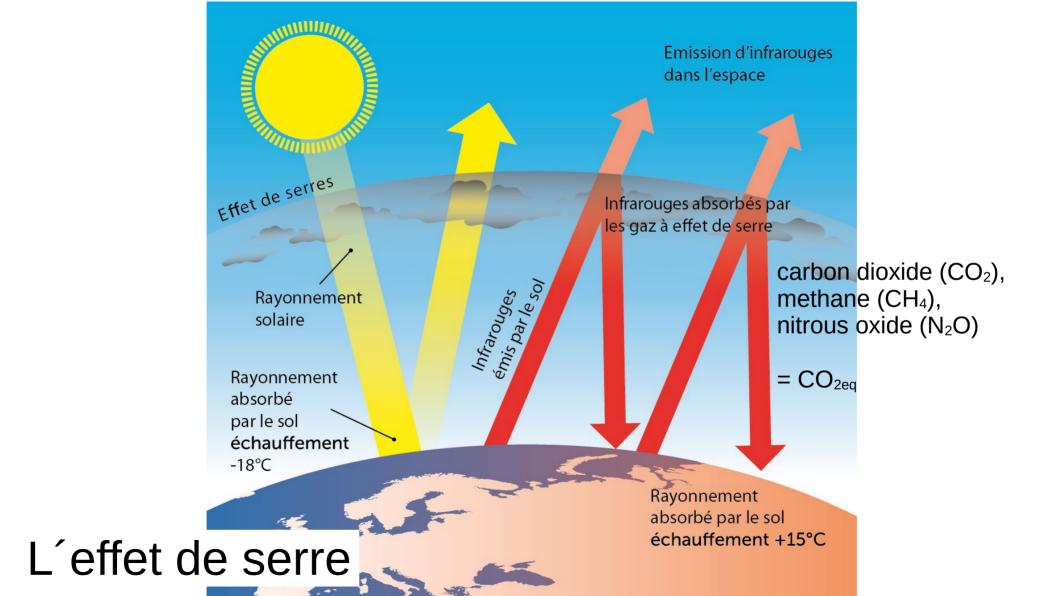
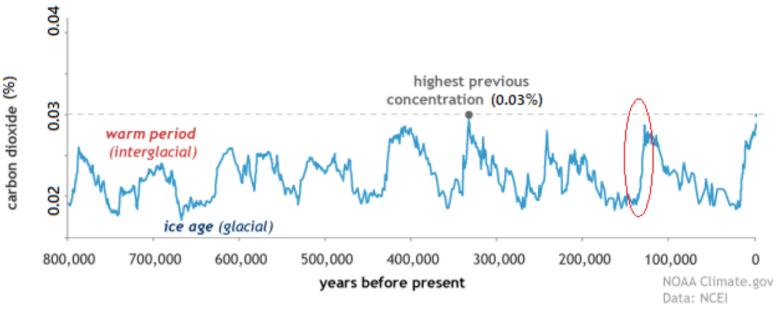
#### Part 1: Introductory MCQ

# Climate change and the biodiversity crisis presented by science

A- How does the amount of CO2 change?

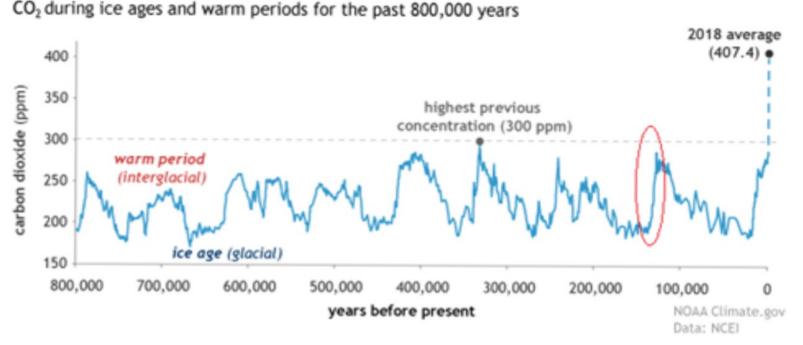


CO2 during ice ages and warm periods for the past 800,000 years



1- Over the last 800,000 years, the amount of CO<sub>2</sub> has varied between 0.02% (200 ppm) during glacial periods (such as when the Alpine glaciers reached Lyon) and 0.03% (300 ppm) during warm periods, such as the one we are currently experiencing. What is the amount of CO<sub>2</sub> in the atmosphere in 2023?... a- 0,032 b- 0,042 c- 0,052 d- 0,062?





2- During the last warming, 120,000 years ago, the increase of +80 ppm (+0.008%, circled in red above) was achieved in 6,000 years (+1ppm every 75 years). Today, the amount of CO<sub>2</sub> in the atmosphere increases by +1ppm every...

a- 100 years b- 10 years c- 1 year d- 4 months?

3- Nature absorbs half of our emissions (20% from the oceans and 30% from forests, peat bogs, etc.).

The problem is that these carbon "sinks" are becoming less and less effective, for at least 5 reasons. Can you explain some of them?

4- Other phenomena (at least 2) are also causing warming to accelerate, but they do not affect these oceanic or terrestrial carbon sinks. Do you know any of them?

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5- Over the last 10 years, by how much has absorption from these oceanic and terrestrial sinks already slowed?

## **B- How is the temperature changing?**

6- How much has the planet's average temperature alr-ady risen since the start of the industrial revolution (1850-1900)?

$$a - + 0.5^{\circ}C$$

$$a-+0.5^{\circ}C$$
  $b-+1.2^{\circ}C$   $c-+1.5^{\circ}C$   $d-+2.5^{\circ}C$ 

$$c - + 1,5$$
°C

$$d - + 2.5^{\circ}C$$

7- Why do scientists strongly recommend not exceeding +1.5°C?

8- How much will the average global temperature rise over the next 10 years?

$$a-+0,1^{\circ}C$$
  $b-+0,25^{\circ}C$   $c-+0,4^{\circ}C$   $d-+0,5^{\circ}C$ 

9- Directly on the graph above, draw the line representing the Earth's temperature in 2023 + 24.

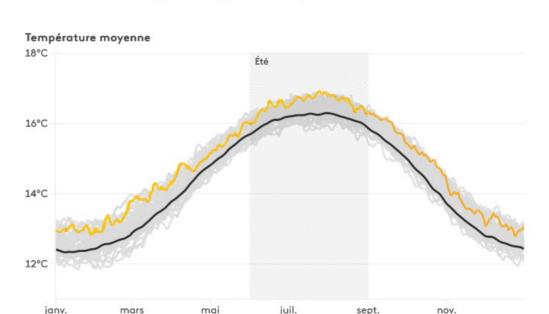
Do the same for the following lines (sea temperature and sea ice

Source: Climate Reanalyzer, NOAA

surface).

Températures quotidiennes moyennes mondiales de l'air en surface

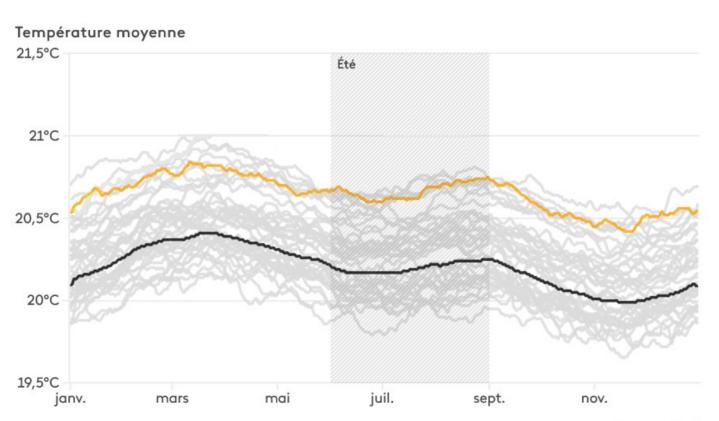
2023 — 2022 — Moyenne 1979-2000



franceinfo

#### Températures moyennes quotidiennes de surface de la mer

**—** 2023 **—** 2022 **—** Moyenne 1982-2011



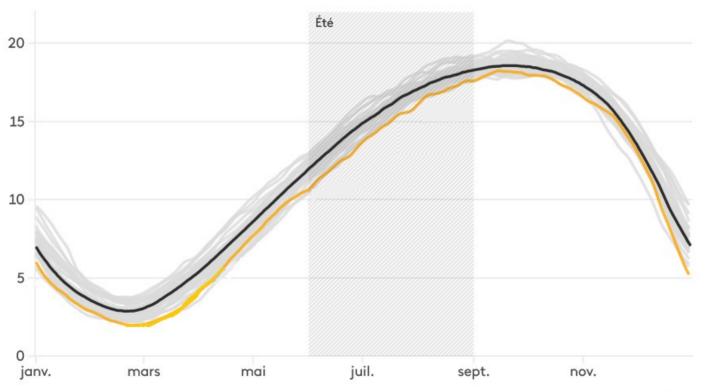
Source: Climate Reanalyzer, NOAA

franceinfo:

#### Evolution de la surface de la banquise dans l'océan Antarctique

**—** 2023 **—** 2022 **—** Moyenne 1981-2010





Source: Climate Reanalyzer, NSIDC Sea Ice Index V3

franceinfo:

## **C- How is biodiversity changing?**

10- What about biodiversity? It is estimated that there are around 8 million different species on Earth (excluding bacteria/viruses). How many species disappear each year (researchers estimate)? Around...

a-...400 b-...4000 c-40 000 d-400 000 ?

11a- How much has the insect biomass decreased in Germany over the last 30 years?

a- 15 % b- 25 % c- 55 % d- 75 %

11a- How much has the insect biomass decreased in Germany over the last 30 years?

a- 15 % b- 25 % c- 55 % **d- 75 %** 

11b- What about the number of birds in Europe in 40 years?

a- 15 % b- 25 % c- 55 % d- 75 %

12- what is the main culprit?

a- cats b- climate c- intensive agriculture

### Part 2: Introductory MCQ

### Our ideal society low C

13- How many tonnes of CO2eq/year/person does the average European (or French or German) emit?

a- 1t b- 2t c- 10t d- 20t

14- Carbon sinks absorb/store CO2, enabling us to emit it without it accumulating in the atmosphere (and ultimately to be CO2 neutral). What is the maximum quantity of tonnes of CO2eq that we should not exceed per person per year in order to remain neutral?

a- 1t b- 2t c- 10t d- 20t

15a- How much do the richest 1% of Europeans (> 80 k€ / an / person or 6 700 €/month/person) emit on average (in t CO2eq/year)?

15b- What about the richest 10% (between 41 et 80 k€ / an / person or 3400 - 6700 €/month/person)?

a- 13t b- 23t c- 43t d- 63t

16- To reduce our emissions, we need to know what emits CO2. At country level (ATTENTION, in this case France in 2022), link the sectors directly on the map to their emissions in millions of t CO2eq.

Energy	*	*	70
Agriculture, Forestry	*	*	75
Industry, Construction	*	*	160
Commercial, Residential	*	*	62
Transport	*	*	43

## 17- For an average European, which action reduces emissions the most (in t CO2eq/year)?

Becoming vegetarian	*	*	2
Selling your car	*	*	1
No more flying	*	*	1
Insulating your home better	*	*	0,43

18- When we talk about housing, we insist on insulation, forgetting that construction, renovation and even heating are directly linked to the surface area we live in. In 1984, the average surface area in France was 30 m<sup>2</sup>. What about today?

```
a- 25 m<sup>2</sup>
b- 30 m<sup>2</sup>
c- 35 m<sup>2</sup>
d- 40 m<sup>2</sup>
```

19- Switching from a petrol-powered car to an electric car reduces emissions (over the entire lifecycle) by...

Distinguish between France and Europe.

```
a- 1/5 : - 20%
b- 2/5 : - 40%
c- 3/5 : - 60%
d- 4/5 : - 80%
```

20- To divide them by 5 (so reduce them by 4/5), what more would you need to do?

21- Reducing car journeys is not just up to us. How could society evolve to enable us to use the car less?...

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22- Example 2: clothing. How many kg of CO2 is due to textiles for a French person each year?
What can be done to cut emissions by a factor of 5?

## Part 3: Introductory MCQ to Action!

23- Based on the answers to MCQ 19: (Develop public transport, reduce train fares and delays, develop cycling...)
What can WE do today to make these good wishes come true?

24- Based on the answers to MCQ 20: (Buy less, second-hand or salvage, repair or have repaired, give away or resell what you no longer use), what actions can you take today to make these good wishes come true?

24- Based on the answers to MCQ 20: (Buy less, second-hand or salvage, repair or have repaired, give away or resell what you no longer use), what actions can you take today to make these good wishes come true?

#### Note:

If you want to propose that the European Commission change a law, you can start a petition:

https://www.europarl.europa.eu/petitions/en/home

It's also possible with Greenpeace https://www.greenvoice.fr/

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