

Entry board

How confident are you in talking about carbon and climate change?

Pop your sticker on the chart

Why is it important for us to be able to talk about carbon?







Housekeeping



















Any concerns?







Name as you would like to be known...

Business area...

Entry board - How confident are you in talking about carbon and climate change? Why is it important?









Impacts of climate change







Climate science

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21. CMP11

Targets and policies



Your personal carbon footprint



TfL's influence on carbon



Actions for you to reduce carbon at TfL



Agenda



Morning



Module 1 Climate Change

- What has caused the climate to change
- How is the climate changing
- The impacts of climate change
- Equity & Vulnerability

Hard facts



- The Policy Position
- What is a carbon footprint



Progress

Afternoon



Module 3 TfL

- Breakdown of TfL's carbon impact
- Strategies and tools to tackle carbon
- What can your business area do?

Inspiration



Module 4 **Taking action**

- Action planning make your carbon pledge
- Talking about climate change

Solutions



What is Carbon Literacy?

"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."

Carbon Literacy Project



30,080 citizens certified

60,160 actions pledged

108,082t
carbon
saved



322 Courses designed \(\)

1 Sectors



2,535
organisations
engaged

Carbon Literate Organisations

nations 15 delivering











Sample Organisation



Sample Name

has met all the requirements of the Carbon Literacy Standard and thus for the purposes of workplace, education and community should be regarded as Carbon Literate.



signed



All Abbas, Chair, on behalf of The Carbon Literacy Trust.
Registered Charity Number 1156722



date certificate no.

30th March 2014

00000000 / v1.05



cooler











SIEMENS



















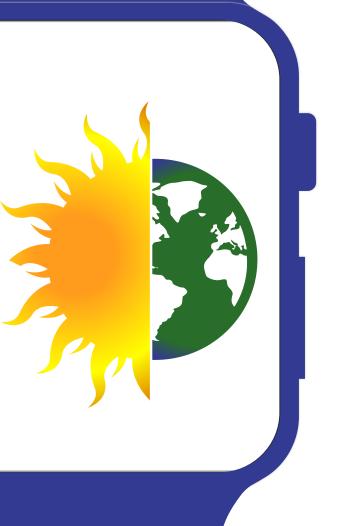












Module 1 Climate Change

- What has caused the climate to change
- How is the climate changing
- The impacts of climate change
- Equity & Vulnerability

Weather vs. climate

Weather
Consists of the short-term
(minutes to months)
changes in the atmosphere
(temperature, precipitation,

cloudiness etc).

Climate

Describes what the average weather is like over long periods of time (~ 30 years) in a particular area.



The Carbon Cycle





The Greenhouse Effect

Some solar radiation is reflected by the Earth and the atmosphere.

Some of the infrared radiation passes through the atmosphere. Some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the Earth's surface and the lower atmosphere.

Most radiation is absorbed by the Earth's surface and warms it.

Atmosphere

Earth's surface

Infrared radiation is emitted by the Earth's surface.

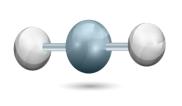




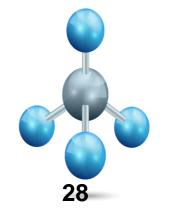
Greenhouse gas Carbon Dioxide Methane (CH_4) Nitrous Oxide (N_2O) F Gases (various) (CO_2)

Structure

Global warming potential



1



265



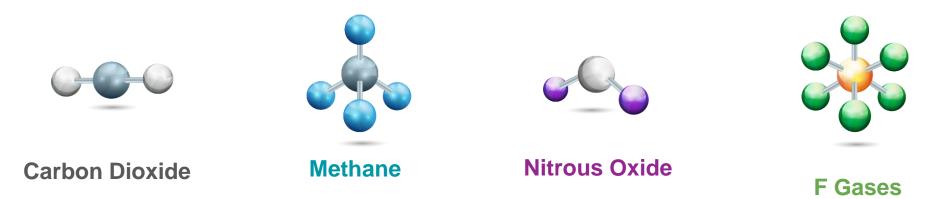


'Carbon' is often used as shorthand for the impact of all greenhouse gases. It is quantified as tonnes of carbon dioxide equivalent (tCO2e)



Activity: Which activity releases which greenhouse gas?

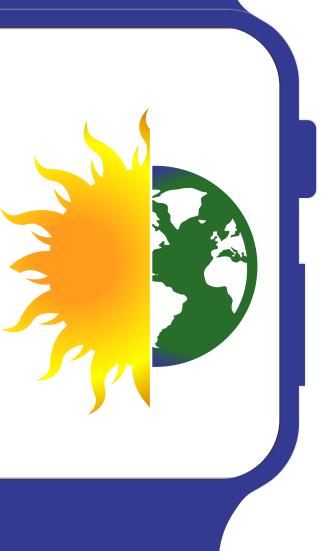
Match the greenhouse gases with their sources











Module 1 Climate Change

- What has caused the climate to change
- How is the climate changing
- "let's follow the science & look at the data"
- The impacts of climate change
- Equity & Vulnerability

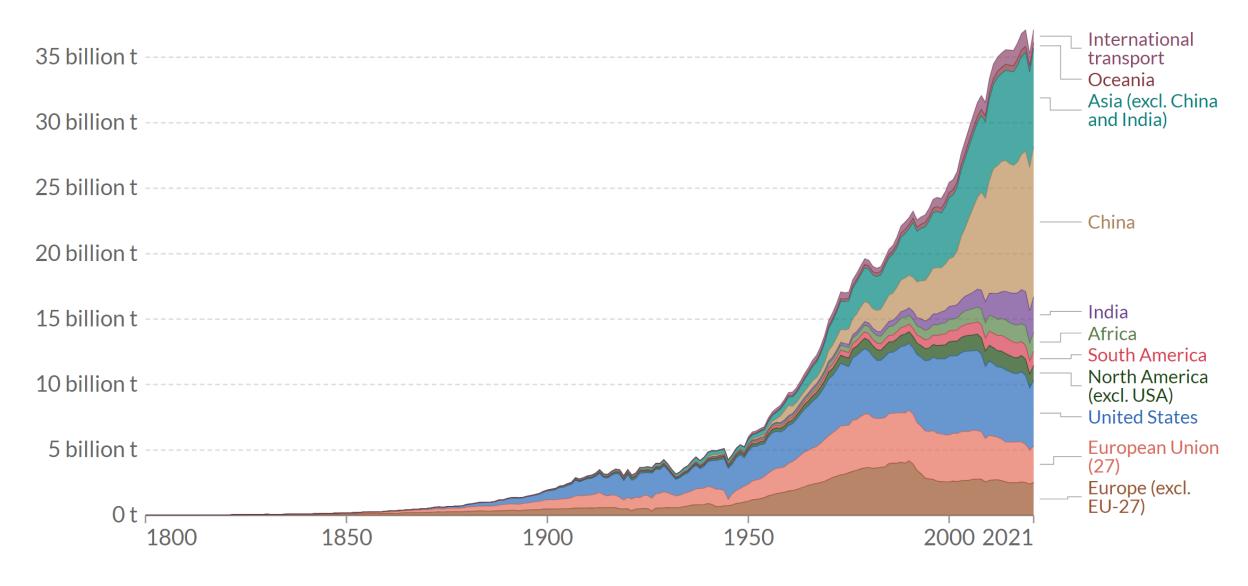
CHANGING OUR ATMOSPHERE

800,000 Years of Carbon Dioxide

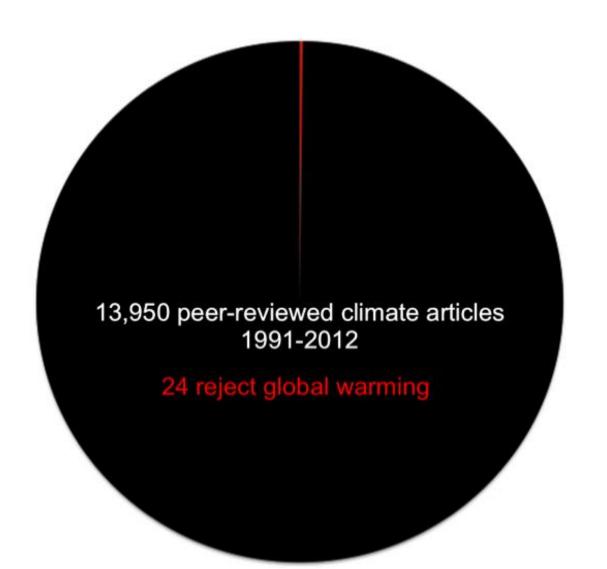


Annual emissions by world region



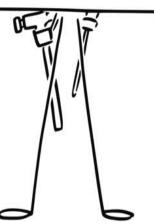


The scientific consensus on climate change...





'If 13,950 highway engineers told you that a bridge wasn't safe to cross, but 24 told you it was fine, would you still cross that bridge?'





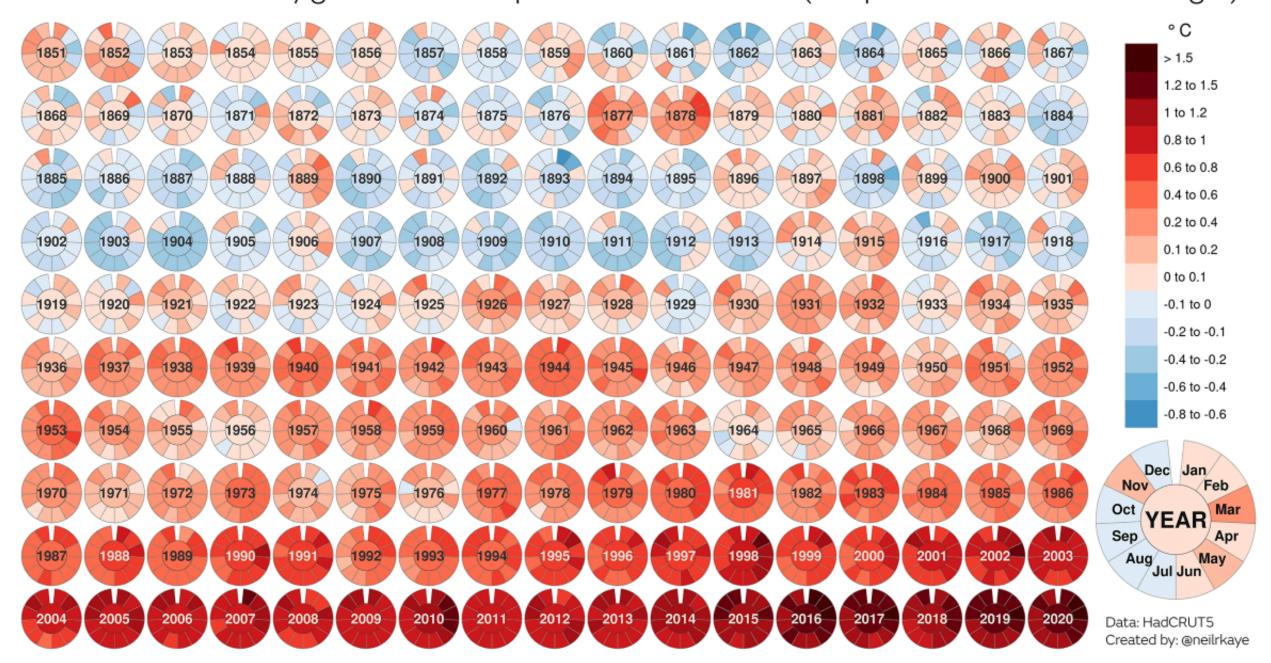
Temperature Anomalies by Country Years 1880 - 2017

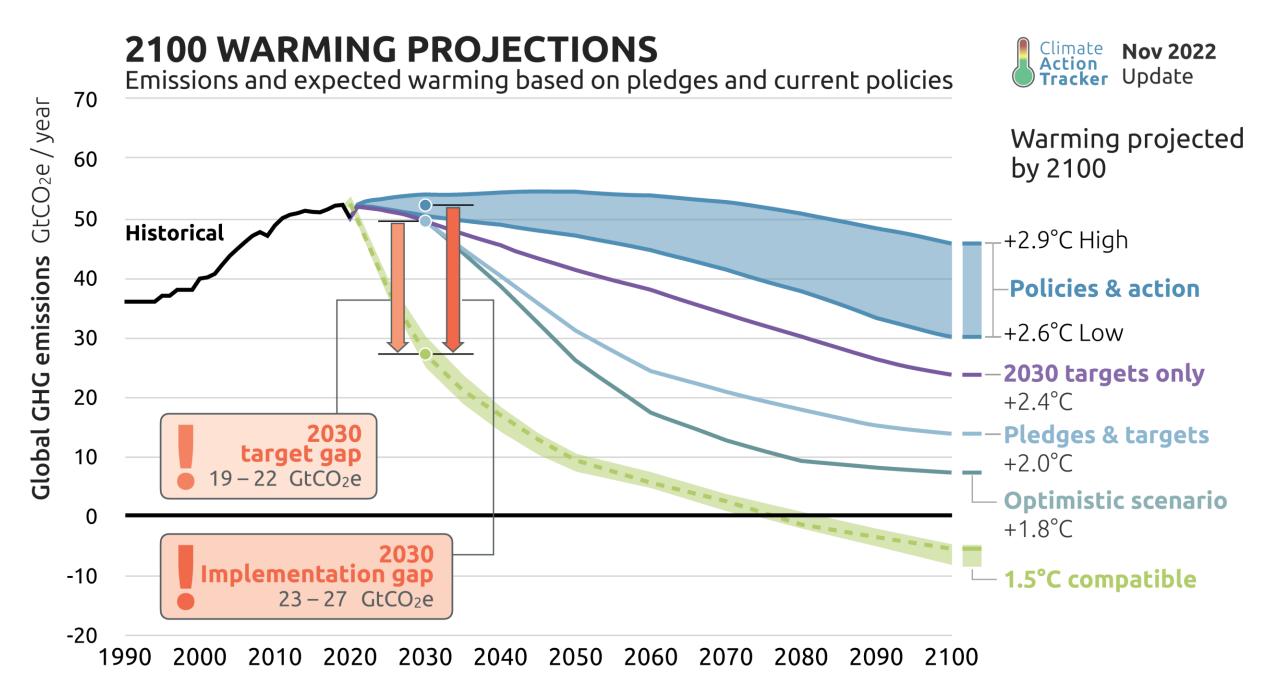




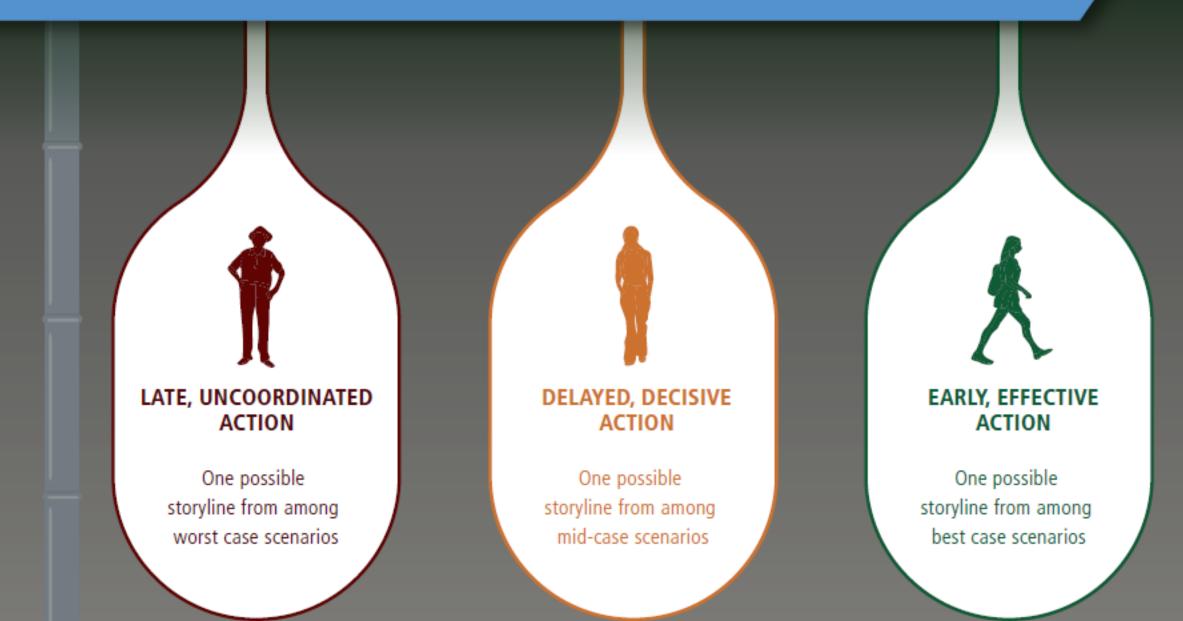
Afghanistan	Albania	Algeria	An <mark>do</mark> rra	Angola	Antarctica	Argentina	Armenia	Australia	Austria	Azerbaijan	Bahamas, The	Bahrain	Bangladesh	Barbados	Belarus
Belize	Benin	Bhutan	Bolivia	Bosnia and H.	Botswana	Brazil	Brunei	Bulgaria	Burkina Faso	Burundi	Cab <mark>o Ve</mark> rde	Cambodia	Cameroon	Canada Cent	ral African Rep.
Chad	Chile	China	Colombia	Comoros	Congo, DR	Congo, R	Costa Rica	Croatia	Cuba	Cyprus	Cz <mark>ec</mark> hia	Côte d'Ivoire	Denmark	Djibouti	Dominica
Dominican Republ	ic Ecuador	Egypt, Arab Rep.	El Salvador E	Equatorial Guine	a Eritrea	Estonia	eSwatini	Ethiopia	Fiji	Finland	France	Gabon	Gambia, The	Georgia	Germany
Ghana	Greece	Grenada	Guatemala	Guinea	Guinea-Bissa	Guyana	Haiti	Honduras	Hungary	Iceland	India	Indonesia	Iran, Islamic Rep.	Iraq	Ireland
Israel	Italy	Ja <mark>mai</mark> ca	Japan	Jordan	Kazakhstan	Kenya	Kiribati	Korea, DPR	Korea	Kosovo	Kuwait	Kyrgy <mark>z Rep</mark> ubl	ic Lao PDR	Latvia	Lebanon
Lesotho	Liberia	Libya	Liechtenstein	Lithuania	Luxembourg	Macedonia, FYR	Madagascar	Malawi	Malaysia	Maldives	Mali	Malta	Marshall Islands	Mauritania	Mauritius
Mexico	Micronesia	Moldova	Monaco	Mongolia	Montenegro	Morocco	Mozambique	Myanmar	Namibia	Nauru	Nepal	Netherlands	New Zealand	Nicaragua	Niger
Nigeria	Norway	Oman	Pakistan	Palau	Panama	Papua New Guine	a Paraguay	Peru	Philippines	Poland	Portugal	Qatar	Romania	Russia	Rwanda
Samoa	San Marino	Sao Tome and P.	Saudi Arabia	Senegal	Seychelles	Sierra Leone	Singapore	Slovak Republic	Slovenia	Solomon Islands	Somalia	South Africa	South Sudan	Spain	Sri Lanka
St. Kitts and Nevi	St. Lucia	St. V. and the G.	Sudan	Suriname	Sweden	Switzerland	Syria	Taiwan	Taji <mark>kis</mark> tan	Thailand	Timor-Leste	Togo	Tonga Tri	nidad and Tobago	Tunisia
Turkey	Turkmenistar	n Tu <mark>val</mark> u	Uganda	Ukraine Uni	ted Arab Emi	rates Uruguay	USA	Uzbekistan	Vanuatu	Venezuela, RB	Vietnam	Yemen, Rep.	Zambia	Zimbabwe	

Met Office Monthly global mean temperature 1851 to 2020 (compared to 1850-1900 averages)





THERE IS NO SINGLE '1.5°C WARMER WORLD', BUT SOME PATHS DIVERGE MORE FROM THE WORLD AS WE KNOW IT TODAY



Late, uncoordinated action



Inflation, food security



Mass migration



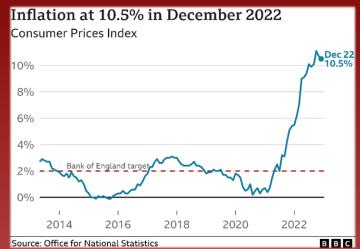






Multiple major conflicts







Delayed, decisive action



Inflation, food security

UK food inflation hits 13.3% in December

British Retail Consortium



Migration, forced displacement









Catastrophic storm damage



Early, effective action



Crop yields stabilise



Continued sea level rise







Some ecosystems begin recovery



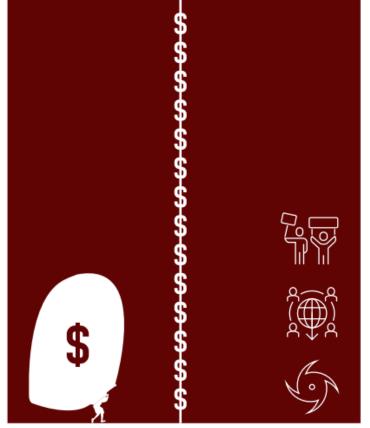




Extreme weather commonplace

AGGREGATE ECONOMIC DAMAGES BY 2100

Substantial, owing to the combined effects of **political instability**, **losses of ecosystem services** and **climate change**



Small, but the loss in ecosystem services due to climate change creates large economic losses



Relatively small, but some local losses associated with extreme weather events





Break





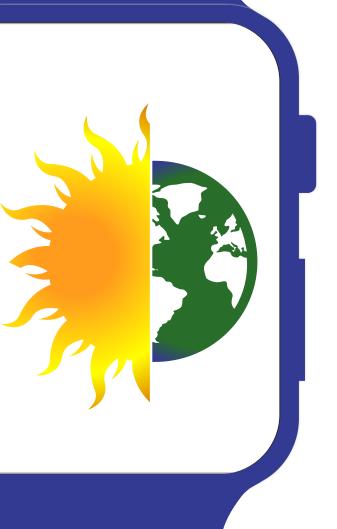


Break video









Module 1 Climate Change

- What has caused the climate to change
- How is the climate changing
- The impacts of climate change
- Equity & Vulnerability



Global impacts





Top 10 Risks





"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period"

2 ye	ears	10 years					
1	Cost of living crisis	1	Failure to mitigate climate change				
2	Natural disasters and extreme weather events	2	Failure of climate-change adaption	\			
3	Geoeconomic confrontation	3	Natural disasters and extreme weather events)			
4	Failure to mitigate climate change	4	Biodiversity loss and ecosystem collapse	,			
5	Erosion of social cohesion and societal polarization	5	Large-scale involuntary migration				
6	Large-scale environmental damage incidents		Natural resource crises				
7	Failure of climate-change adaption	7	Erosion of social cohesion and societal polarization				
8	Widespread cybercrime and cyber insecurity	8	Widespread cybercrime and cyber insecurity				
9	Natural resource crises	9	Geoeconomic confrontation				
10	Large-scale involuntary migration	10	Large-scale environmental damage incidents				





Climate change impacts in the UK





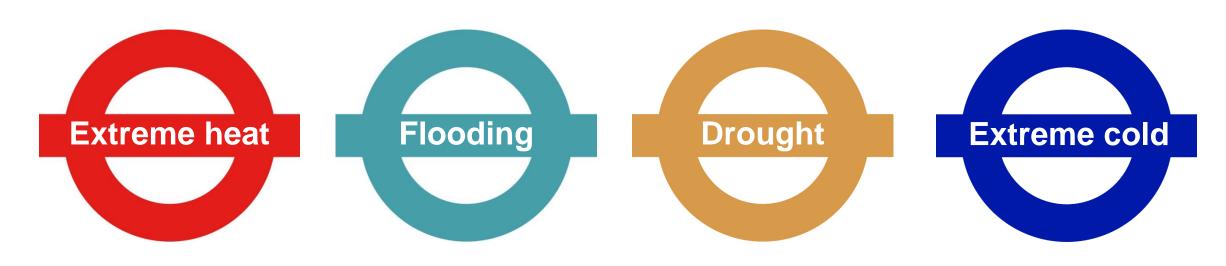
Activity: Local climate change impacts



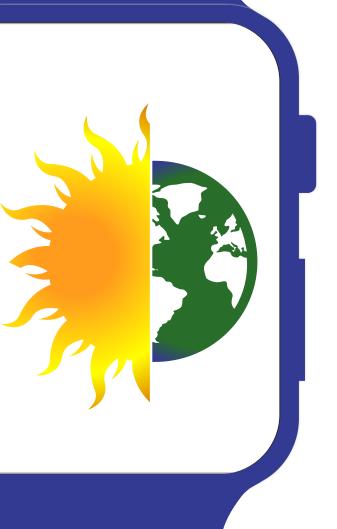
In groups discuss...

How climate change has impacted, or is likely to impact:

- o TfL
- The work of your department







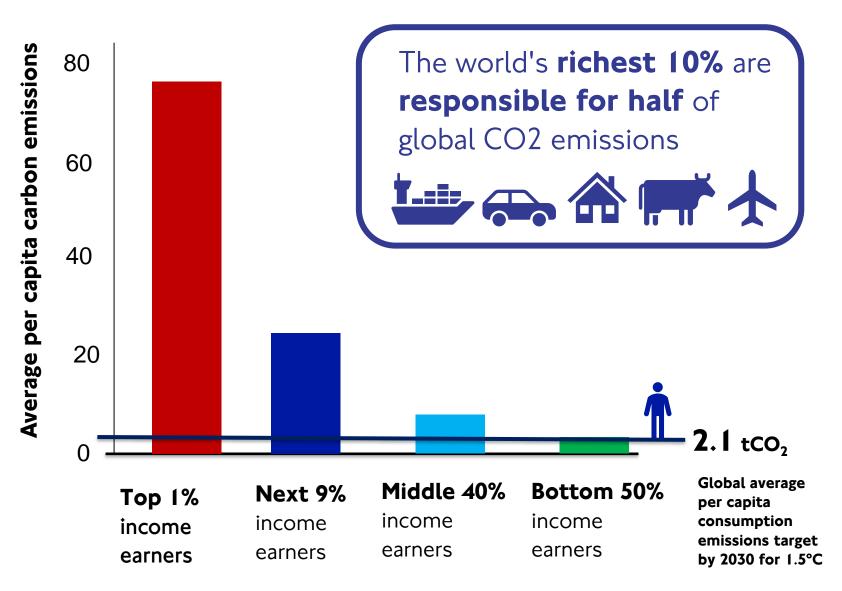
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Equity and vulnerability

Where do you sit in the worldwide income / carbon emissions scale?





Equity and vulnerability in the UK: July 2022, 40°C



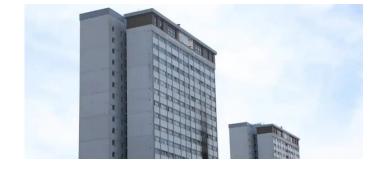


UK heatwave: Health alert issued for England as 'extreme' temperatures pose risk to vulnerable

Look out for others, especially older people, young children and babies and those with underlying health conditions, people are urged



UK people of colour four times more likely to live in areas 'at higher risk from heatwaves'







Government urged to bring in new laws to protect homeless people in heatwaves

Climate change means heatwaves are going to become more frequent and intense but there is no law requiring authorities to protect people on the streets.





Break







Break video



