



## SESSION 2

Can the right balance be found?



# What does sustainability mean to you?

climate change

organic

carbon footprint

preservation

net-zero

energy efficient

reuse

organic

zero-waste

recycle

eco-friendly

carbon offsets

reduce

conservation

circular economy

biodegradable

deforestation

renewable energy

# Which crop has the largest carbon footprint?



black grapes



green grapes



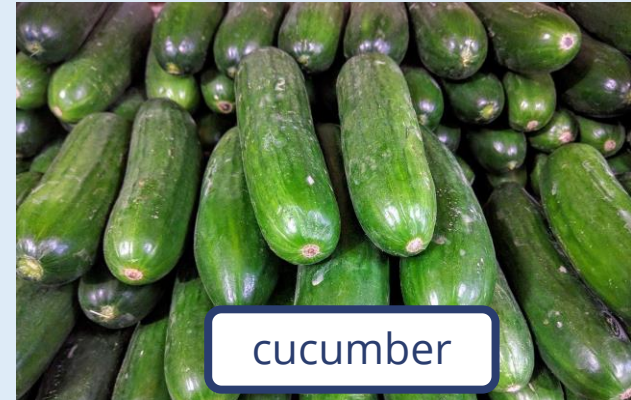
bananas



asparagus

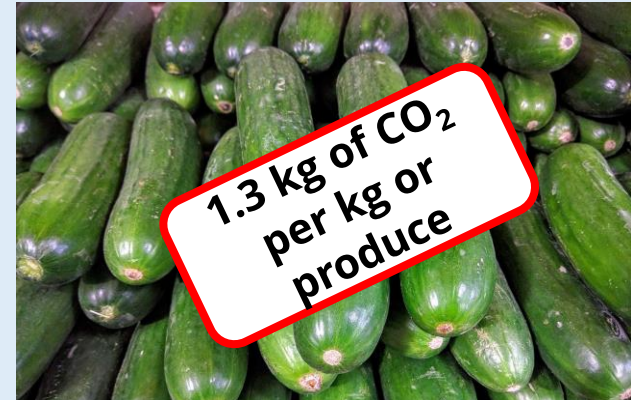
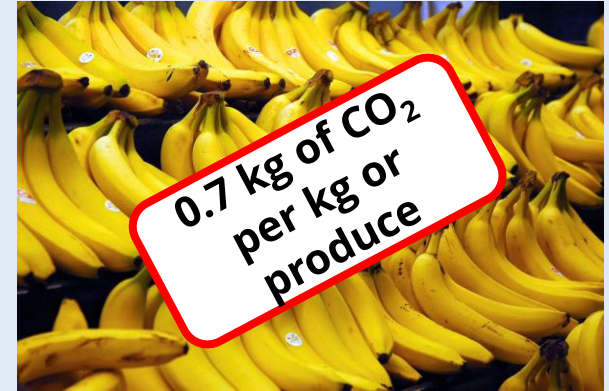
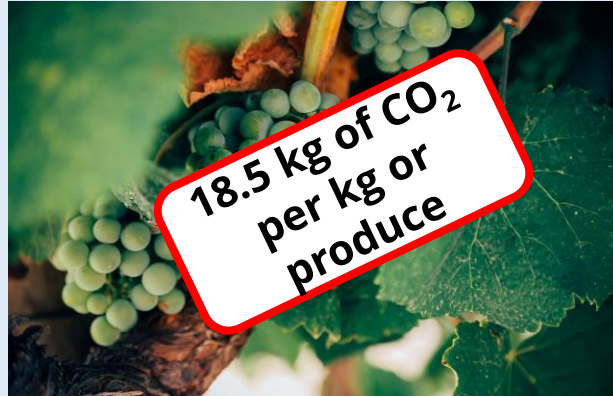
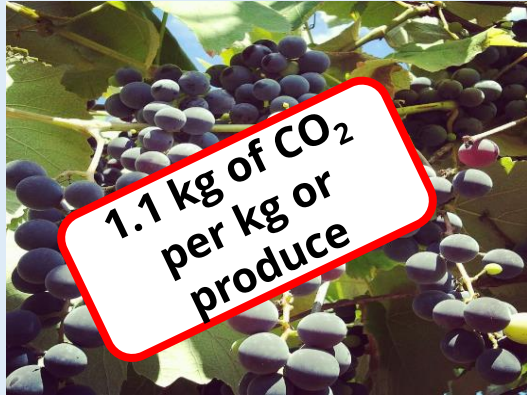


Fresh herbs

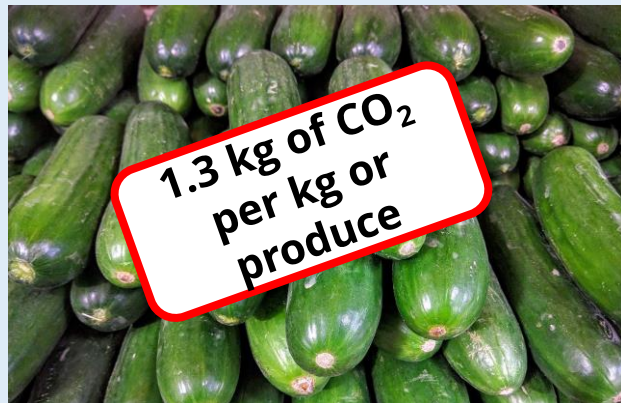


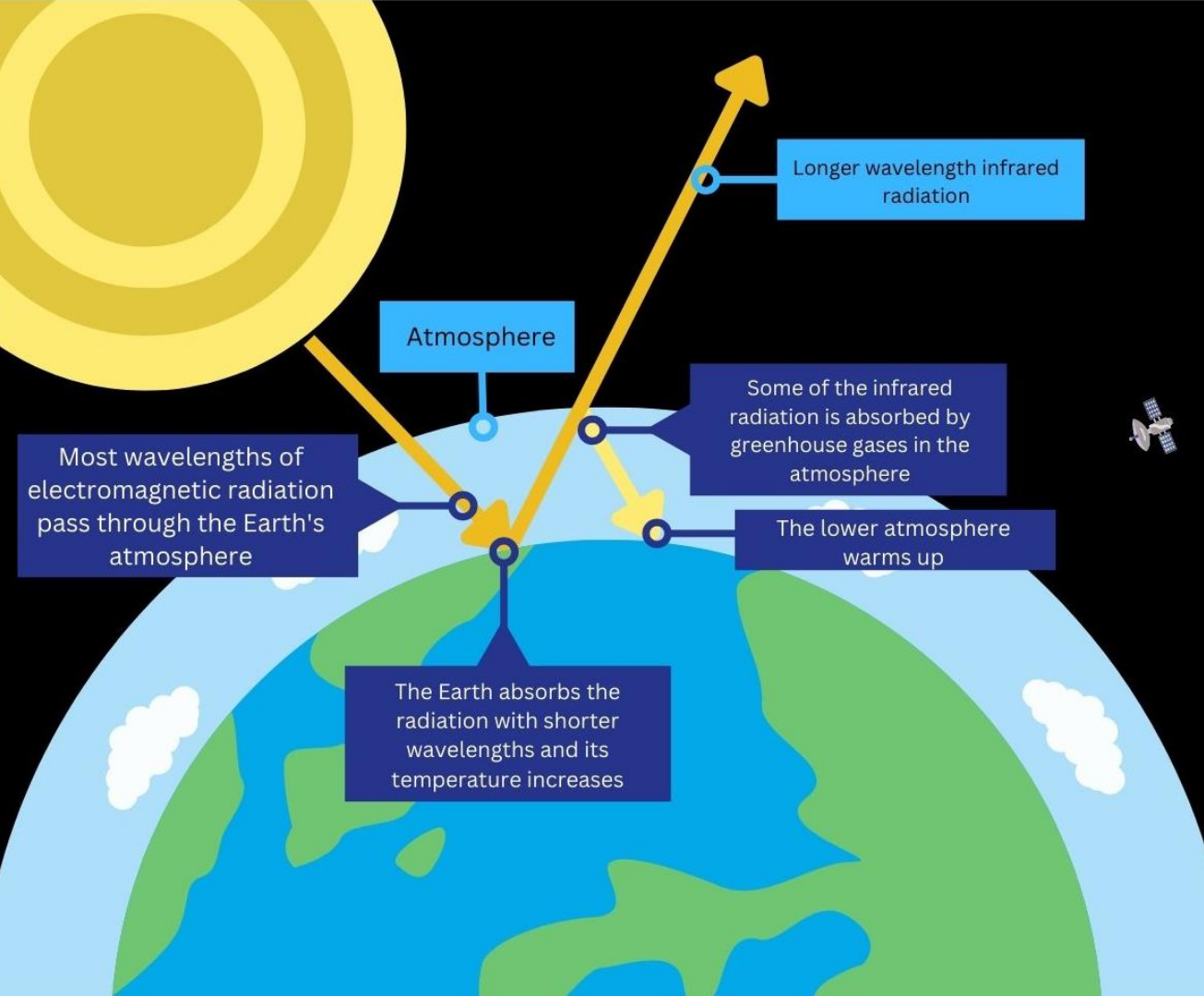
cucumber

# Compare the mass of CO<sub>2</sub> release for each kg of produce.



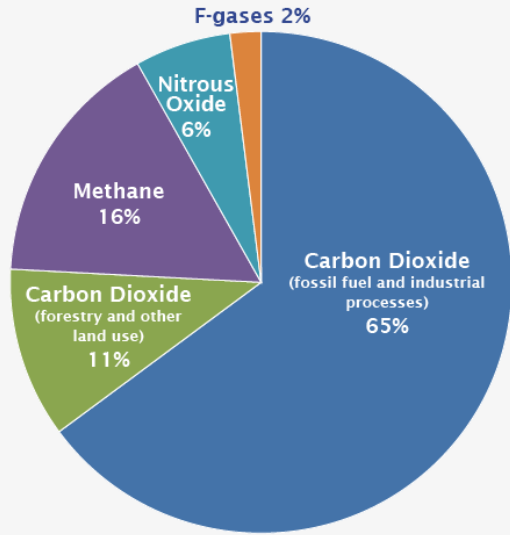
# Why do you think some crops have higher carbon emissions?





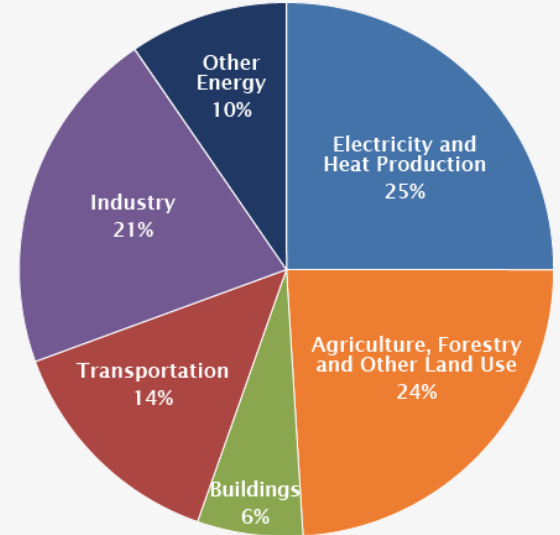
What do you already know about the impact of carbon emissions on our planet?

# What are the greenhouse gases and where do they come from?



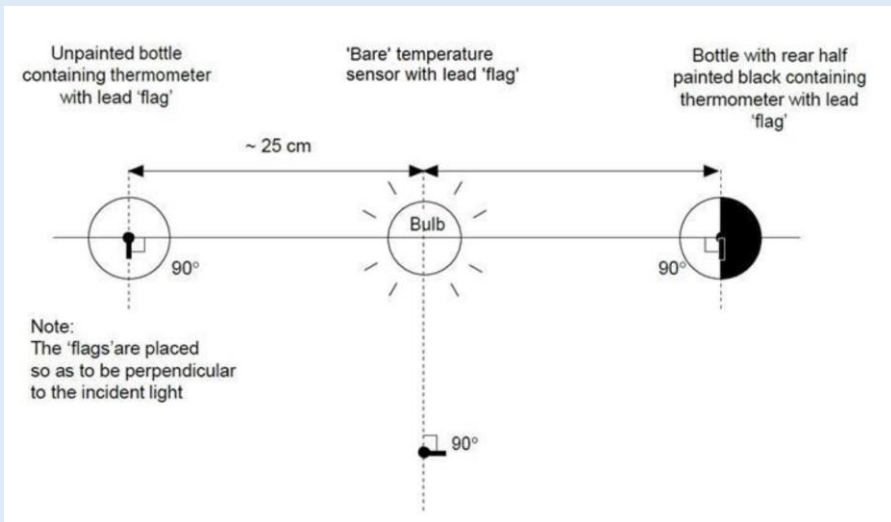
Global greenhouse gas emissions by gas.

The Intergovernmental Panel on Climate Change Special Report on Climate Change and Land (2019) estimates agriculture is directly responsible for **up to 8.5% of all greenhouse gas emissions.**

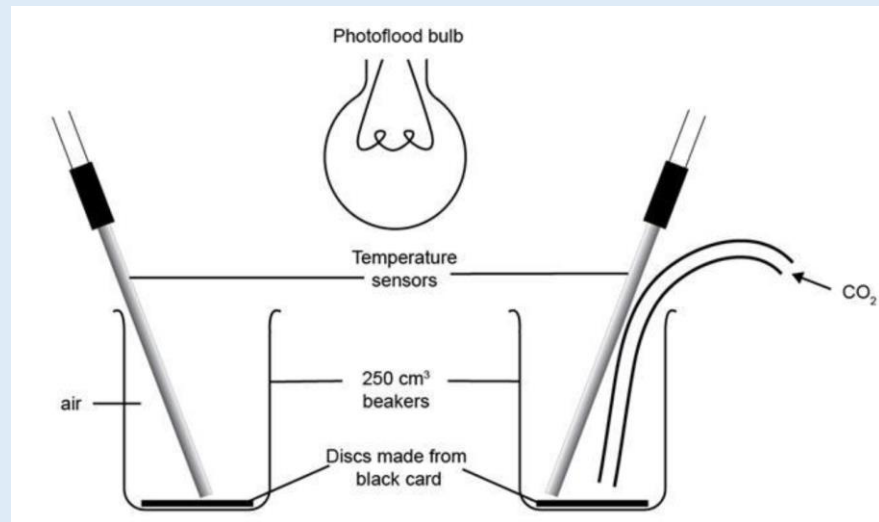


Global greenhouse gas emissions from different sectors.

# Why are carbon emissions a problem for the environment?



Experiment 1



Experiment 2



# Finding a balance

Be more energy efficient to to  
reduce the use of fuels and  
electricity.

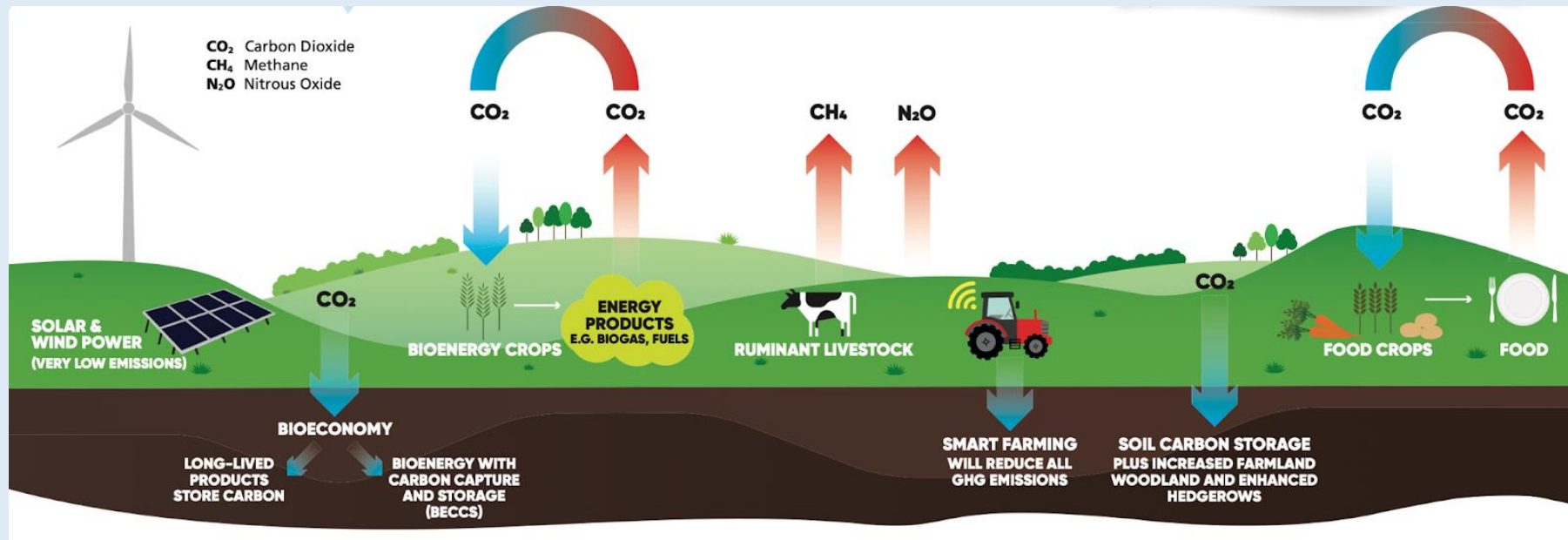
Artificial fertilisers are made under  
high pressure and at very high  
temperatures which requires lots of  
energy that comes from burning

Transportation of food crops  
from farms for processing and  
then on to the consumer.

Manure decomposes releasing  
nitrous oxide and methane  
gases.

Work collaboratively to  
sort the cards into  
activities on farmland  
that **release**  
**greenhouse gases** into  
the atmosphere and  
activities that **remove**  
**greenhouse gases** from  
the atmosphere.

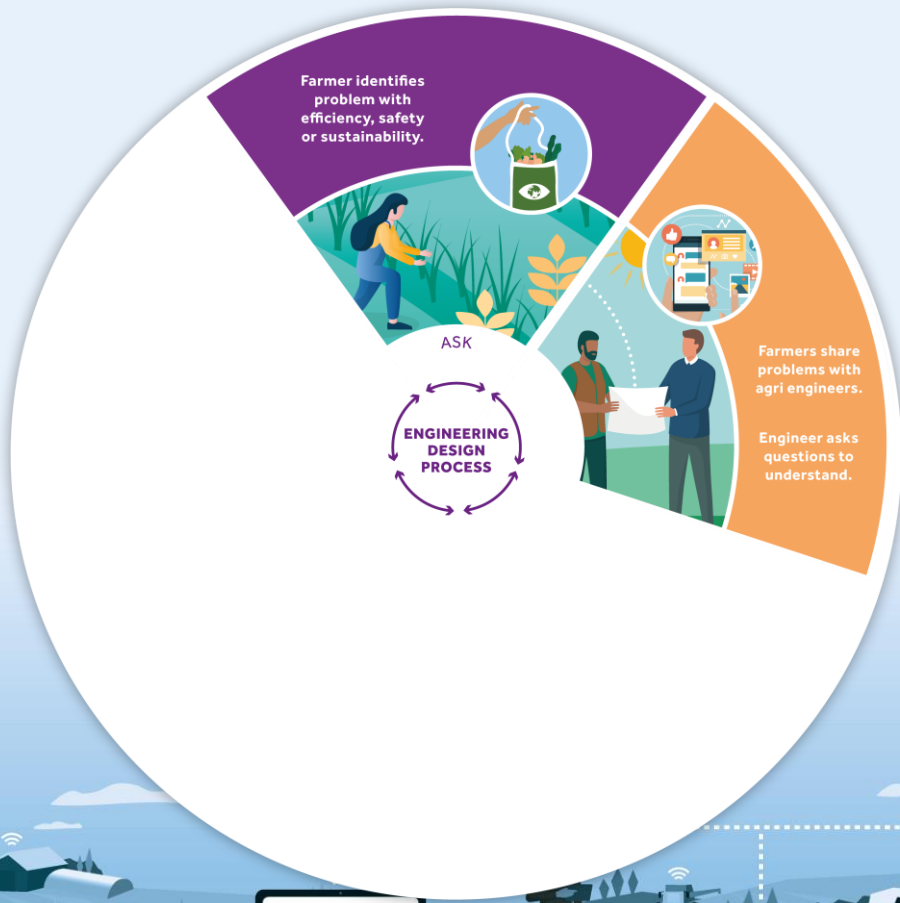
# Finding a balance in the farming environment



## AGRICULTURE

10% of UK Greenhouse Gas Emissions

Circular balanced flows of greenhouse gases



Today we have been working like agricultural engineers by **asking questions** to better understand the problems farmers face in reducing the impact of their farms on the environment.



# SUSTAINABLE FARMS

