What is Climate Change?

LIVING WORLD EDUCATION

Earth Explorers

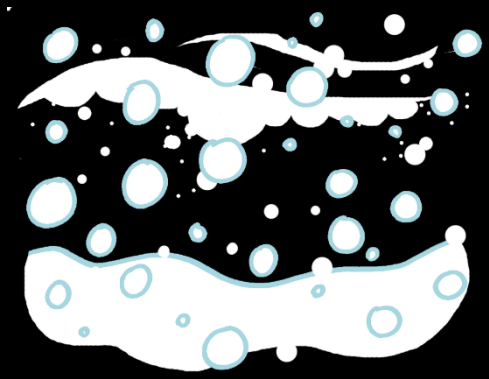
Earth – Our Home

- Our home planet, Earth is very special.
- It has been home to life for 4.5 billion years.
- Earth has naturally changed over time.
- Scientists are very worried our the **climate** of our planet is now changing much faster than it should be.
- ***But what does climate mean?***

What sort of factors make up a climate?

WIND

Direction & strength



RAINFALL or **SNOWFALL**

How much?

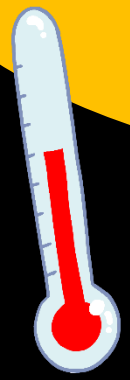
How often?

TEMPERATURE

How hot?

How cold?

Patterns of seasonal changes



SUNLIGHT

How many hours?

How intense?

We may see a variation in these factors, but would expect a pattern to fall within an expected range e.g. A wet year could see a lot of rain for the UK, but this would still be below the expected rain for the Amazon Rainforest, for example.

Weather = the conditions at a specific time

Climate = a long term pattern of conditions

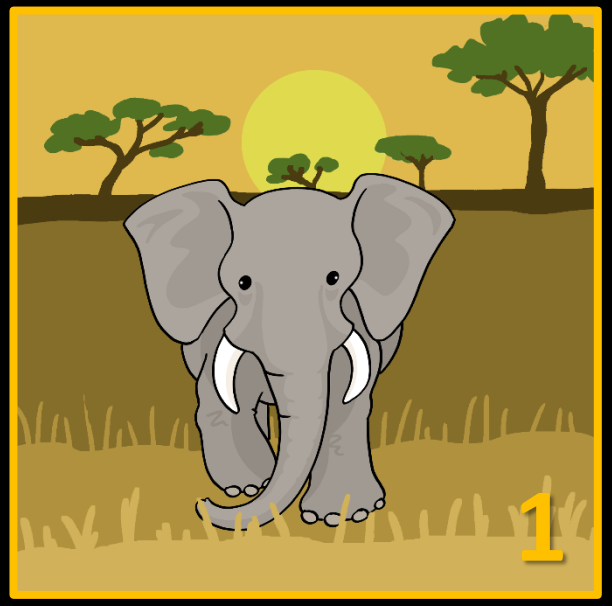
Which fits best?

"I won't go for a walk as the **WEATHER** is terrible!"

"I can't grow bananas as the **CLIMATE** does not suit those plants."

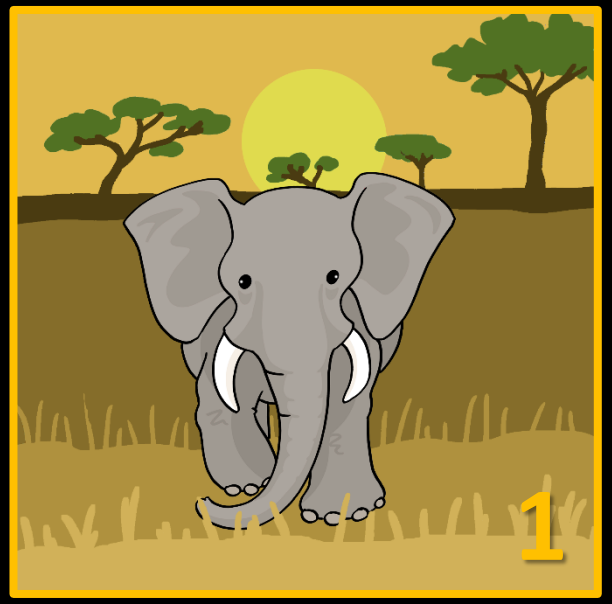
CLIMATE

A long-term pattern of weather conditions expected for an area.



Match each picture to the correct statement about the climate in that area…

- **A** An area with long periods of very cold weather, freezing the seas.
- **B** Hot, with very little rain most of the year with annual wet season.
- **C** Hot with frequent, heavy rainfall, ideal for plant growth.



B Hot, with very little rain most of the year with annual wet season.

e.g. AFRICAN SAVVANAH

A An area with long periods of very cold weather, freezing the seas.

e.g. ARCTIC CIRCLE

C Hot with frequent, heavy rainfall, ideal for plant growth.

e.g. AMAZON RAINFOREST

To understand climate change, we need to understand a couple of key points…

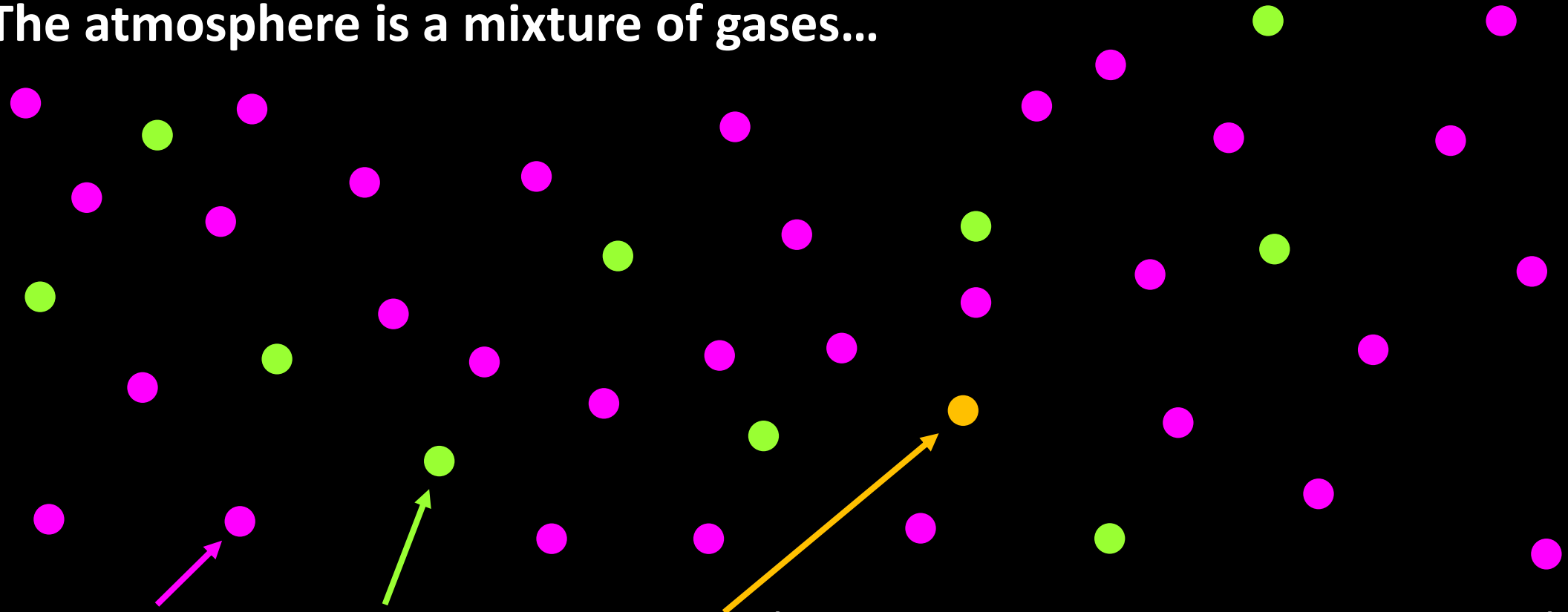
- What is our **atmosphere?**
- What is the **Greenhouse Effect?**

What is our atmosphere?

- Earth is surrounded by a **layer of gases** – the **atmosphere**
- We can see some of the gas as **clouds** (this is **water vapour**)
- These gases wrap around Earth, **held by gravity** in a sphere.

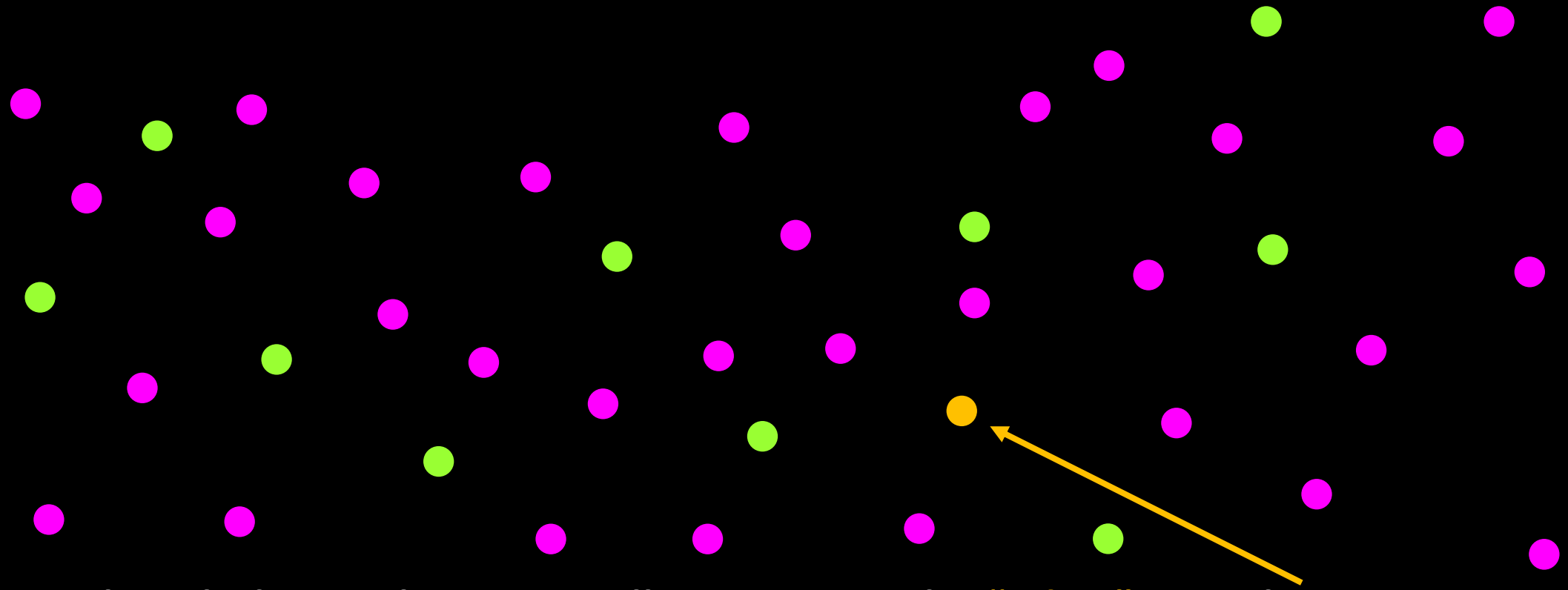
What is in our atmosphere?

The atmosphere is a mixture of gases...



78% Nitrogen, 21% Oxygen and 1% Other gases (inc water vapour, carbon dioxide and methane)

What is in our atmosphere?

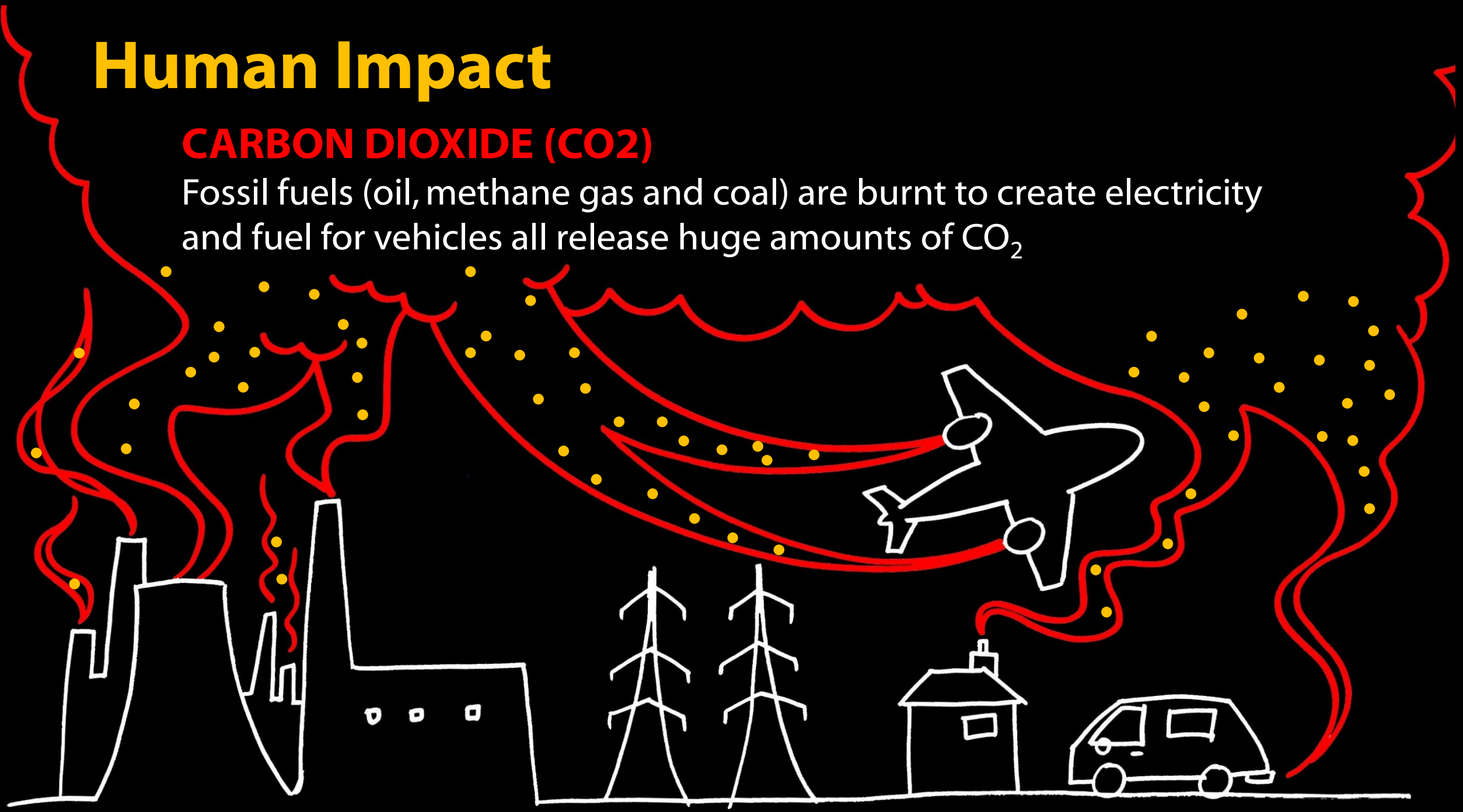


Even though they make up a small percentage, the “other” gases have a massive impact. Humans are changing the amounts of such gases in the atmosphere.

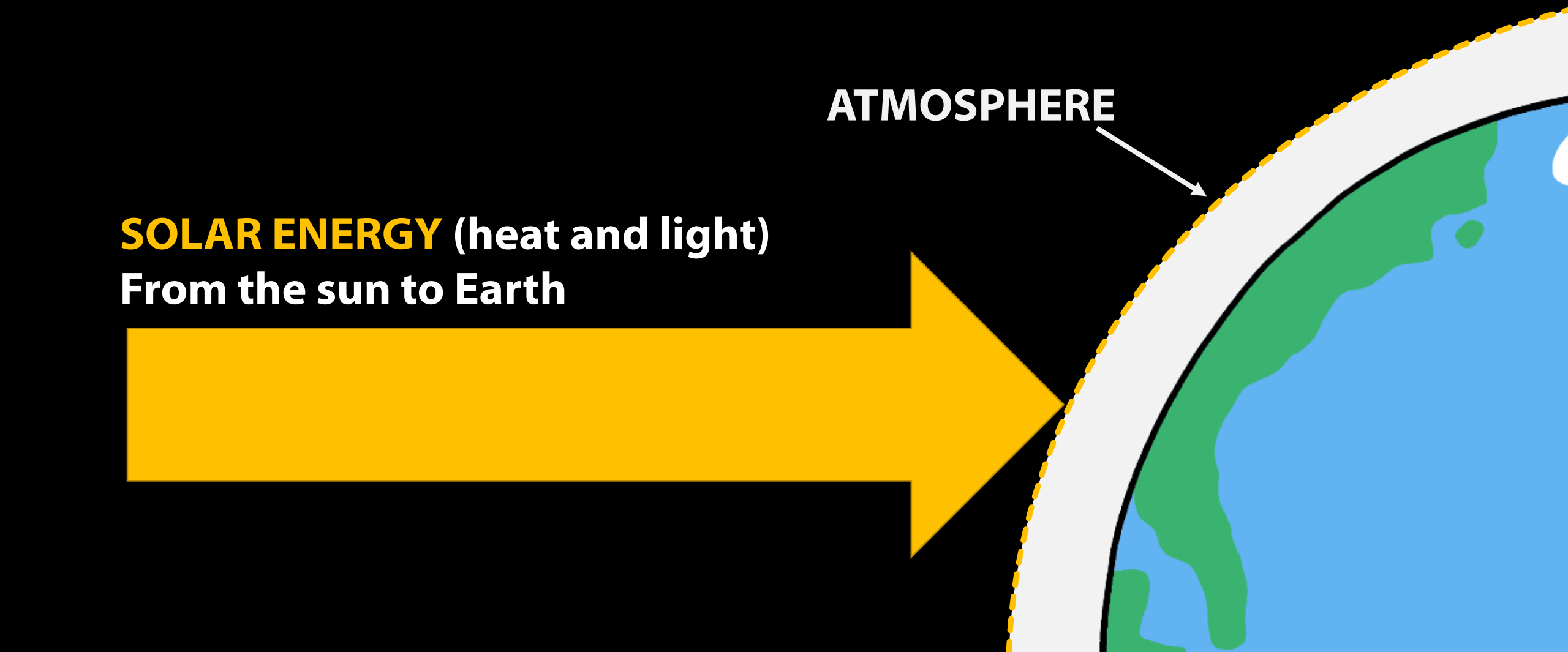
Human Impact

CARBON DIOXIDE (CO2)

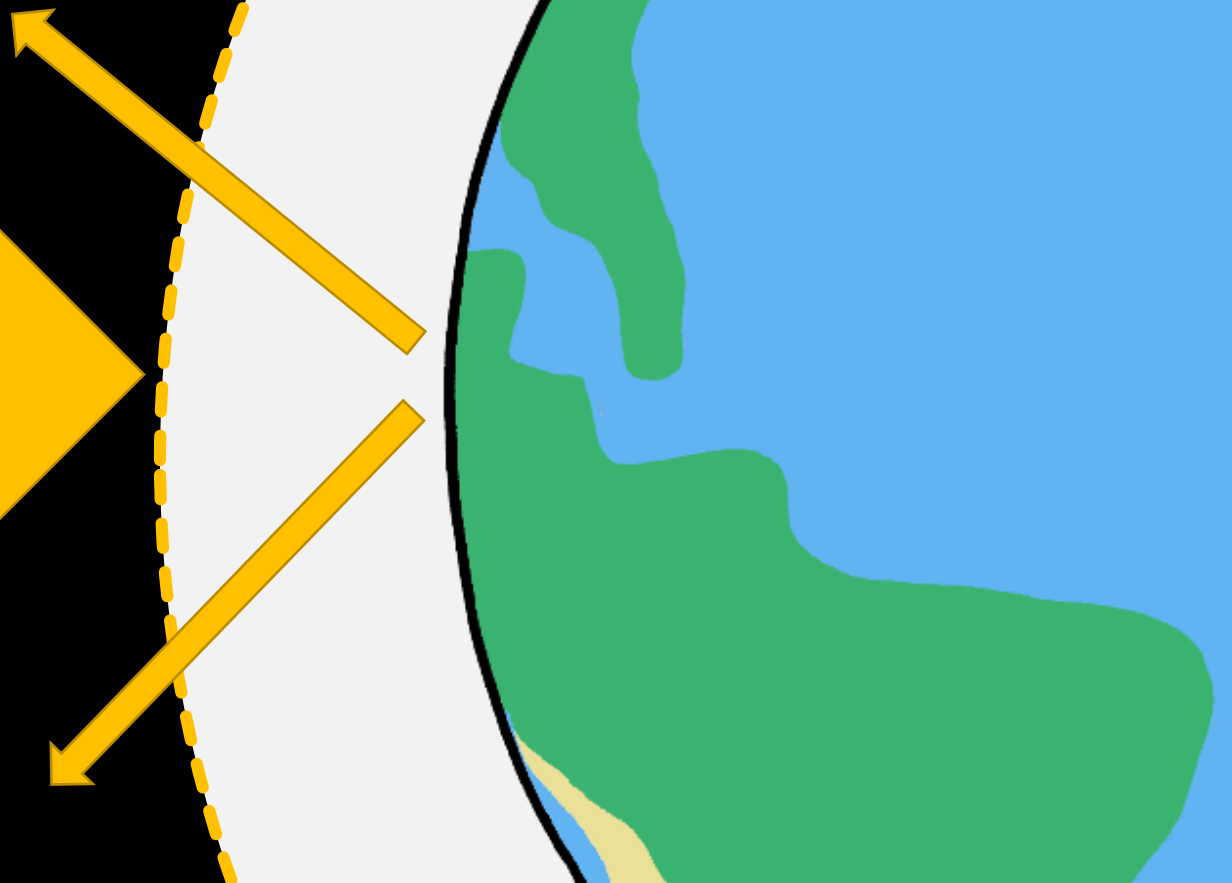
Fossil fuels (oil, methane gas and coal) are burnt to create electricity and fuel for vehicles all release huge amounts of CO_2



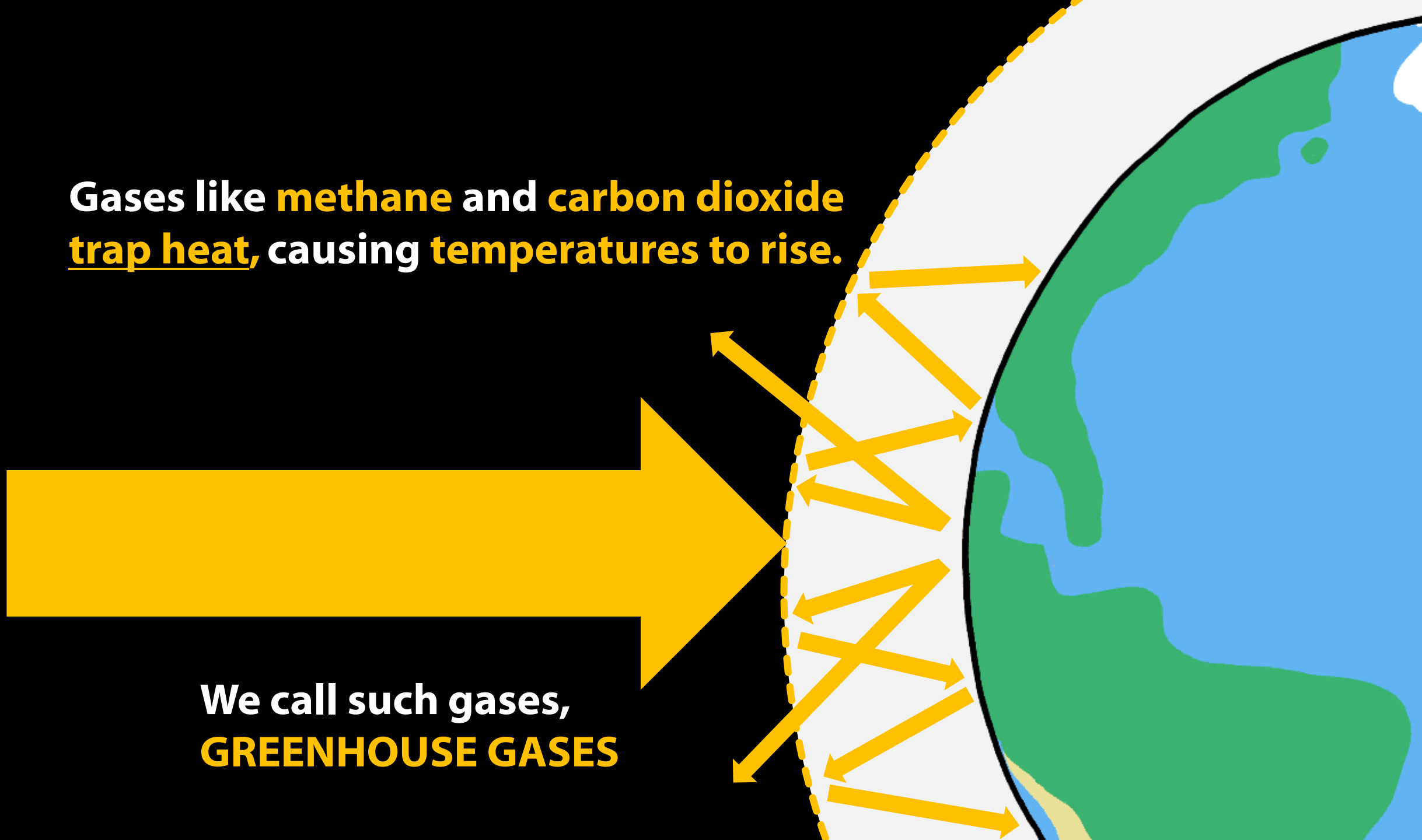
What is the *Greenhouse Effect?*



Some heat energy reflects back into space…

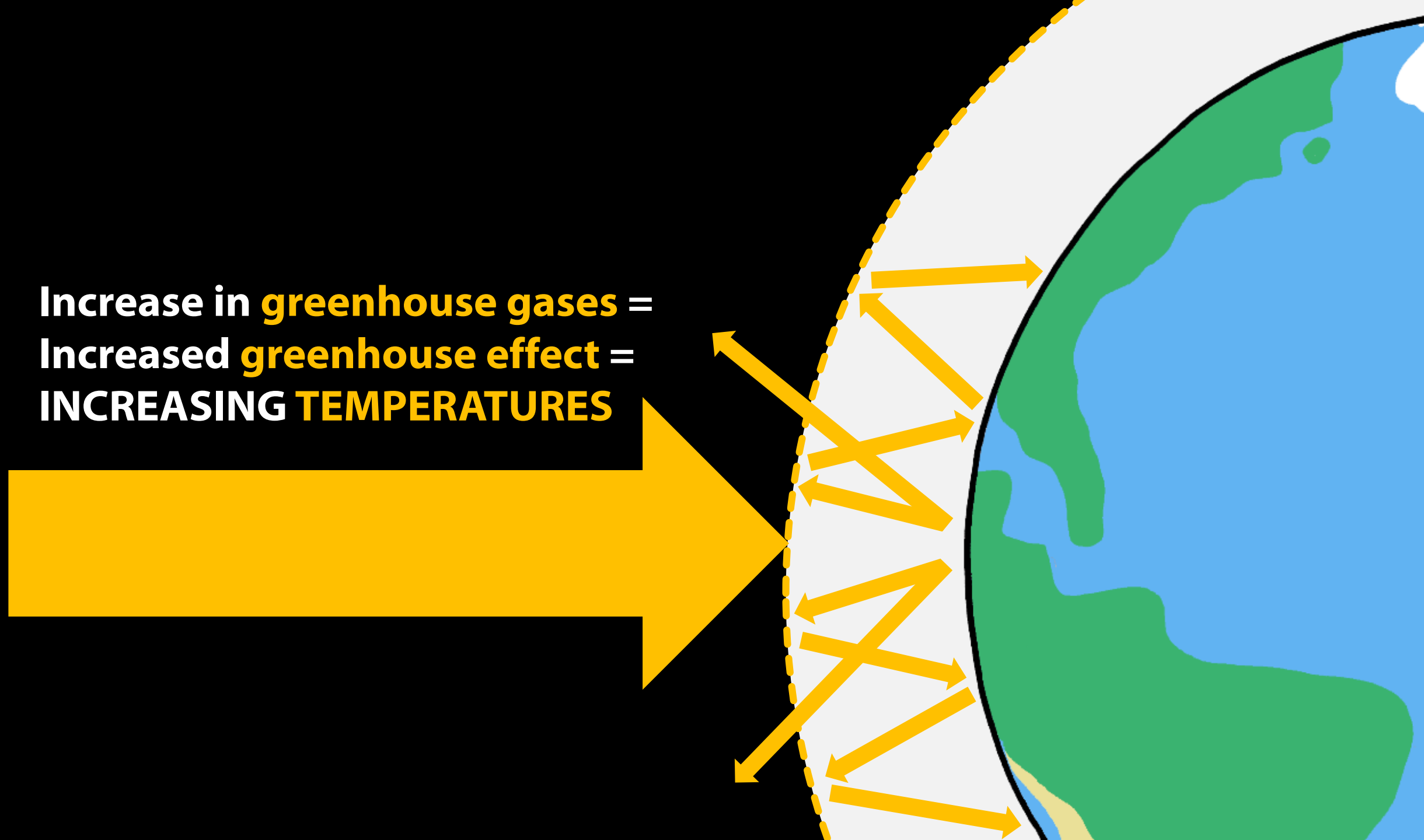


Gases like methane and carbon dioxide trap heat, causing temperatures to rise.



We call such gases,
GREENHOUSE GASES

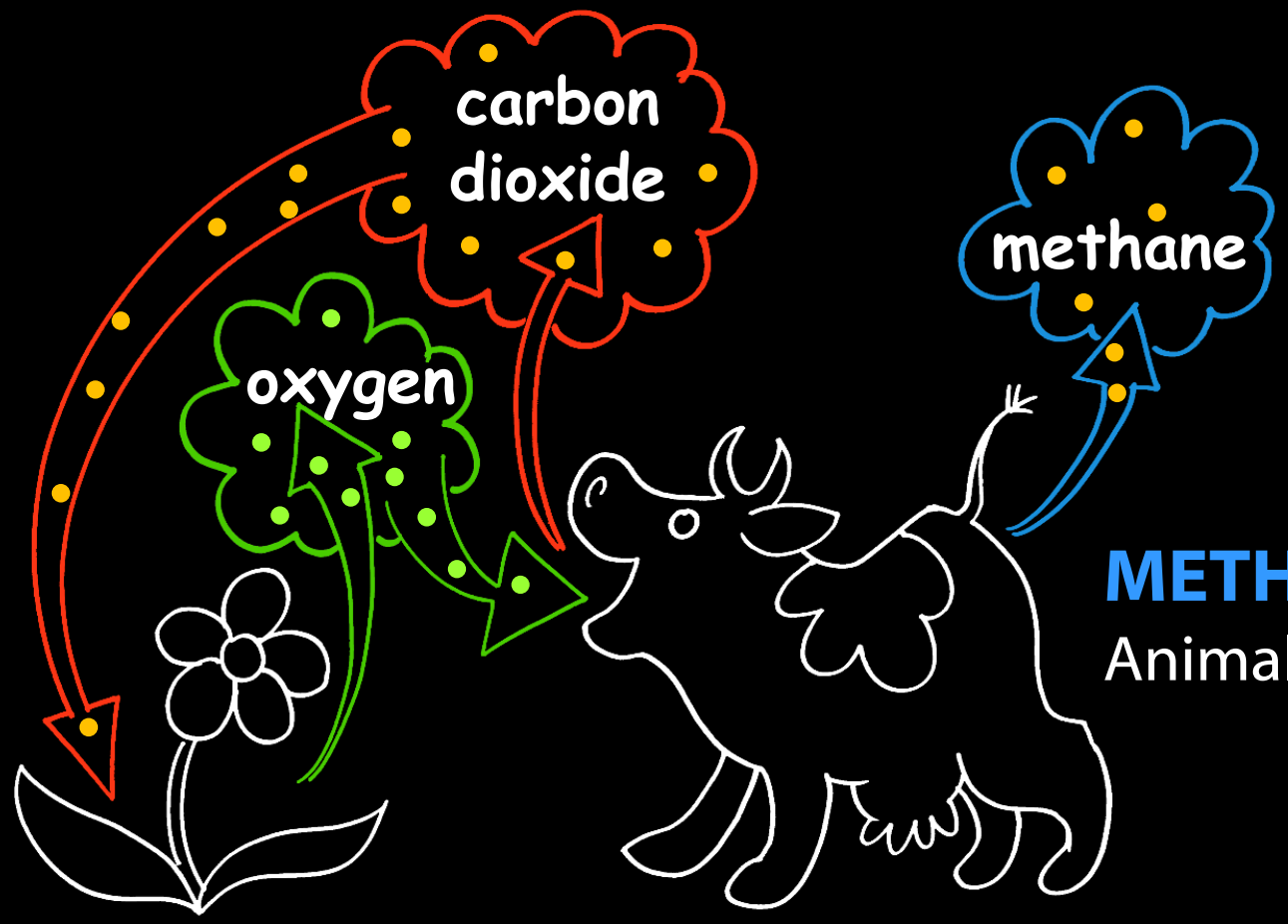
Increase in greenhouse gases =
Increased greenhouse effect =
INCREASING TEMPERATURES



Some gases in the atmosphere…

CARBON DIOXIDE (CO2)
is taken in by plants
is released by animals

OXYGEN (O2)
is released by plants
is taken in by animals



METHANE (CH_4)
Animal waste

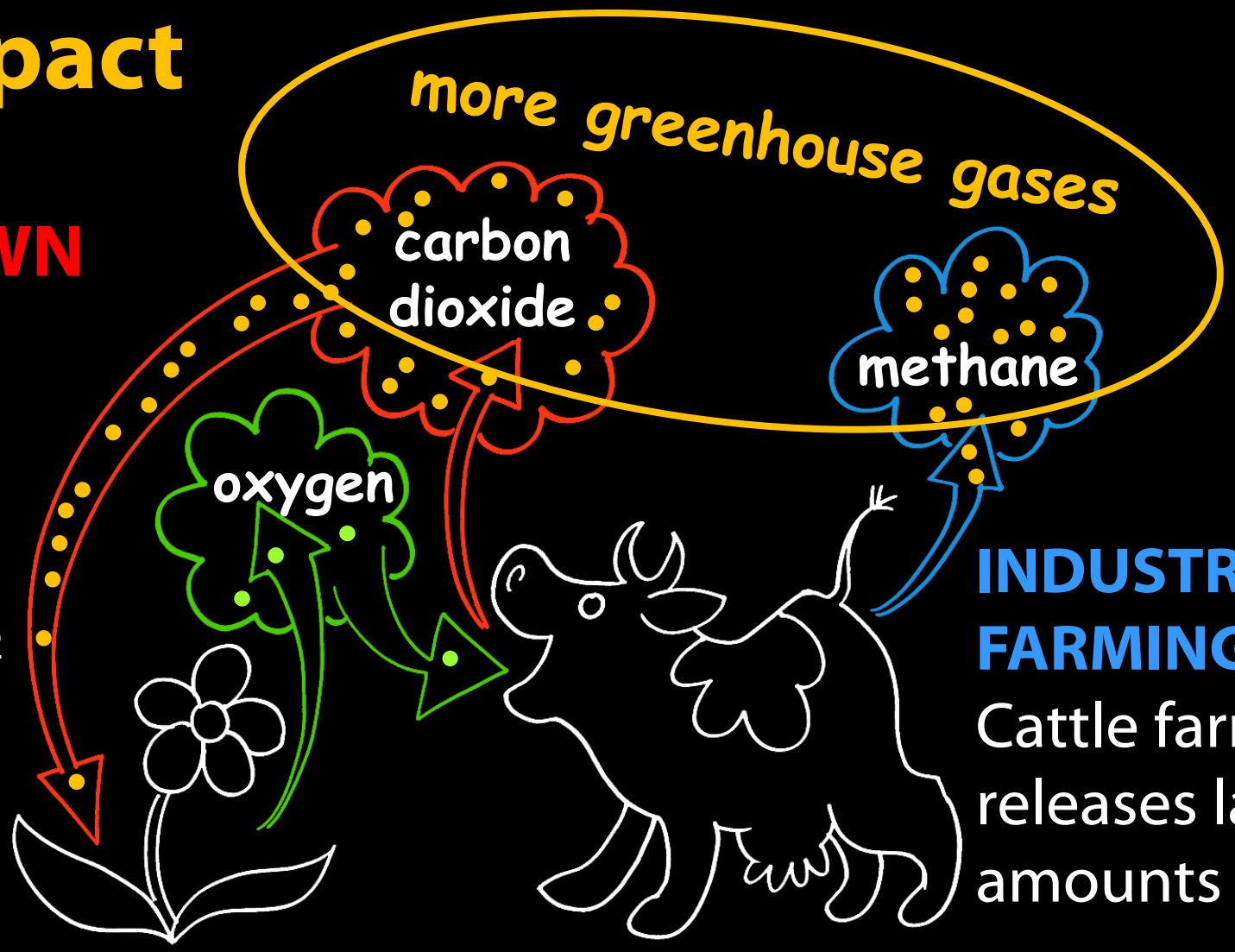
Human Impact

CUTTING DOWN TREES/ LESS PLANT LIFE =

Less CO_2 is taken from the atmosphere

= increase in CO_2

= less O_2



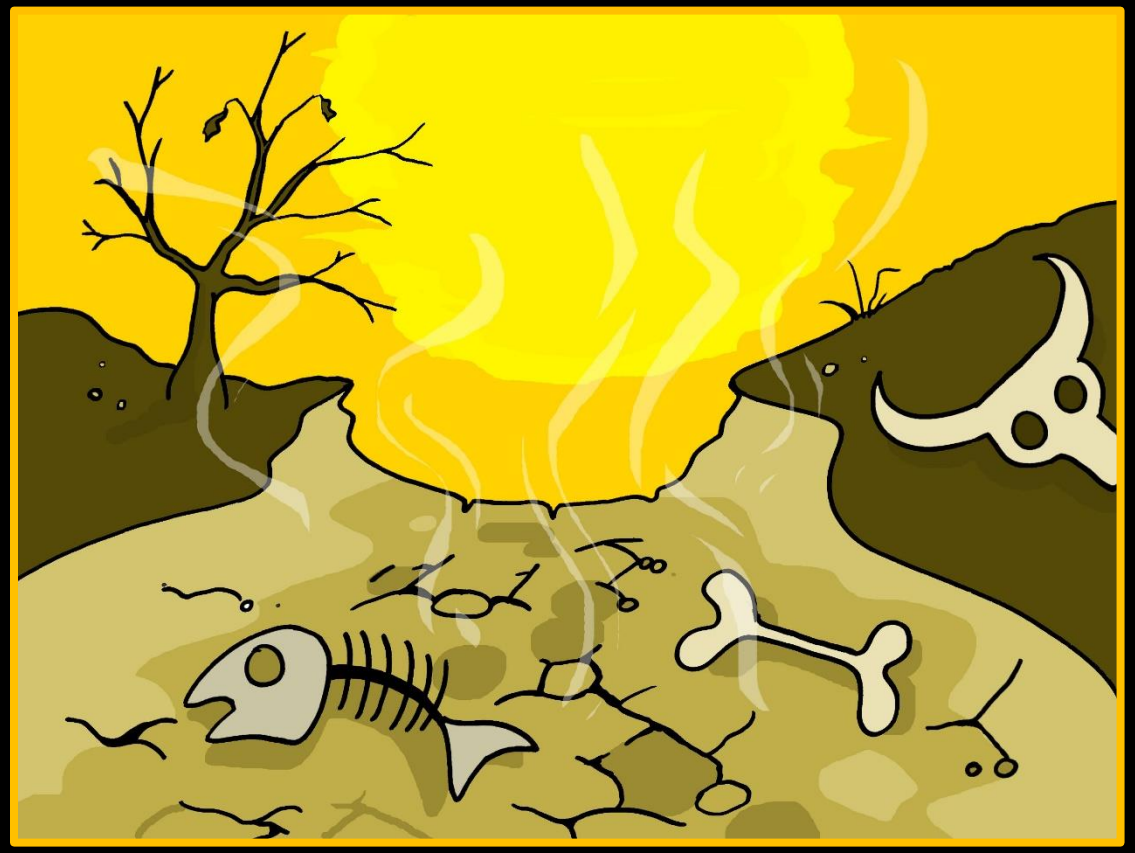
INDUSTRIAL FARMING

Cattle farming releases large amounts

Climate Change: WILDFIRES

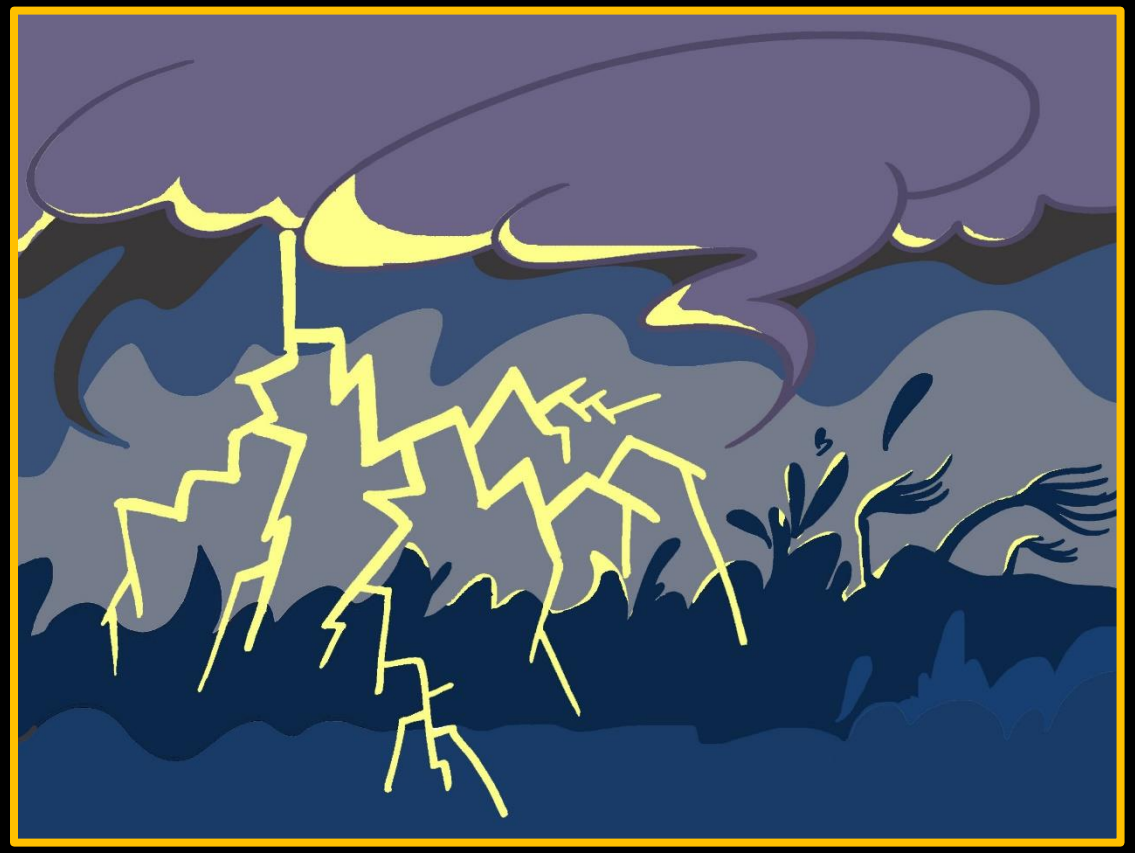
- **Dry conditions** and **increased temperatures** have resulted in many more wildfires.
- Australian wildfires in 2020 killed **billions of wild and domestic animals.** Some are now close to extinction.
- Destroys habitats and adds to **air pollution.**

Climate Change: DROUGHT



- Weather changes impact on **rainfall** (more or less rain).
- Freshwater **evaporates quickly** due to higher temperatures.
- Less water for plants and animals.
- Humans also need fresh water for **drinking** and **crops.**

Climate Change: EXTREME WEATHER



- Recent extreme weather events include…
- Record temperatures across the globe.
- Increased frequency and intensity of tropical storms and hurricanes.
- Extremes of high and low levels of rainfall.

Climate Change: FLOODING

- Weather changes impact on **rainfall** (more or less rain).
- Increased air temperature means more moisture in the atmosphere.
- **Flash flooding** can destroy communities and habitats.
- Loss of trees (which stabilize soils) can lead to **landslides**.

Climate Change: MELTING ICE/ SEA LEVELS

- As global temperatures increase year on year, more **polar ice melts**.
- This melt water **increases** the **sea level**.
- Sea level increases will mean many **coastal** or **low-lying land** will become **lost**.
- Both human and wildlife will be **displaced.**

SUMMARY

- There is an increase in **GREENHOUSE GASES** due to human activity.
- This has altered **CLIMATES** around the globe.
- There is an increasing **IMPACT** of **CLIMATE CHANGE** on wildlife and humanity.
- **URGENT ACTION** is required to prevent further **DANGEROUS CLIMATE CHANGE.**

Earth Explorers

Other topics:

Climate Change
Endangered Species
Pollution

LIVING WORLD EDUCATION

www.livingworldeducation.com/earth-explorers