



Name:

The Leys School Cambridge

13+ Scholarship Examination 2026

SCIENCE

Time allowed: 60 minutes

Instructions

- Write your name in the box at the top of this page
- Calculators are allowed
- Attempt all questions
- Answer in the space provided
- Follow the instructions for each question carefully
- If you cannot do a question, go on to the next one and try again later on
- Do not ask the teacher to explain a question to you
- If you finish before the end, check your answers and then wait quietly in your place
- If you do not finish, or if you cannot understand all the questions, do not worry.

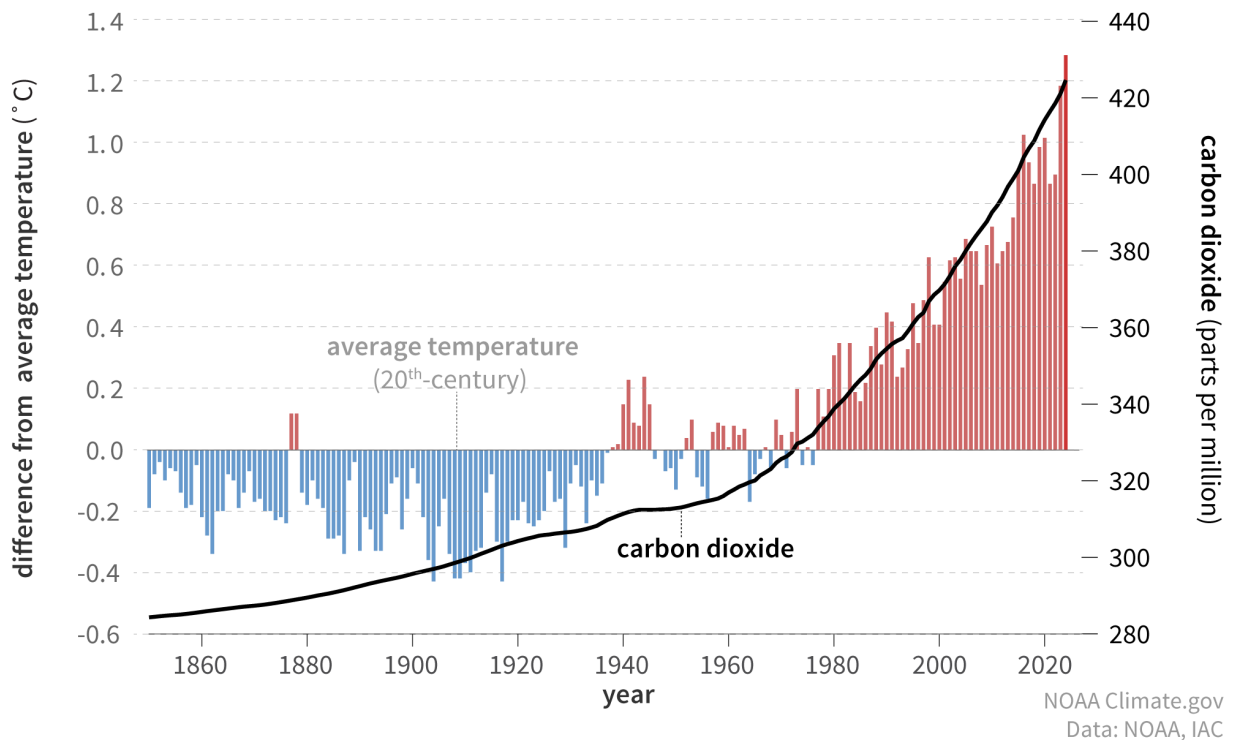
Section A – Data Interpretation

Question 1 - Greenhouse Effect

Increases in atmospheric carbon dioxide and global temperature (1850 – 2024) – NOAA Climate.gov

Data: NOAA, IAC

The graph below shows how global average temperature and atmospheric carbon dioxide concentration have changed between 1850 and 2024.



a. Describe the trend in carbon dioxide concentration between 1880 and 2020.

[2]

b. Describe how the average global temperature has changed over the same period.

[2]

c. Suggest one human activity that could have caused the increase in carbon dioxide.

.....

.....

.....

[2]

d. Apart from carbon dioxide, name one other greenhouse gas.

.....

[1]

e. The rise in temperature is not perfectly smooth. Suggest two reasons for this.

.....

.....

.....

[2]

f. Scientists predict CO₂ levels could reach 500 ppm by 2050.
What might happen to average global temperature? Explain your reasoning.

.....

.....

.....

.....

.....

[4]

g. Suggest one action that could reduce further increases in CO₂ levels. How?

.....

.....

.....

[2]

Question 2 - Climate change by numbers

- a. A tree absorbs **20 kg of carbon dioxide per year**.

How much CO₂ would a forest of 1,000 trees absorb in 10 years?

.....

.....

.....

[2]

- b. A car emits **120 g of CO₂ per kilometre**.

How much CO₂ will it produce on a **150 km** journey? Give your answer in kilograms.

.....

.....

.....

[2]

- c. A scientist calculates that each person on Earth produces 5 tonnes of CO₂ per year.

If there are 8 billion people, estimate the total global emissions per year in tonnes.

.....

.....

.....

[2]

- d. Explain why doubling the number of cars on the road might not *exactly* double the total CO₂ emissions.

.....

.....

.....

[2]

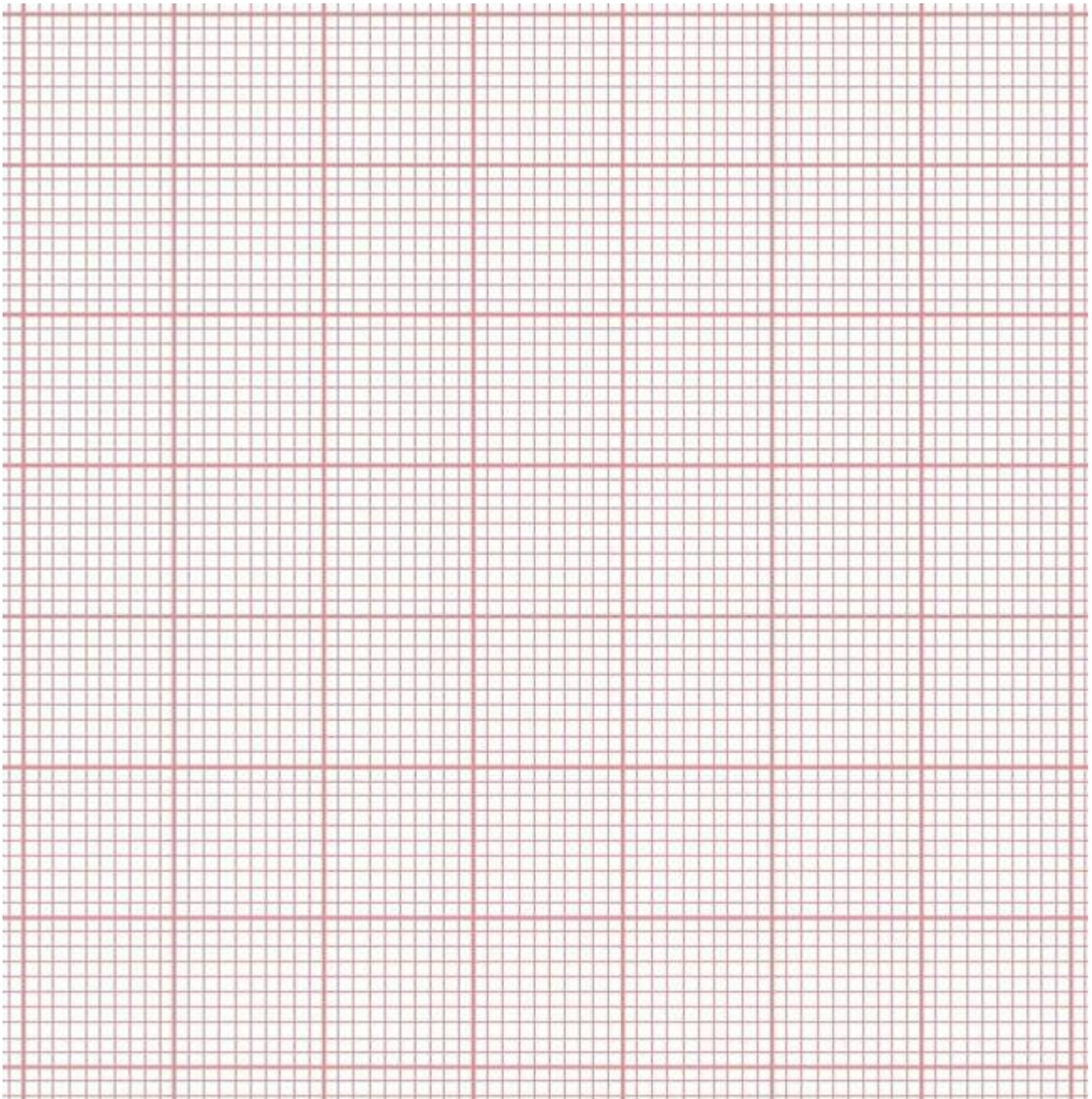
Question 3 - Electricity provision

The diagram below is a summary of the provision of electricity by source in the UK this year.

a. Draw a graph in the space below to best represent these data.

[6]

Gas	29.5%
Solar	6.7%
Wind	31.6%
Hydroelectric	1.2%
Nuclear	13.0%
Biomass	7.2%



This electricity provision has changed significantly in the last 50 years.

b. In which ways do you think this is different?

.....

.....

.....

[2]

c. Why is this change important for the environment?

.....

.....

.....

.....

.....

.....

[4]

Section B – Comprehension

Question 4 - Coral Bleaching

A healthy coral (left) and a coral that has experienced bleaching (right). Photo credit: Henry Wolcott/Marine Photobank



READ the passage below and answer the questions that follow:

Coral reefs are sometimes called the “rainforests of the sea”. They support one quarter of all marine species, but they are under serious threat. Rising ocean temperatures caused by climate change lead to a process called *coral bleaching*, where corals lose their symbiotic algae and turn white. Without these algae, most corals eventually die.

Scientists around the world are experimenting with ways to help. In a laboratory in Australia, researchers have been breeding corals that can survive at slightly higher temperatures. By selecting the most resilient individuals and reintroducing them to damaged reefs, they hope to create “climate-ready” coral communities.

Some scientists are also using artificial light and sound to attract young coral larvae to settle on damaged reefs. Others are even testing robotic submarines that release coral “seedlings” to rebuild reefs automatically.

However, not everyone agrees this is the right approach. Critics say that such projects are only “band-aid solutions” that treat the symptoms of climate change rather than the cause. Unless global carbon emissions are reduced, they argue, reefs will continue to decline — and no amount of restoration will keep up.

a. What is *coral bleaching* and what causes it?

.....

.....

[3]

b. What are scientists in Australia trying to achieve by breeding corals?

.....

.....

[2]

c. Give one example of a technological method used to restore reefs.

.....

.....

[2]

d. What do critics mean by saying that coral restoration is a “band-aid solution”?

.....

.....

.....

.....

[3]

e. Suggest one reason coral reefs are described as the “rainforests of the sea.”

.....

.....

[2]

Essay Question

Choose **ONE** of the following and write a short essay in the space below:

- A. "Imagine a world without friction. Describe how motion, machines, and daily life would be different."
or
B. "What makes water such a strange and important substance?"

Marks will be awarded for clear reasoning, structure, and use of scientific ideas.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[10]

END OF PAPER