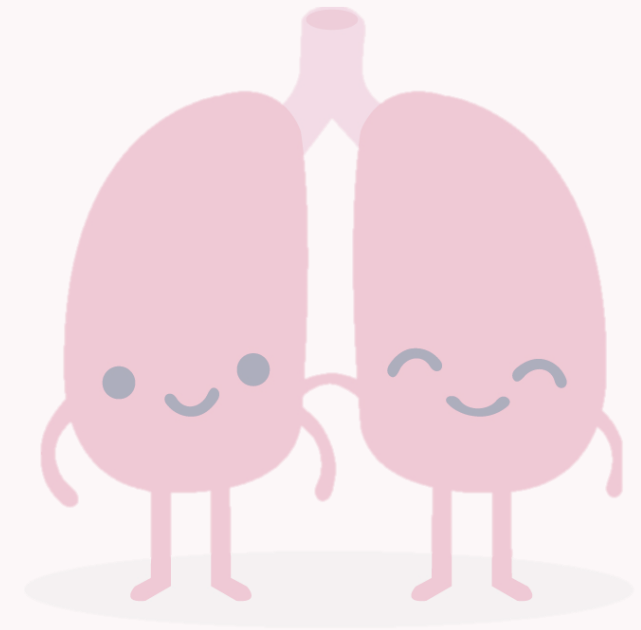


# CHILL

Children's Health in London and Luton



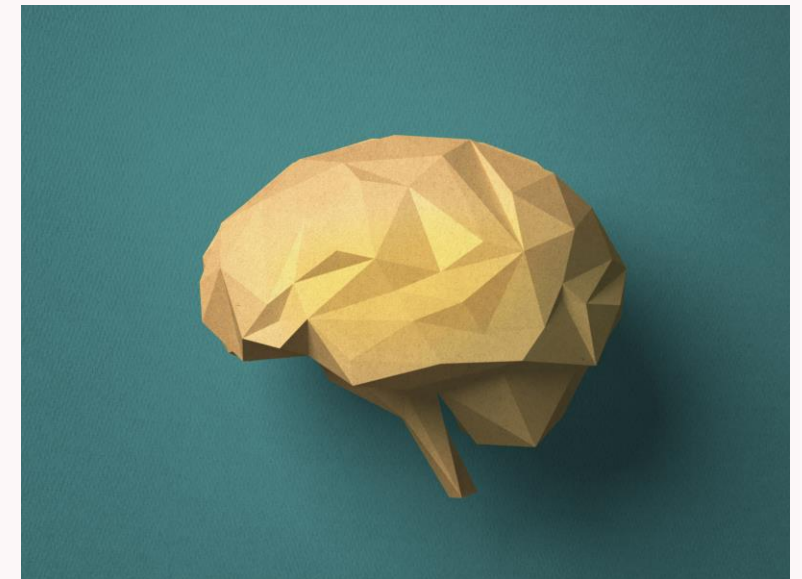


What is air pollution?  
Where does it come from?

# Top polluters



# It can affect...





# What are we doing about it?

# ULEZ

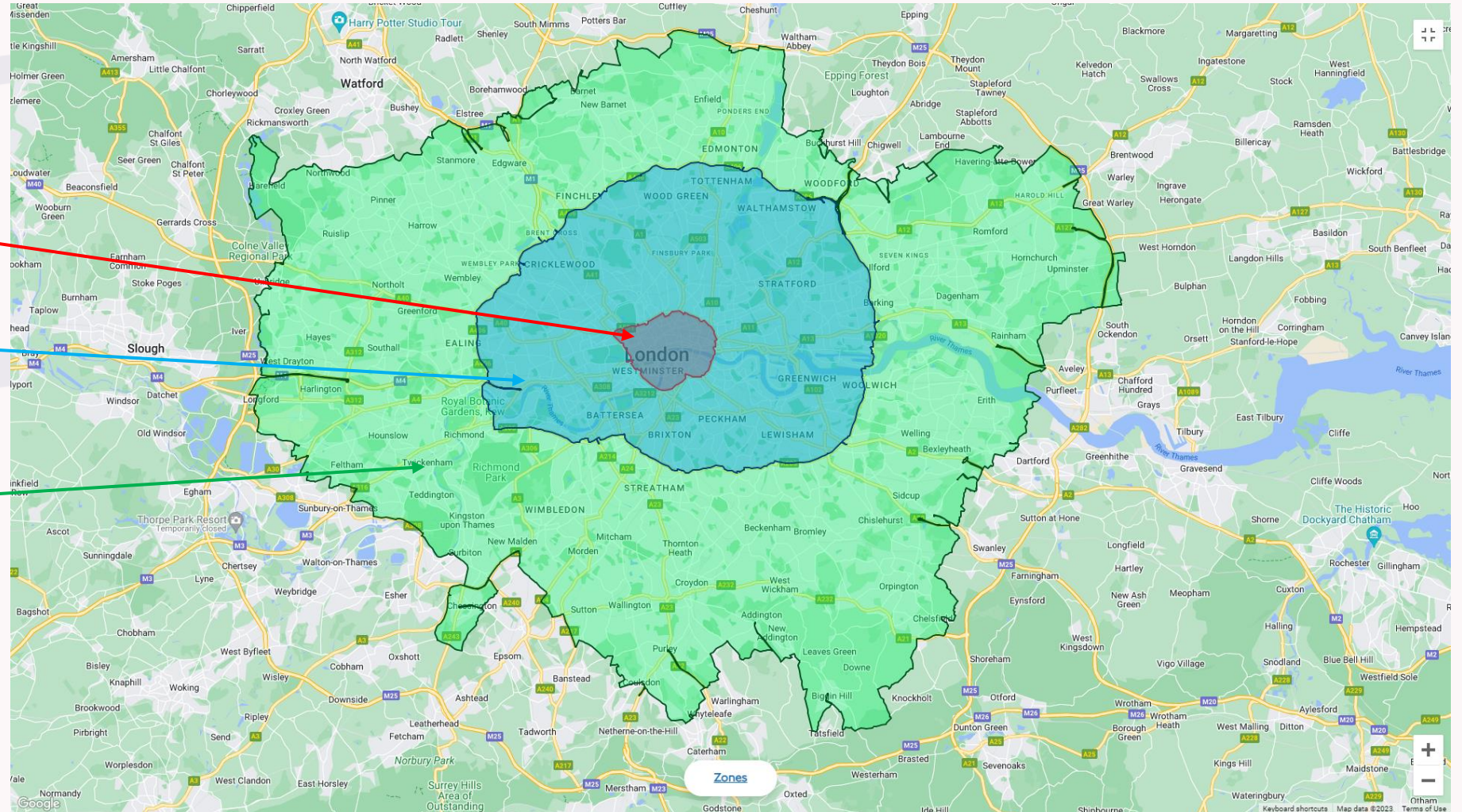
## Ultra Low Emission Zone



Congestion Charge

ULEZ (as of May 2023)

Proposed ULEZ  
expansion from 29  
August 2023



# What is a prototype?



# Build your prototype

- Pick a problem from one of the air pollution problem cards
- Using simple materials to build your prototype

To generate electricity, we burn fossil fuels, creating air pollution. We breathe this air pollution in which is harmful to us.

What other sources of renewable energy can be used to produce electricity?

Where could you put these electricity generating machines?



On average, there are 67 million car trips taken a day in the UK! These car trips give off lots of air pollution that is harmful to humans and traps hot air in our atmosphere.

Are you able to think of a way to capture the air pollution from cars and dispose of it safely?



Trees absorb and store carbon dioxide and create oxygen! Around the world, trees are being cut down for buildings and cities like London and Luton.

Without removing buildings, can you think of a way to keep trees and plants in our cities?



Humans eat a lot of meat and drink a lot of milk. The cattle used for meat and milk fart and burp a lot! Their farts and burps are made up of a gas called methane which contribute to the greenhouse effect.

How would you capture and get rid of the methane?



# Prototype your solution!





### 3D printed meat

Scientists are finding ways to create meat without the massive production of air pollution from breeding cattle.

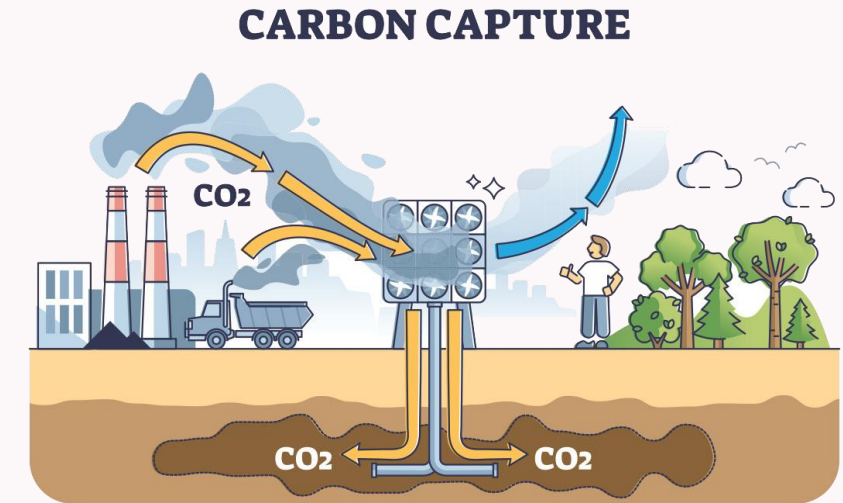
3D printers are typically used to quickly print prototypes using plastic but many scientists are investigating how to use 3D printing to create a piece of meat!



### Tyre pollution

It is widely known that cars produce many different pollutants from its exhaust but did you know rubber wearing away from driving on the road is also polluting the air?

The Tyre Collective have created an ingenious way of using electricity to capture the tiny particles coming from the tyres of vehicles!



### Carbon Capture & Storage

Scientists all over the world are looking at different ways to reduce the CO<sub>2</sub> in our atmosphere. Recently, scientists have begun building and testing these devices by sucking in the air around us and separating the carbon dioxide, turning it to a solid and storing it deep underground.

This technology is so new that it removes less than 0.5% of the total CO<sub>2</sub> humans currently produce!





### Cattle methane storage

Some scientists are even trying to stop methane at the source!

This cow is trialling a methane capturing bag that collects the cows' farts! Once full, it needs to be emptied and replaced with a new bag.



### Hydrogen fuel

Currently, most vehicles use petrol or diesel; however scientists around the world are looking for different sources of energy to replace the fossil fuels.

Hydrogen is the most energy dense fuel source by weight. It has about three times as much energy as the petrol we use in our cars! Some vehicle manufacturers are developing cars that run on liquid hydrogen. The only thing it emits is  $H_2O$ , water!



### Portable air purifiers

Designers around the world are looking at different ways to provide clean air to people.

Dyson are known for making vacuum cleaners and air purification products. They have recently released a portable air purifier with in-built headphones. This is able to provide the user with clean filtered air wherever they are.