climate Change has recommended.
- Highlight the **gap** between where the end of the light blue line is and where we need to be at by 2050- net zero emissions.
- This shows we have to be much more **ambitious** with **decarbonising**.
- Legislated carbon budgets are shown as grey columns.
- To meet the Sixth Carbon Budget:
 - Nearly 60% of policies needed involve behaviour change
 - Net costs are estimated as less than 1% of GDP

- The graph is based on Committee on Climate Change analysis, which has been added to government emissions projections from 2019.

Graph reference: Carbon Brief <https://www.carbonbrief.org/cc-uk-must-cut-emissions-78-by-2035-to-be-on-course-for-net-zero-goal>

Sixth Carbon Budget reference: <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>

Local Authority carbon budget and strategy 10 mins

SLIDE: Tyndall Carbon Budget Tool

Use the Tyndall Carbon Budget Tool to look at the carbon budget for your Local Authority

<https://carbonbudget.manchester.ac.uk/reports/>

- Use data from Tyndall Tool to adapt figures in the following slide (current carbon budget & time left in budget) for your local area. Slide is customisable.

SLIDE: Local Climate Strategy

Example used is Bristol City Council.

** Insert your authority's local climate plans/ strategies/ targets/ legislations here**

A very clear message about the scale of the challenge for councils (their carbon budget and zero carbon target date) and hence the need for their urgent action.



Home Carbon Footprints

Material:	Your Carbon Footprint WWF (should have been completed pre session) plus <u>Optional Slides</u> (currently hidden in the slide show) for the carbon footprint of food and transport.
Timing:	11 minutes (additional 15 if optional slides used)
Aim of the activity:	Shows learners which areas of their lives are the most carbon intensive- where actions need to be taken to reduce their carbon footprint.

*This exercise has been adapted, with express permission, from an original activity created by Manchester Metropolitan University and available in the **Manchester Met Carbon Literacy Toolkit for Universities and Colleges**. This toolkit has been released under a Creative Commons – Non Commercial – No Derivatives 4.0 International License (CC BY-NC-ND 4.0) - see <https://creativecommons.org/licenses/by-nc-nd/4.0/>. Use of either the original or modified activity should abide by the terms of this license and must be attributed to Manchester Metropolitan University, where the Manchester Met logo should appear on the associated slides. Please contact the creators of these activities (Rachel Dunk and Jane Mork) at Manchester Metropolitan University using the following email address (carbonliteracy@mmu.ac.uk) or if you have any questions about the use of this activity.*

SLIDE: What is a carbon footprint?

- A measure of the amount of greenhouse gases released into the atmosphere as a result of our activities.
- We can calculate the carbon footprint of anything - individuals, organisations, events, products, projects, cities, or countries.

SLIDE: ACTIVITY: Your Carbon Footprint

- Ask participants to **complete the WWF calculator** as a prerequisite to this section.
- Use this activity as an icebreaker for module 3. Ask learners to **enter their carbon footprint into the chat box**.
- Discuss and then ask learners to enter the **least and most carbon intensive areas of their life in the chat box**.
- Select 2 or 3 people at random to **discuss their footprint** and possible lifestyle changes.

OPTIONAL SLIDES (include if time is available) 15 minutes

SLIDE: ACTIVITY: Carbon footprint of Food. (Interactive PDF) (10 minutes)

The purpose of this activity is to encourage participants to reflect on the carbon emissions stemming from food. This should also help to prepare participants for identifying and selecting their actions later



on in the training.

Ensure all learners have the Activity PDF. Participants are asked to rank the carbon footprint of food protein items from highest to lowest.

Put learners into breakout rooms and ask one individual from each room to act as a group facilitator, open the interactive PDF and share their screen.

SOLO & SUPPORTED TRAINER:

- The learners will have **10 minutes (5 minutes on each section)** to work through the food and transport pages of the Activity PDF (2 pages).
- Trainers (and trainer facilitators) can **move between breakout rooms** to support the discussion.
- For the food section: mark in the PDF (from lowest (1) to highest (8)) the carbon footprint of food per average portion.
- After 5 minutes ask the learners to **move onto the transport page of the Activity PDF.**
- For the transport section: Mark in the PDF (from lowest footprint (1) to highest footprint (5)) the carbon footprint of the transport options shown.

Return to the plenary and move through the slides (5 minutes)

Show the group the right answers on the slides and highlight the key points. Don't over emphasise the actual numbers – but focus on the **high impact of red meat (ruminants)**, with pork/poultry/fish having a lower footprint, and **plant based foods the lowest of all.**

- Cows and sheep (ruminants) have the highest emissions due to the methane they emit when burping
- Pigs are not ruminants so they have a lower footprint
- Lentils and pulses have the lowest footprint

The correct order of food for the activity is:

1	2	3	4	5	6	7	8
Beef	Lamb	Pork	Chicken	Fish (farmed)	Eggs	Tofu	Pulses (lentils etc.)

Carbon Footprint Data: The carbon footprint data for these proteins is from the following paper:

Poore, J., Nemecek, T., (2018). Reducing food's environmental impacts through producers and consumers. *Science*, 360(6392), pp. 987-992. DOI: 10.1126/science.aaq0216



For further information regarding the calculations for this activity please see our supporting appendix.

Slide: GHG emissions across the supply chain

- Cows and sheep are ruminants which digest plant based materials through microbial fermentation. During this process they 'burp' methane as a by-product.
- Pigs and chickens are not ruminants so have a lower carbon footprint. However their feed is often made from soya based products which contribute to deforestation. They also produce large amounts of manure which emit methane and nitrous oxide.
- Lentils, nuts and pulses have the lowest footprint. Nuts can sometimes have a negative carbon footprint because the trees they are grown on sequester carbon. *N.B. almonds require large amounts of water in production so can be problematic in drought prone regions.*

Most emissions associated with food occur via land use changes or on the farm during production. Transport is generally a very small part of a food's carbon footprint (unless air freighted). However shopping organically, locally and in season is the most environmentally sustainable way to eat.

OPTIONAL

The Carbon Footprint of Transport

SLIDE: A 5km commute into work

- You don't need to explain this graphic in extensive detail however highlighting the following points is key.
- Working from home, using active transport such as walking OR cycling and car sharing are low carbon transport options. Using public transport also generates many co-benefits, but has been made more difficult due to the COVID-19 pandemic. Feel free to open this discussion up to learners.
- The main thing to avoid is driving alone.

SLIDE: Return business meeting Manchester to London.

- Once again working from home should be encouraged.
- Other low carbon options are the same as the previous slide.
- The flight figures in the table are for economy class. For long haul flights, carbon emissions per passenger per kilometre travelled are about three times higher for business class and four times higher for first class, according to the Department for Business, Energy and Industrial Strategy (BEIS). This is because there's more space per seat, so each person accounts for a larger proportion of the whole plane's pollution.

However, there are many factors which impact emissions and they include:

- The increased warming effect other, non-CO₂, emissions, such as nitrogen oxides, have when they are released at high altitudes.



- How the train/plane operates. The carbon emissions of diesel trains can be twice those of electric ones. Figures from the UK Rail Safety and Standards board show some diesel locomotives emit more than 90g of CO₂ per passenger per kilometre, compared with about 45g for an electric Intercity 225.
- The source of the electricity. This can make a big difference if you compare a country such as France, where about 75% of electricity comes from nuclear power, with Poland, where about 80% of grid power is generated from coal.

N.B. It's also worth including here how the footprint of buses varies. This can be explained by local (in city) buses having very few passengers on board, increasing their footprint, whereas for intercity journeys coaches are often full. Data for these calculations can be found in the appendix of this trainer manual.

Data sources for the graphs and references:

<https://www.bbc.co.uk/news/science-environment-49349566>

<https://tfgm.com/public-transport/tram/metrolink-and-the-environment>

OPTIONAL

SLIDE: Energy at home: Low impact

- There has been a lot of focus on **recycling** (particularly plastic), **switching off lights** and **changing to LED bulbs**.
- Whilst these activities do have environmental benefits it's important to remember that they are considerably lower impact in comparison to other actions (next slide).

SLIDE: Energy at home: High impact

Hot water and heating is the biggest share of energy use in UK homes at about 80% (Tyndall Centre). Here are some easy high impact actions you can take:

- Retrofit/ insulate your house: the UK has one of the least efficient housing stocks in Europe. Install double or triple glazing.
- Fit smart meters or simply reduce the temperature of heating and hot water.
- Ensure the energy you do use comes from a green energy supplier.
- Install an electric car charging point with a green energy supplier.

Other high impact actions:

- Low carbon heating systems will have to replace the natural gas boilers used in most homes today.
- Heat pumps & air source heat pumps
- District heating

***OPTIONAL*****SLIDE: Resource consumption**

- Buy fewer higher quality goods.
- Repair and recycle goods.
- Buy second hand.
- Waste less.

SLIDE: Personal choices to reduce your contribution to climate change

- Let learners read through the graphic.

It is important to stress that the impact that traditional green actions have is much lower than people might realise.

- **e.g. recycling/reducing plastic waste & energy saving light bulbs**
- Let learners read through the graphic.

N.B. The media focus on plastic has led the general public to believe that plastic waste is a key environmental issue, whereas in reality the impacts of climate change and biodiversity loss vastly outweigh the plastic issue. Plastic has only a relatively small impact on climate change and biodiversity loss in comparison to the burning of fossil fuels, farming and land use changes.

Workplace carbon footprints	
Material:	Slides
Timing:	15 mins
Purpose of the activity:	To make learners aware of how workplace emissions can be tackled both by addressing their organisational footprint as well as emissions that are under the council's influence.

The first two slides should take a total of 10 minutes.

SLIDE: Emissions at work- introduction slide

Add your organisation's logo to the slide.

Explain how emissions at work can be split into 2 main areas:

1. Internal Local Authority emissions- this relates to our estates, how people travel to work, food the canteen serves etc. (feel free to change these examples)
2. Emissions under our influence as a Local Authority - how communities, towns, cities etc. are run.

SLIDE: Reducing *Local Authority's* carbon footprint



1. What are we currently doing?

- Ask learners to share initiatives or practices that their organisation has implemented to reduce carbon in the chat box.
- Read out some of the most relevant initiatives.
- *Keep up to date with initiatives/examples in case learners are unaware of initiatives.*

2. What should we be doing?

These are the key areas which make up a Local Authority's Internal Carbon Footprint.

- Buildings
- Waste
- Energy
- Procurement
- Vehicle emissions
- Water use

Activity: How can we reduce our internal emissions?

- In the chat box coordinate a 5 minute mind map on all the actions learners could take to reduce internal emissions in their organisation. Use the bullet points on the slide as a guide.
- Make sure learners are only making suggestions for **internal emissions here**. Try to delve into some specific actions for their workplace, as opposed to vague statements like 'use less energy'.
- Ask learners to note ideas down on paper for now as we will revisit them in the action section or if you are confident using a WHITEBOARD in Zoom/Teams feel free to do so, as this can help learners visualise their mind map.

Select the most relevant comment(s) from the chat box and briefly ask the learner to share their idea verbally with the group (5 minutes)

**SLIDE: Emissions under our influence (5 minutes)**

These are the 4 sectors highlighted by the CCC (The Committee on Climate Change) where Local Authorities have the most influence and decisions impact emissions: **Replace the graphic in the slide with an image from the local area if available.**

1. **Waste**
2. **Energy**
3. **Transport**
4. **Housing (residential, commercial & public)**

N.B. Plenty of suggestions for these sectors are available in the co-benefits activity and in the reports below. <https://www.theccc.org.uk/publication/local-authorities-and-the-sixth-carbon-budget/>
https://www.theccc.org.uk/wp-content/uploads/2012/05/LA-Report_final.pdf

SLIDE: How is *Local Area* doing so far?

- Find figures for your local area from this dataset:
<https://friendsoftheearth.uk/climate-friendly-communities>
- Add the data for your local area to the slides and discuss.
- Can step through these one by one (slides 105-108) or run through as all 4 on one slide (slide 109).



Activity: What does a Low Carbon *Local Area* look like?

Material / Resources:	<u>SOLO TRAINER:</u> Slides, the Activity PDF and chat box only <u>SUPPORTED TRAINER:</u> Slides, the Activity PDF, chat box and your trainer facilitators. If you only have one facilitator, they can move between breakout rooms. If you have several facilitators, you can have a facilitator for each breakout room).
Timing:	30 min
Purpose of activity:	Explore what a Low Carbon Local Authority would look like. (This is also a vital component of their Carbon Literacy certification).
Group size:	4 virtual breakout rooms, one for each sector

SLIDE: ACTIVITY: What does a Low Carbon *Local Area* look like?

This activity is about the greenhouse gas emissions of your local area (i.e. emissions that the council can influence) **NOT the internal greenhouse gas emissions of the council itself.**

SOLO TRAINER:

- Move through each of the following slides looking at each sector individually
- For each slide (and sector) ask learners to share their ideas on how that sector in their local area can be further decarbonised in the chat box.

If learners are slow to respond - Prompt by adding:

- What does this sector look like now?
- What problems need addressing?
- What key actions need to be taken?
- Are there existing low carbon actions which can be built on?

Read out some or all of the answers placed by the learners into the chat box.

- Select one or two key responses from the chat box that seem particularly relevant.
- Ask the learner who shared the response to verbally expand on their ideas – the ‘discuss further’ section of the slide i.e. How would they overcome barriers? / Who could support this action? How could this be done?

If learners are slow to respond - Prompt by asking:

- What key actions/changes are highlighted? What problems need addressing?
- What can Local Authorities do to support the proposed vision/changes?
- What can you do in your profession/department to support these actions?
- What do government and businesses need to do to support the proposed vision/change?
- What are the barriers? How could they be overcome?



Move through each of the slides in this way.

SUPPORTED TRAINER:

Explanation 5 minutes. Breakout rooms 15 minutes. Feedback 10 minutes

- Explain to the learners they will be split into four breakout rooms and that each room will cover ONE sector (buildings, waste, energy or transport)
- Inform learners which room will be designated to which sector. Once they enter the rooms you can send a message via the 'closed captions' option in Zoom to remind them of the designations. i.e. Room 1 – Buildings. Room 2 – Waste. Room 3 – Energy. Room 4 – Transport
- Talk through the slide as this explains the exercise they will be asked to complete in the breakout rooms.
- Explain that they will be provided with a copy of the slide (in the PDF document mentioned in 'Materials / Resources above) that can be shared in each breakout room to remind learners of the activity. **The activity is over two pages in the PDF. Learners MUST use a PDF viewer, or interactive elements will not display e.g. Adobe Acrobat or a web browser.**
- If you have a trainer facilitator for each breakout room please be sure they have a copy of the PDF prior to entering the breakout room (Zoom currently does not allow you to share documents from the plenary with breakout rooms).
- On entering the breakout room, ask learners to select a group facilitator to share the two pages of instructions in the PDF on their screen and to take down notes to feed back to the plenary (if there is not a trainer facilitator for each breakout room to do this for them). **(N.B. you must enable screen sharing for participants - found under the 'Security' tab in Zoom)**
- Ask the group facilitator (one of the learners) to take notes of the discussion so they can feed back to the group in the plenary.
- You can send timings to learners in the room through the closed caption option (Zoom) e.g. 15 minutes remaining, move to 'Part 2', 5 minutes remaining, ensure your plenary notes are ready.

N.B. The trainer and trainer facilitators can either stay in a specific breakout room if numbers permit or move from room to room.

*The actions will most likely draw upon the actions discussed in the co-benefits section however this section should be specific to **their local area.***

If learners are stuck prompt them by asking:

- How is this system currently run?
- How is it powered?
- If they are really stuck relate it to an example in their job/lives e.g. what waste is there in your life?
- How does that system currently work?
- How can it be decarbonised?



Feedback (10 minutes)

- Work through the slides and ask the nominated group facilitator from each breakout group to share a **very brief** summary of their discussion.

Break- 10 minutes



Climate action in Local Councils

Material:	Slides, Videos (links in slide notes)
Timing:	10 minutes
Aim:	To make learners aware of what other Local Authorities are doing to act on climate change.

There is a case study for each of the sections covered in the previous activities. Feel free to use different examples.

SLIDE: Buildings; Nottingham's Energiesprong homes

- The UK has some of the highest fuel poverty rates and one of the most energy inefficient housing stocks in Europe.
- Ambition in the UK: to ensure that all buildings are low or zero-carbon buildings by 2050.
- Improvement in energy efficiency (in particular in the residential sector) and investment in district heating is needed.

VIDEO: <https://vimeo.com/318259730> (3 Minutes)

- 10 homes in Sneinton, Nottingham became the first Energiesprong homes in the UK in 2019.
- Delivers net zero energy performance to existing houses in under a week, without residents moving out, at an affordable cost.
- Upgrades homes with a new exterior, fitting the outside of the building with new walls, windows, a solar roof and new electrical heating systems.
- Drastically reduce household energy bills and results in warmer homes.

SLIDE: Energy; Warrington Borough Council Solar Farm

The site consists of a 34.7MWp hybrid solar farm plus a 27MW battery storage system, the largest at any UK solar facility.

- First UK council to produce all of its own energy.
- Built in partnership with [Gridserve](#) across two sites at York and Hull.
- Powers around 18,000 homes and saves 25,000 tonnes of carbon each year.
- Cuts bills by £2m a year and supplies Warrington Borough Council with 100 percent green electricity.
- Will generate a surplus of £150 million over 30 years.
- Built in only 5 months.

SLIDE: Transport; Nottingham City Council



Video: <https://www.youtube.com/watch?v=7NsMWUEsO4w>

An alternative case study for smaller authorities London Borough of Waltham Forest video:
<https://youtu.be/h7-sqmJjPY4>

Ask learners what they thought of these solutions.

Alternative energy case studies to choose from:

- **Durham County Council** Solar Farm
<https://www.youtube.com/watch?v=Eh2FAJnS96U>
- Energy Local, supporting renewable energy at the **community level**
<https://www.youtube.com/watch?v=QteRUCPFGWI>
- Insulating solid wall homes, cosy homes in **Lancashire**
<https://www.youtube.com/watch?v=WIM26eVCKAQ>
- Urban community energy, repowering **London**
<https://www.youtube.com/watch?v=Nx0m5HQKsZE>
- Catalysing community energy in **Oxfordshire**, Low Carbon Hub
https://www.youtube.com/watch?v=gLuYY_F5G6I



Module 4

Individual vs. Group actions

Aim:	To explain the difference between individual and group actions. No discussion or pledges to be made in this section.
Timing:	5 mins

SLIDE: Why is your action pledge important?

Explain the significance of taking action.

SLIDE: Individual actions

- You can implement them on your own.
- An action to reduce carbon at work - UNLESS an action at home would save more carbon.
- Shifting organisational culture- emphasise that by committing to actions at work, learners are shifting the organisational culture to a low carbon one which will collectively make more of a difference than if everyone just took action at home.

SLIDE: Group actions

- You can implement actions together with your colleagues/team/outer networks at *Local Authority*.
- Working together.



Activity: Spheres of influence

Material:	Slides, Breakout rooms
Timing:	10 minutes
Aim of activity:	Encourages learners to think about who they can influence to take action.
Task:	Learners are asked to identify stakeholders that they can influence to take action on climate change.

10 minutes brainstorming: Spheres of Influence

*This exercise has been adapted, with express permission, from an original activity created by Manchester Metropolitan University and available in the **Manchester Met Carbon Literacy Toolkit for Universities and Colleges**. This toolkit has been released under a Creative Commons – Non Commercial – No Derivatives 4.0 International License (CC BY-NC-ND 4.0) - see <https://creativecommons.org/licenses/by-nc-nd/4.0/>. Use of either the original or modified activity should abide by the terms of this license and must be attributed to Manchester Metropolitan University, where the Manchester Met logo should appear on the associated slides. Please contact the creators of these activities (Rachel Dunk and Jane Mork) at Manchester Metropolitan University using the following email address (carbonliteracy@mmu.ac.uk) or if you have any questions about the use of this activity.*

SLIDE: Prioritising actions: Ease and Effectiveness (2 minutes)

- Highlight the importance of creating actions which are both easy to achieve and effective at reducing emissions.
- Talk through the points on the slide and ask learners to pop any questions in the chat box.

Ease	Effect
<ul style="list-style-type: none"> • Technical feasibility • Resource requirements: no cost, low cost, medium cost or high cost? • Stakeholder opinion of option (support or resistance?) • Expertise within the organisation 	<ul style="list-style-type: none"> • Potential carbon savings (low, medium or high) • Impact on the organisation's performance and reputation • Its overall strategic priority (low, medium or high) • Timescale (short, medium or long-term) • Expertise within the organisation • Will the option save/cost money and time?

Dragons Den



Material:	Slides, Breakout rooms
Timing:	30 minutes
Purpose of activity:	To allow learners to develop and pitch effective low carbon group actions

ACTIVITY: DRAGONS DEN; Opportunities to reduce carbon in your local area

Slide: Departmental opportunities

Reduce categories down to those relevant to your training group:

You can pre-allocate learners to breakout rooms if you would like the discussion to be department specific. This will require prior knowledge of the learners' job roles/department. Doing this ensures actions are team specific and learners can maximise their sphere of influence within the workplace.

- Show learners both the slides and **explain the activity**.
- Ask learners to **select their appropriate 'pitch'** from the previous slide to determine their area of action focus. *The pitches will vary depending on the audience so feel free to change these on the slides to suit the learners.*
- Split learners into **breakout rooms**.
- Ask learners to discuss with others in their breakout rooms some **interventions and ideas which would significantly reduce carbon emissions in their local area** (i.e. external emissions under their influence).
- Ideas from the co-benefits game can be used.
- The learners must also consider the **business case and additional benefits** their action will have on the team/department/wider organisation/employees and environment.
- During the discussion the **trainer and facilitator should move around the rooms** to ensure learners are staying on task and understand what they are doing.
- The learners have **10 minutes to discuss** before coming back to the plenary to showcase their **best action** to the rest of the group. Ask learners to **delegate one individual from each breakout room to pitch** their idea. This should be quick and only take around **2 minutes per group** - *if you have a large group reduce this pitch time to fit into the activity time.*

Break- 10 minutes



Action Planning 2

Material:	Slides, Link to participant details and evidence form
Timing:	20 minutes
Purpose of activity:	This part of the training is dedicated to giving learners the time they need to fill out their action pledges. This will be quiet working time for most learners.

SLIDE: Developing Your Action Plan (20mins)

- Tell participants that they will now choose at least one individual and one group action that they can pledge to commit to. They can choose any actions that have come up during the activities. These must be **NEW** actions, not pre-existing actions they are already carrying out.
- **Important: both actions should relate to their workplace** unless an action at home will save more carbon.
- Explain that these actions will be **assessed to determine whether the learner receives their Carbon Literacy Certificate** and that actions must be **significant and explained in detail**.
- Copy and paste the form into the chat: <https://carbonliteracy.com/wp-content/uploads/2019/12/Participant-Details-and-ZCB-Evidence-Forms-v4.2.doc>
- Ask learners to download and open the form.
- Ask participants to complete their pledge sheets. Tell them that they are welcome to pledge more actions if they wish.
- **Please ensure that learners have enough time to fill in their action plan. If learners feel rushed, please encourage them to complete their action plan outside of the session and submit it to you.**
- Once everyone has completed their action plans (and if there is time left), ask learners to share one of their actions with the rest of the group in the chat.
- If the learners want more information about what The Carbon Literacy Project do and do not consider as appropriate actions our certification marking guide can be found here: <https://carbonliteracy.com/wp-content/uploads/2020/06/CL-Certification-Marking-Guidev3.0.pdf>
Please feel free to share this document with learners.
- The **forms must be submitted by the trainer** to evidence@carbonliteracy.com within **14 days** of course completion with a completed certificate request form: <https://carbonliteracy.com/wp-content/uploads/2020/07/Certification-Request-Form-v5.doc>

Important: *Due to the current work from home situation we will accept action pledges located where they will have the most significant influence. This could be at home or at work.*



Talking about climate change

Material:	Slides, Video, Chat box.
Timing:	12 minutes
Purpose of activity:	For learners to reflect on what different approaches can be used to influence others to act on climate change.

VIDEO: How to talk to people about climate change (5 minutes)

<https://www.youtube.com/watch?v=RkklaXhbTuA>

The 3 top tips for learners to remember which will be covered in this section are...

1. Find a **value** that you have **in common**
2. Connect that value to climate change with a **story**
3. Inspire practical and **attractive solutions**

*This exercise has been adapted, with express permission, from an original activity created by Manchester Metropolitan University and available in the **Manchester Met Carbon Literacy Toolkit for Universities and Colleges**. This toolkit has been released under a Creative Commons – Non Commercial – No Derivatives 4.0 International License (CC BY-NC-ND 4.0) - see <https://creativecommons.org/licenses/by-nc-nd/4.0/>. Use of either the original or modified activity should abide by the terms of this license and must be attributed to Manchester Metropolitan University, where the Manchester Met logo should appear on the associated slides. Please contact the creators of these activities (Rachel Dunk and Jane Mork) at Manchester Metropolitan University using the following email address (carbonliteracy@mmu.ac.uk) or if you have any questions about the use of this activity.*

Lecture style presentation: (7 minutes)

SLIDE: How to talk to people about Climate Change.

- Read through pointers on the slide. Use ideas from the video to expand if needed.

With the following slides read out the speech bubbles to learners to illustrate the points.

SLIDE: Find common ground

- Find out what you have in common with the person you are talking to, show them that you respect their concerns, priorities and values.



- Be genuine, people will notice if you are disingenuous.

SLIDE: Connect that value to climate change with a story

The example on the slides refers to transport; a common conversation and something everyone can relate to.

- Your climate change story and how it connects to the person you're speaking with will inspire more than facts. Discuss how you changed a certain type of behaviour and how it has positively impacted you.
- People make decisions about their behaviour partly based on **what others they respect and trust are doing**, so your actions will influence others.
- Inspire practical and attractive solutions- many people feel blamed and judged when they talk about climate change, which is likely to make them defensive. Creating a positive future you both can aim for is more likely to inspire action.

SLIDE: Common Pitfalls

Avoid Scare Tactics

- Scary stories can make us shut down and ignore the subject altogether
- Paint a vision of a desirable future!

Be careful with every little helps

- If everyone does a little, we'll achieve only a little.
- Try to frame small steps as the beginning of a long journey.
- Remember 15% decrease in emissions per year.

Avoid information overload

- Facts and stats on their own won't change people's minds or behavior.
- People don't absorb information they don't think is relevant to them.
- Dry facts are ineffective in engaging people - use stories.

SLIDE: Climate change can feel distant

- Try not to centre conversations around far off unrelated subjects e.g. polar bears.



SLIDE: Relate it to people's lives & experiences

- People are much more likely to engage when they learn about perceived threats to their own livelihoods or hear about people that they know being impacted by climate change e.g. flooding in the UK.

SLIDE: Use your Voice

The aim of this slide is to encourage learners to speak up about the changes they want to see. The training aims to empower individuals to feel that they can make a significant change.



Wrapping up

Material:	Slides
Timing:	10 minutes

Last few slides...

SLIDE: 'Revolutions have happened before'

- Picture of 1903; transport via horse and carriage, vs 1910; cars invented. Shows big societal change can occur within just 10 years.

SLIDE: VIDEO Time to act

Optional last inspirational video <https://www.youtube.com/watch?v=RkklaXhbTuA>

SLIDE: Exponential climate actions

Positive climate stories which are happening globally

SLIDE: Be kind to yourself- read out the quote

Wrap up

If there is enough time ask the learners to share in the chat box "what is the main thing they will take away from today."

SLIDE: What help is available to us?

- Plenty of resources available for learners' onward journeys now they are Carbon Literate:
- [Carbon Literacy Newsletter/Blogs](#)
- Local Action Groups - Include your own examples.
- Carbon Literacy Resources Document which is constantly updated:
<https://docs.google.com/document/d/1tSchSqRpu7Y1hG0m8L1T7ncWkiw4VZyZ/edit#heading=h.gjdgxs>
Email this out to learners after the training.

Thank the learners for their participation in the workshop, their invaluable feedback and for their time during today's session.



Evidence

Please submit your learners' evidence to evidence@carbonliteracy.com, with a completed [certificate request form](#) within 14 days of course completion. In your email, please include your 'organisation name' and 'course code'. *N.B. The course code can be found on the first page of this document.*

Social Media

Please feel free to share your training on social media channels and make sure to tag your organisation and The Carbon Literacy Project!

Twitter: https://twitter.com/Carbon_Literacy

Facebook: <https://www.facebook.com/CarbonLiteracy>

Instagram: <https://www.instagram.com/carbonliteracy/>



Optional slides

These slides can be included in the training if you feel that they are relevant to your audience however they are not considered 'core content'.

Ecological Crisis	
Recommended to be inserted around slides 40/41 (climate change impacts).	
Timing:	2 minutes
Purpose of the activity:	To detail the severity of the 6 th mass extinction.
<p>SLIDE: Ecological crisis</p> <ul style="list-style-type: none"> • 1/8th of the world's animal population is at risk of extinction due to human activities and exploitation. • One million species of Earth's 8 million species are now threatened with extinction. Since 1970, vertebrate populations – birds, mammals, amphibians and reptiles – have declined by 60%. • While extinction is a natural process, it is the current rapid rate that is the problem. Studies suggest that extinction is now happening hundreds of times faster than the natural evolutionary rate and is accelerating. • * <i>Include this quote from David Attenborough if learners need an inspiring message</i> "I do truly believe that, together, we can make a better future. I might not be here to see it, but if we make the right decisions at this critical moment, we can safeguard our planet's ecosystem." <p>Reference: https://www.theguardian.com/tv-and-radio/2020/sep/13/extinction-the-facts-review-a-heartbreaking-warning-from-david-attenborough</p>	



Plastic and climate change

Recommended to be inserted around slides 99/100 (home footprints).

Aim of the slide: To draw attention to plastic – which often comes up in training.

Timing: 2 minutes

SLIDE: The problem with plastic

Most of us have heard by now about the issues surrounding single use plastics, partly fueled by the success of the BBC's Blue Planet II series. It's easy to see why so many people consider ocean plastics to be one of the greatest threats to the environment. Although birds, fish and marine mammals can become entangled in plastic, plastic pollution is not as great a threat to oceans as climate change or over-fishing.

- Plastic is an important environmental problem, but even if it is solved, you'd still be left with the even greater challenge of climate change and carbon emissions. This is especially important as the ocean has such a sensitive ecosystem which could be easily tipped off balance with temperature changes.
- Large corporations often use plastic as a way of **distracting stakeholders** by running campaigns to tackle plastic pollution without addressing their carbon footprint or energy intensive activities (this is often called greenwashing).
- Campaigns often focus on stopping using plastic straws etc. when in reality they make up ~ 4% of marine plastic pollution. A significant chunk of plastic pollution is from **discarded fishing gear**.
- **Large-scale fundamental lifestyle changes** are needed to tackle the root causes of climate change, and while reducing plastic use is a good start, **it does little to reduce our overall carbon footprint**. Swapping plastic bottles for reusable water bottles is obviously a step in the right direction, but if that's accompanied with a lifestyle of high meat and jet-setting much more action needs to be taken.

This is a good place to tell learners that actions relating to plastic often aren't strong enough for certification.



Appendices

Appendix 1:

MMU's Carbon Footprint of Food: Source data

This activity is extracted from a complete set of Carbon Literacy training materials & accompanying trainer guide created by R Dunk & J Mörk, Manchester Metropolitan University. This work is licensed under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License ([CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)). Please let us know how you are using these materials by emailing us at carbonliteracy@mmu.ac.uk.

Carbon Footprint Data

The carbon footprint data for the Protein Foods is from the following paper:

Poore, J., Nemecek, T., (2018). Reducing food's environmental impacts through producers and consumers. *Science*, 360(6392), pp. 987-992. DOI: 10.1126/science.aag0216

If you have access to Science Magazine, you can find the article here:

<https://science.sciencemag.org/content/360/6392/987>

If you don't have access to Science Magazine, you can access a copy of the accepted manuscript on the University of Oxford's website here: <https://ora.ox.ac.uk/objects/uuid:b0b53649-5e93-4415-bf07-6b0b1227172f>

Portion Sizes & Nutritional Data

Portion sizes shown on the Food Protein cards are for raw weights and are from either the British Nutrition Foundation (<https://www.nutrition.org.uk/healthyliving/find-your-balance/>) or the British Dietetic Association (Association of UK Dieticians) (<https://www.bda.uk.com/resource/food-facts-portion-sizes.html>).

The nutritional data (calorific and protein content) are median values from the USDA National Nutrient Database (2015) as reported in Clune et al. (2017). The USDA National Nutrient Database is now part of FoodData Central: <https://fdc.nal.usda.gov/index.html>

Calculation and Comparison to Other Studies

The conversion of the Poore & Nemecek (2018) carbon footprint data to kgCO₂e per portion is set out in the spreadsheet "**Footprint of Food Game.xlsx**" provided as supporting material in the Trainer Portfolio. This spreadsheet also includes footprints from a second paper:

Clune, S., Crossin, E., Verghese, K., (2017). Systematic review of greenhouse gas emissions for different fresh food categories. *Journal of Cleaner Production*, 140, pp. 766-783. DOI:

10.1016/j.jclepro.2016.04.082

The difference in the values between the two studies reflects different data sets and boundary conditions (Poore & Nemecek (2018) include emissions from land-use change) and data sets. However, the conclusions remain the same. Red meats from ruminant animals have a significantly higher footprint than pink/white meat, and plant-based foods have a lower footprint than animal based foods.

Note that Clune et al. (2017) report much more comparable footprints for beef and lamb – most likely



because land-use change is not fully reflected in their data set.

Some participants may ask about buying British beef or lamb and if this reduces the footprint. It does compared to the global average (see Clune et al. (2017) data) – but it is still higher than that of pork or chicken.

Note that prawns (not included in the core game - but a card for them is provided in the expansion pack) have a high footprint (higher than fish/pork/poultry) due to deforestation of mangroves.