



CAMBRIDGE

Introducing our Climate Change Education Framework

Education is key to tackling the climate crisis

Together with schools, we want to empower young people with the skills and knowledge to respond and adapt to climate change. We believe that high-quality climate change education needs to be multi-disciplinary, locally relevant and age appropriate.

To support this holistic climate change education approach, our curriculum experts have designed a Climate Change Education Framework in collaboration with climate experts from the University of Cambridge. This outlines the key knowledge, skills and understanding required to empower learners to take action on climate change. We are committed to embedding this crucial content throughout the Cambridge Pathway. Registered Cambridge schools can access it on the School Support Hub.

Holistic approach

The framework is built around four dimensions that together create a holistic approach to climate change education:



Understanding of causes, effects, consequences and responses



Evaluating information, perspectives and data



Caring for ourselves, each other and the planet



Responding together with informed action.

Age-appropriate learning

For each of the four dimensions, the framework identifies relevant learning objectives to show what students should learn at different ages. These learning objectives build step by step, so each stage builds on the one before and provides the foundation for the next stage and lifelong learning.

To make sure the content of the framework is as accessible to as many learners as possible, we have limited the number of technical terms we expect learners to use to only the most important and foundational ones. For example, by the end of primary we expect learners to know and understand the terms: weather, climate, greenhouse gases, climate change and global warming. Although the framework refers to other concepts, including mitigation, adaptation, vulnerability, risk and systems thinking, we do not expect learners to use these technical terms at this age.



Introducing our Climate Change Education Framework continued

Multidisciplinary learning

Our framework can help teachers identify where they are delivering important elements of climate change education, and plan to avoid repeating the same content in different lessons or missing out important aspects.

The framework could also be used to plan a more focused series of lessons on climate change, such as a climate week, and to see how climate change education fits within a wider environmental or sustainability education.

It also shows where important climate skills are already present in the Cambridge Pathway. For example, many subjects develop evaluation skills such as analysing sources and critical thinking. In Cambridge Primary, you will find these embedded in Cambridge Global

Perspectives™, Digital Literacy, English and Humanities. By seeing how these skills contribute to climate change education we hope teachers can show these links to their learners.

A global issue set in local contexts

We have designed the framework to be appropriate for learners wherever in the world they live. Climate change is affecting people in different places in different ways. For example, in some contexts teachers may want to give more focus on ways that learners can directly decrease greenhouse gas emissions. However, in other places it may be helpful to spend more time on responses to climate emergencies, for example how to stay safe if there is flooding or a wildfire.

Climate Change Education Framework – sample

The complete Cambridge Climate Change Education Framework is available to registered Cambridge International Schools on the School Support Hub. This includes the expected learning objectives for **Cambridge Early Years**, **Cambridge Primary** and **Cambridge Lower Secondary**, as well as identifying which subjects are most likely to support these objectives. Below is a sample from the framework, showing the learning objectives for learners to achieve by the end of their primary education.

Learning objectives for the end of primary school



Understanding

Causes of climate change

Climate system

- ‘Weather’ describes how hot, windy, wet or cloudy it is over hours, days or weeks.
- ‘Climate’ describes weather patterns over at least 30 years in a specific area.
- Climate scientists use scientific models to understand and investigate how the climate works and can change.

The natural greenhouse effect

- When the Sun’s energy reaches planet Earth, some is reflected back into space and some is absorbed by the land and oceans.
- Some gases are like a blanket or greenhouse for the Earth and stop some of the reflected energy escaping into space. This stops the whole Earth freezing.

- Greenhouse gases have this name because of what they do. They are not made in a greenhouse.
- Carbon dioxide and methane are greenhouse gases. Carbon dioxide can also be written as CO₂.

Climate change caused by humans

Human activities add more greenhouse gases to the atmosphere.

- A lot of carbon dioxide is produced by burning coal, oil and gas for heat, transport and to make electricity.
- A lot of methane is produced by decomposing waste, farming animals (especially ruminants like cows and sheep) and growing rice in flooded fields.
- Extra greenhouse gases act like a thicker blanket which keeps more of the reflected energy in the Earth’s atmosphere. This causes climate change.

Introducing our Climate Change Education Framework continued

Effects and consequences of climate change

Global warming

- Global warming is one part of climate change and describes that the temperature near the whole of the Earth's surface is getting warmer.
- Scientists discovered global warming by looking at patterns in the temperatures measured from the air just above land surfaces and the sea surface temperature for oceans.

Effects of climate change

- There are different effects of climate change in different places.
- Warmer land, air and oceans cause:
 - more floods, droughts and wildfires
 - more extreme heat and cold, and more intense storms
 - melting polar ice and glaciers
 - rising sea levels.

Consequences of climate change

- The effects of climate change have important consequences for humans and other living things. These include:
 - having less food and water
 - being careful to avoid new diseases

- avoiding being too hot or too cold
- having to move or to rebuild their homes.
- People do not experience the consequences of climate change equally. Some people, places and communities experience more serious consequences than others.

Positive responses to climate change

- Understanding the causes, effects and consequences of climate change empowers us to take action, individually and in groups.
- We can decrease the amount of greenhouse gases in the atmosphere. This can be by decreasing emissions (e.g. burning less coal, oil and gas) or by removing greenhouse gases from the atmosphere (e.g. protecting forests and wetlands that remove carbon dioxide).
- Many actions to reduce greenhouse gases are also good for our health (e.g. cooking using electricity rather than gas or wood, walking and cycling rather than travelling by car, eating more plant-based foods).
- We can limit the effects and consequences of climate change by decreasing the number of people affected (e.g. having an emergency alert system) or by decreasing the impact of a climate event (e.g. having porous surfaces for car parks to reduce flood peaks).



Evaluating

Critical thinking

- Sources are written for different reasons, including to inform and persuade.
- It is important to distinguish between facts and opinions.
- Some sources are misleading, and before deciding whether to trust a source it is important to consider who wrote it and why.
- It can be difficult to identify the author of online sources.

Data and scientific literacy

- A wide variety of climate change data is collected, including measurements and observations related to causes (e.g. production of greenhouse gases), effects (e.g. temperature) and consequences (e.g. spread of diseases) of climate change.
- Climate change data is analysed to:
 - identify patterns and changes
 - test and improve climate models.



Introducing our Climate Change Education Framework continued



Caring

Caring for self

- We can experience many emotions when we learn about climate change.
- We can learn strategies to help us manage and care for our own emotions.

Caring for others

- We can try to support others who are affected by climate change, whether they live close to us or far away.

Caring for the planet

- We can respect nature and our planet, and want to protect it and repair damage to it.



Responding

Identifying problems and possible solutions

- We can use our understanding of climate change to identify problems we want to solve.
- Creative thinking helps us identify lots of possible solutions to a problem. We can then select the solution we think will be best.

Working together for positive change

- It is often possible to achieve more working with others than alone.

- We can learn how to work effectively as a team to achieve a shared aim.
- When we reflect on something we have done, we can each learn from our experiences and do better in the future.

Future ready

- We can find out about different types of jobs that help respond positively to climate change by talking to people who do them in our communities.

Acknowledgements

The Cambridge Climate Change Education Framework was written by Judith Roberts (Lead author) with Balsem Bashemam, Nivedita Bose, Jemma Joakim, Ellen MacKay, Carys Morley, James Smith, Tom Spencer, Amy Strachan and Lara Ward. We are very grateful to the many reviewers including colleagues from Cambridge University Press & Assessment, Cambridge teachers and climate change experts from the University of Cambridge.