

Cambridge Climate Change Education Framework for Cambridge **Lower Secondary, Upper Secondary and Advanced**



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Introduction

Education is key to tackling the climate crisis

We believe that a high-quality climate change education plays a crucial role in equipping learners worldwide to make a significant, positive impact on the climate crisis. So, together with Cambridge teachers and schools, we want to empower children and young people to respond and adapt to climate change.

A framework for climate change education

To support a holistic climate change education approach in schools, our curriculum experts have designed this Cambridge Climate Change Education Framework. This outlines the key knowledge, skills and understanding required to empower learners to take action on climate change.

This framework provides structure and support for learning in four dimensions:

Understanding, Evaluating, Caring and Responding. Its learning objectives show what children and young people should learn at different ages for each dimension. These learning objectives cover three-year blocks starting in Cambridge Early Years and build step by step, so each stage builds on the one before and provides the foundation for the next stage and lifelong learning.

Using this framework, educators can understand what relevant climate change content they are already teaching in their school and identify any gaps.

To help Cambridge schools deliver high-quality climate change education, we are committed to embedding this crucial content throughout the Cambridge Pathway and we have identified examples below of where this content features within the curriculum.

This document has the learning objectives we recommend students achieve **before** they begin to study different subject combinations for the Upper Secondary and Advanced stages of the Cambridge Pathway. Once students have achieved this level of the framework they will be prepared to engage with more advanced climate change content relevant to, and embedded within, their qualifications.

A global issue set in local contexts

We have designed this framework to be appropriate for learners wherever in the world they live. While we are all part of one global community, climate change is affecting people in different places in different ways. For example, in some contexts teachers may want to focus more 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, such as how to stay safe during flooding or wildfires.

Embedded across the curriculum

Research suggests that learners benefit from having multiple, varied and repeated opportunities to engage with climate change across their whole school experience (including both subjects and broader learning experiences). This helps them to develop a holistic understanding of all the dimensions of climate change and makes them more likely to act on what they have learnt at school.

There are lots of ways to embed and reinforce climate change education across your school's curriculum.

For example, teachers can review their current teaching plans against this framework, so they avoid repeating the same content or missing out important aspects before students start to study different subject combinations. It can help show how climate change education fits within a wider environmental or sustainability education.

The framework could also be used to plan for a more focused series of lessons on climate change, such as an annual climate week, special activity or extended project. Intergenerational projects, with adults in their wider community who are already responding positively to climate change, demonstrate to learners that everyone in the community is needed to respond to climate change, it is not their responsibility alone. Giving many practical examples of climate action, and specific ways that individuals and communities can respond, helps learners to recognise actions they can take.

In this document, you will find information about how the learning objectives in each of the four dimensions link to content already within the Cambridge Pathway. For example, many subjects develop the learning objectives in the 'Evaluating' dimension. In Cambridge Lower Secondary, you will find evaluating sources and critical thinking embedded in Cambridge Global Perspectives™, Digital Literacy, English and Humanities. For older learners critical thinking skills appear in the assessment objectives of many qualifications. There is more information on these subject links for each dimension later in this document (pages 12 to 23). As well as links to specific subjects, the framework supports all five Cambridge learner attributes: confident, responsible, reflective, innovative and engaged. By seeing how these different aspects of learning contribute to climate change education we hope teachers can show and integrate these links for their learners.

Built on evidence and research

Our curriculum experts have designed the Cambridge Climate Change Education Framework in collaboration with climate experts from the University of Cambridge and by drawing on the experiences of teachers from our research community. It builds on climate change education curricula of the last decade while also drawing on broad themes from Education for Sustainable Development (ESD) and emerging ideas within Greening Education.

What does climate change education look like for Cambridge Lower Secondary, Upper Secondary and Advanced learners?

The four dimensions of this framework are the same as those in the parts of the framework for younger learners: Understanding, Evaluating, Caring and Responding.



Understanding of causes, effects, consequences and climate action



Evaluating information, perspectives and data



Caring for ourselves, each other and the planet



Responding individually and together with informed action, now and in the future.

The learning objectives are suitable for all secondary students. We recommend that they are achieved by the end of Cambridge Lower Secondary (Stage 9). These learning objectives can be developed across Stage 7, Stage 8, Stage 9 or in multiple years. The list of learning statements represents the combined learning by the end of Stage 9. Once this level of learning has been achieved, students are well prepared for more advanced study.

If your learners do not complete Cambridge Lower Secondary in your school or do not have three years in Lower Secondary, do as much of the framework as you can before learners start to study different subject combinations. This may involve working with teachers earlier in the pathway. You may need to cover some of the content during the Cambridge Upper Secondary or Advanced stages.

Depending on the primary programme your learners have followed, you may be able to revise some prior learning instead of having to teach everything from scratch. To help with this, you will find the progression from primary to secondary in tables for each dimension, starting on page 13.

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. These are shown in *italics* in the framework and defined in the learning objectives (and the glossary at the end of this document). The framework also refers to other concepts (including disaster risk reduction and systems thinking) but at this stage we want learners to become familiar with the core ideas rather than the technical terms. Learners who study these concepts as part of more advanced qualifications will be introduced to the relevant terminology at that stage. There is a glossary at the end of this document for teachers to use.

Learning objectives for the end of Cambridge Lower Secondary

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.
- The Earth's *climate system* is a complicated system of the atmosphere, water, ice, land, living things and energy from the Sun.
- Climate scientists use *scientific models* to understand and investigate how the climate system works and to predict what would happen if one or more parts of the climate system change.
- When the climate system changes, this can lead to differences in climate (*climate change*) and weather.

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.
- *Greenhouse gases* throughout the atmosphere act like a blanket to stop some of the reflected energy escaping into space. This *natural greenhouse effect* keeps enough of the Sun's energy near the surface of the planet so that the whole Earth does not freeze.
- Carbon dioxide is a very important greenhouse gas because there is a lot of it and it lasts hundreds of years. Carbon dioxide can also be written as CO₂.
- Some chemical reactions produce carbon dioxide (e.g. aerobic respiration) and some remove carbon dioxide (e.g. photosynthesis).
- The carbon cycle shows how carbon atoms flow between stores in the atmosphere, water, ice, land and living things. The carbon cycle helps maintain a balance of the carbon in different stores.
- Methane is another important greenhouse gas. It is naturally produced from decomposition and digestion. It keeps more of the Sun's energy near the Earth's surface than carbon dioxide but does not last as long in the atmosphere.
- Water vapour and nitrous oxide are also greenhouse gases.
- When the energy reaching planet Earth balances the energy leaving planet Earth, the climate is generally stable.
- Natural phenomena change the Earth's energy balance (e.g. wobbles in the Earth's orbit). These cause *natural climate change*.
- Most natural climate change takes a long time (10 000 to 100 000 years), e.g. ice ages starting and stopping.



Climate change caused by humans

- Human activities have added more greenhouse gases to the atmosphere since 1850.
- Some people and communities have produced or currently produce more greenhouse gases than others.
- 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.
- A lot of nitrous oxide is produced from fertilisers used in agriculture.
- Increased levels of greenhouse gases have changed the Earth's energy balance and the climate system. This is called the enhanced greenhouse effect and is causing human-induced climate change.
- The enhanced greenhouse effect is not natural. The human-induced climate change it is causing is happening much faster than natural climate change.

Effects and consequences of climate change

Global warming

- The enhanced greenhouse effect means more of the Sun's energy stays in the Earth's climate system. This means the mean temperature near the Earth's surface (combining the near surface air temperature over land and the sea surface temperature for oceans) is warming. This aspect of climate change is called *global warming*.
- The mean temperature near the Earth's surface has increased since 1850 and the rate of increase is accelerating.
- The effects and consequences of global warming become more serious as the Earth becomes warmer.
- Many countries are trying to limit the mean temperature rise because a rise of 1.5°C or 2°C (above levels from before 1850) will have serious effects and consequences.

Effects of climate change

- Climate change can affect our climate system in many ways. There are different effects in different places.
- Warmer land, air and oceans cause:
 - changes to the water cycle (contributing to floods, droughts and wildfires)
 - more extreme weather (including 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:
 - not having enough food and water
 - pests and diseases spreading into new areas
 - becoming ill from being too hot (heat stress) or too cold (cold stress)
 - homes and habitats being damaged or destroyed, e.g. by floods and fires.
- These consequences contribute to decreasing the variety of living things on land and in water.
- People do not experience the consequences of climate change equally. Some people, places and communities:
 - experience more serious consequences of climate change
 - have fewer resources to respond to climate change.

Climate action

- Understanding the causes, effects and consequences of human-induced climate change empowers us to take action individually and in our communities, and to seek to influence the plans and actions of governments and large businesses.
- *Mitigation* means decreasing 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 or enhancing carbon sinks like forests and wetlands).
- Many countries and companies are trying to decrease their greenhouse gas emissions. Individuals, families and communities can also make a positive difference.
- 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).
- *Adaptation* means adjusting to the current and future effects and consequences of climate change (e.g. changing building approaches to work with a changing environment, such as not building on floodplains or building houses on stilts).
- We can try to limit the effects and consequences of climate change through adaptations that decrease the number of people affected (e.g. having an emergency alert system) or decrease 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.
- Facts often need to be checked using a range of trusted sources.
- Before deciding whether to trust a source it is important to consider who wrote it, why and whether they are likely to be biased.
- It can be difficult to identify the author of online sources.
- *Greenwashing* is a major problem for responding effectively to climate change. It means misleading people into believing that a government or company is being more sustainable than it really is, and so it decreases or delays significant actions.

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.
- Predictions from climate models give a range of possible outcomes and suggest which outcomes are most likely.
- Scientific understanding is developed through scientists working together and critically reviewing each other's work.
- The Intergovernmental Panel on Climate Change (IPCC) is the United Nations' body for assessing the science related to climate change, and identifying where there is agreement in the scientific community and where further research is needed.

Caring



Caring for self

- We can identify and reflect on the emotions we experience when we learn about climate change, for example climate anxiety, climate grief or climate apathy.
- We can select strategies that best help us to 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.
- Possible solutions to a problem need to be evaluated to consider issues such as cost, practicality and likely impact. 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, assigning roles and tasks to maximise the value of each person's contribution.
- When we reflect on something we have done, we can each learn from our experiences and do better in the future.

Exploring our future responses

- 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 and further away.
- We can choose to study courses that will help us learn more about different aspects of climate change and prepare us for related jobs.



Where is 'Understanding' in the Cambridge Pathway?

Cambridge Lower Secondary

The learning objectives in **Understanding** are closely linked to content found within these subjects in the Cambridge Lower Secondary programme:

- Cambridge Global Perspectives
- Humanities (especially learning objectives in 'Sustainability' and 'Weather and climate' within 'Place')
- Science (especially learning objectives in 'Earth and Space' and 'Science in Context').
- Wellbeing (especially learning objectives in 'Navigating my world').

Cambridge Upper Secondary and Advanced

Older learners will continue to develop their **Understanding** of climate change in subject-specific ways. Some subjects include climate change as a topic within the syllabus content, for example Cambridge qualifications in:

- environmental management
- geography
- sciences
- marine science.

Other subjects consider aspects of climate change, for example in Cambridge IGCSE™ Business students consider how and why businesses respond to environmental issues and topics such as sustainable production. In Cambridge IGCSE Economics learners can explore the possible conflicts between macroeconomic aims such as environmental sustainability and economic growth, use of taxation for encouraging environmental sustainability and the environmental factors of poverty.

Cambridge is committed to continuing to embed relevant climate change content throughout the Cambridge Pathway.

The following table shows the progression in Understanding from the end of Cambridge Primary to the end of Cambridge Lower Secondary.

Progression in **Understanding**:

		Prior learning from Cambridge Primary	Cambridge Lower Secondary
Causes of climate change	Climate system	<i>Weather</i> describes how hot, windy, wet or cloudy it is over hours, days or weeks.	<i>Weather</i> describes how hot, windy, wet or cloudy it is over hours, days or weeks.
		<i>Climate</i> describes weather patterns over at least 30 years in a specific area.	<i>Climate</i> describes weather patterns over at least 30 years in a specific area.
			The Earth's <i>climate system</i> is a complicated system of the atmosphere, water, ice, land, living things and energy from the Sun.
		Climate scientists use <i>scientific models</i> to understand and investigate how the climate works and can change.	Climate scientists use <i>scientific models</i> to understand and investigate how the climate system works and to predict what would happen if one or more parts of the climate system change.
			When the climate system changes, this can lead to differences in climate (<i>climate change</i>) and weather.
	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.	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 throughout the atmosphere act like a blanket to stop some of the reflected energy escaping into space. This <i>natural greenhouse effect</i> keeps enough of the Sun's energy near the surface of the planet so that the whole Earth does not freeze.
		<i>Greenhouse gases</i> 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 CO ₂ .	Carbon dioxide is a very important greenhouse gas because there is a lot of it and it lasts hundreds of years. Carbon dioxide can also be written as CO ₂ .
			Some chemical reactions produce carbon dioxide (e.g. aerobic respiration) and some remove carbon dioxide (e.g. photosynthesis).
			The carbon cycle shows how carbon atoms flow between stores in the atmosphere, water, ice, land

		Prior learning from Cambridge Primary	Cambridge Lower Secondary
			and living things. The carbon cycle helps maintain a balance of the carbon in different stores.
			Methane is another important greenhouse gas. It is naturally produced from decomposition and digestion. It keeps more of the Sun's energy near the Earth's surface than carbon dioxide but does not last as long in the atmosphere.
			Water vapour and nitrous oxide are also greenhouse gases.
			When the energy reaching planet Earth balances the energy leaving planet Earth, the climate is generally stable.
			Natural phenomena change the Earth's energy balance (e.g. wobbles in the Earth's orbit). These cause <i>natural climate change</i> .
			Most natural climate change takes a long time (10 000 to 100 000 years), e.g. ice ages starting and stopping.
	Climate change caused by humans	Human activities add more greenhouse gases to the atmosphere.	Human activities have added more greenhouse gases to the atmosphere since 1850.
			Some people and communities have produced or currently produce more greenhouse gases than others.
		A lot of carbon dioxide is produced by burning coal, oil and gas for heat, transport and to make electricity.	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.	A lot of methane is produced by decomposing waste, farming animals (especially ruminants like cows and sheep) and growing rice in flooded fields.
			A lot of nitrous oxide is produced from fertilisers used in agriculture.

		Prior learning from Cambridge Primary	Cambridge Lower Secondary
		Extra greenhouse gases act like a thicker blanket which keeps more of the reflected energy in the Earth's atmosphere. This causes <i>climate change</i> .	Increased levels of greenhouse gases have changed the Earth's energy balance and the climate system. This is called the <i>enhanced greenhouse effect</i> and is causing <i>human-induced climate change</i> .
			The enhanced greenhouse effect is not natural. The human-induced climate change it is causing is happening much faster than natural climate change.
Effects and consequences of climate change	Global warming	<i>Global warming</i> is one part of climate change and describes that the temperature near the whole of the Earth's surface is getting warmer.	The enhanced greenhouse effect means more of the Sun's energy stays in the Earth's climate system. This means the mean temperature near the Earth's surface (combining the near surface air temperature over land and the sea surface temperature for oceans) is warming. This aspect of climate change is called <i>global warming</i> .
		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.	The mean temperature near the Earth's surface has increased since 1850 and the rate of increase is accelerating.
			The effects and consequences of global warming become more serious as the Earth becomes warmer.
			Many countries are trying to limit the mean temperature rise because a rise of 1.5°C or 2°C (above levels from before 1850) will have serious effects and consequences.
	Effects of climate change	There are different effects of climate change in different places.	Climate change can affect our climate system in many ways. There are different effects 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.	Warmer land, air and oceans cause: • changes to the water cycle (contributing to floods, droughts and wildfires) • more extreme weather (including extreme heat and cold, and more intense storms) • melting polar ice and glaciers • rising sea levels.

		Prior learning from Cambridge Primary	Cambridge Lower Secondary
	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.	The effects of climate change have important consequences for humans and other living things. These include: • not having enough food and water • pests and diseases spreading into new areas • becoming ill from being too hot (heat stress) or too cold (cold stress) • homes and habitats being damaged or destroyed, e.g. by floods and fires.
			These consequences contribute to decreasing the variety of living things on land and in water.
		People do not experience the consequences of climate change equally. Some people, places and communities experience more serious consequences than others.	People do not experience the consequences of climate change equally. Some people, places and communities: • experience more serious consequences of climate change • have fewer resources to respond to climate change.

	Prior learning from Cambridge Primary	Cambridge Lower Secondary
Climate action	Understanding the causes, effects and consequences of climate change empowers us to take action, individually and in groups.	Understanding the causes, effects and consequences of human-induced climate change empowers us to take action individually and in our communities, and to seek to influence the plans and actions of governments and large businesses.
	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).	<i>Mitigation</i> means decreasing 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 or enhancing carbon sinks like forests and wetlands).
		Many countries and companies are trying to decrease their greenhouse gas emissions. Individuals, families and communities can also make a positive difference.
	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).	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).
		<i>Adaptation</i> means adjusting to the current and future effects and consequences of climate change (e.g. changing building approaches to work with a changing environment, such as not building on floodplains or building houses on stilts).
	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).	We can try to limit the effects and consequences of climate change through adaptations that decrease the number of people affected (e.g. having an emergency alert system) or decrease the impact of a climate event (e.g. having porous surfaces for car parks to reduce flood peaks).



Where is ‘Evaluating’ in the Cambridge Pathway?

The learning objectives in **Evaluating** are divided into two parts.

Cambridge Lower Secondary

The **Critical thinking** learning objectives are closely linked to content found within these subjects in the Cambridge Lower Secondary programme:

- Cambridge Global Perspectives
- Digital Literacy.

You will also find many opportunities to teach source analysis and critical thinking in other subjects, including Cambridge Lower Secondary English, English as a Second Language and Humanities.

The **Data and scientific literacy** learning objectives are closely linked to content found within these subjects in the Cambridge Lower Secondary programme:

- Cambridge Global Perspectives
- Humanities
- Science.

You will also find opportunities to make links to learning about statistics within Cambridge Lower Secondary Mathematics.

Cambridge Upper Secondary and Advanced

Critical thinking skills are developed in a very wide variety of subjects. Source analysis skills are a particular focus of Cambridge qualifications in History, Cambridge Global Perspectives, Thinking Skills and first language studies. These skills can then be applied to texts relevant to climate change education, for example greenwashing or climate misinformation.

Data and scientific literacy learning objectives are also developed in many subjects, especially sciences, mathematics, humanities and social sciences. These skills can then be applied to data related to climate change and the use of climate models.

The following table shows the progression in Evaluating from the end of Cambridge Primary to the end of Cambridge Lower Secondary.

Progression in **Evaluating**:

	Prior learning from Cambridge Primary	Cambridge Lower Secondary
Critical thinking	Sources are written for different reasons, including to inform and persuade.	Sources are written for different reasons, including to inform and persuade.
	It is important to distinguish between facts and opinions.	It is important to distinguish between facts and opinions.
		Facts often need to be checked using a range of trusted sources.
	Some sources are misleading, and before deciding whether to trust a source it is important to consider who wrote it and why.	Before deciding whether to trust a source it is important to consider who wrote it, why and whether they are likely to be biased.
	It can be difficult to identify the author of online sources.	It can be difficult to identify the author of online sources.
		<i>Greenwashing</i> is a major problem for responding effectively to climate change. It means misleading people into believing that a government or company is being more sustainable than it really is, and so it decreases or delays significant actions.
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.	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.	Climate change data is analysed to: • identify patterns and changes • test and improve climate models.
		Predictions from climate models give a range of possible outcomes and suggest which outcomes are most likely.
		Scientific understanding is developed through scientists working together and critically reviewing each other's work.
		The Intergovernmental Panel on Climate Change (IPCC) is the United Nations' body for assessing the science related to climate change, and identifying where there is agreement in the scientific community and where further research is needed.



Where is 'Caring' in the Cambridge Pathway?

Cambridge Lower Secondary

The learning objectives in **Caring** are closely linked to Cambridge Lower Secondary Wellbeing.

- Caring for self links to 'Understanding myself'
- Caring for others links to 'My relationships' and 'Navigating my world'
- Caring for the planet links to 'Navigating my world'.

Cambridge Upper Secondary and Advanced

The learning objectives in **Caring** can be developed through pastoral or tutorial programmes.

Cambridge is committed to continuing to embed relevant climate change content throughout the Cambridge Pathway.

The following table shows the progression in Caring from the end of Cambridge Primary to the end of Cambridge Lower Secondary. Several of the learning objectives appear for both age ranges, and learners can show progression by having increased understanding of their own emotions and approaches to self-care and a deepening connection to, and care for, other people and nature.

Progression in **Caring**:

	Prior learning from Cambridge Primary	Cambridge Lower Secondary
Caring for self	We can experience many emotions when we learn about climate change.	We can use our understanding of climate change to identify problems we want to solve.
	We can learn strategies to help us manage and care for our own emotions.	Creative thinking helps us identify lots of possible solutions to a problem.
Caring for others	We can try to support others who are affected by climate change, whether they live close to us or far away.	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.	We can respect nature and our planet, and want to protect it and repair damage to it.



Where is ‘Responding’ in the Cambridge Pathway?

Cambridge Lower Secondary

The learning objectives in **Responding** are closely linked to learning objectives in Cambridge Lower Secondary Global Perspectives. We expect that learners will develop skills in ‘Identifying problems and possible solutions’ and ‘Working together for positive change’ through many Team Projects. These do not all need to be related to climate change because the skills are transferable. Learners will also be able to apply creative thinking skills, for example from art & design, to problem solving.

The final part of Responding points towards job opportunities in the green economy and being aware of qualifications that can help get access to these roles. Careers counsellors can help support learning in this area as well as Cambridge Global Perspectives Challenges and Humanities Enquiries related to employment.

Cambridge Upper Secondary and Advanced

Many schools include a wide variety of community action team projects within their curriculum. In addition, Team Projects are an assessed component of Cambridge IGCSE and O Level Global Perspectives. More advanced students should be challenged to evaluate possible solutions using more criteria, such as considering both intended and unintended consequences. Projects do not all need to be related to climate change because the skills are transferable, and this can be promoted by a planned reflection at the end of each project.

Choices about further study and career opportunities are an important part of life for Cambridge Upper Secondary and Advanced students. As part of this, they should have the chance to explore job and study opportunities in the green economy so they can make informed decisions about their next steps. Careers counsellors can help support this aspect of Responding.

The following table shows the progression in Responding from the end of Cambridge Primary to the end of Cambridge Lower Secondary. Several of the learning objectives appear for both age ranges, and learners can show progression by having increased experience of, and skill in, working collaboratively.

Progression in **Responding**:

	Prior learning from Cambridge Primary	Cambridge Lower Secondary
Identifying problems and possible solutions	We can use our understanding of climate change to identify problems we want to solve.	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.	Creative thinking helps us identify lots of possible solutions to a problem.
		Possible solutions to a problem need to be evaluated to consider issues such as cost, practicality and likely impact. 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.	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.	We can learn how to work effectively as a team to achieve a shared aim, assigning roles and tasks to maximise the value of each person's contribution.
	When we reflect on something we have done, we can each learn from our experiences and do better in the future.	When we reflect on something we have done, we can each learn from our experiences and do better in the future.
Exploring our future responses	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.	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 and further away.
		We can choose to study courses that will help us learn more about different aspects of climate change and prepare us for related jobs.

Glossary

This glossary is provided to support your understanding of the content of this curriculum framework. The definitions are intended to be sufficient to guide an informed reader.

Adaptation – actions taken to adjust to the effects of climate change, such as building sea walls or having porous surfaces for car parks to reduce flood peaks.

Climate – a description of weather patterns over at least 30 years in a specific area.

Climate change – long-term alterations of climate in a place. This can be a combination of natural climate change and/or human-induced climate change.

Climate system – a complicated system of the atmosphere, water, ice, land, living things and energy from the Sun.

Dimension – a collection of learning objectives in the Cambridge Climate Change Education Framework that forms an area of learning.

Disaster risk reduction – the objective of decreasing the impact of disasters so that deaths, injuries, destruction and damage are less likely.

Enhanced greenhouse effect – an increased greenhouse effect caused by increased levels of atmospheric greenhouse gases (due to human activities). Unlike the natural greenhouse effect this leads to changes in the Earth's energy balance and climate system. It results in human-induced climate change.

Global warming – a description that the temperature near the whole of the Earth's surface is getting warmer; this is one part of climate change.

Greenhouse gases – a group of gases that stop some of the energy from the Earth escaping into space; examples include carbon dioxide and methane.

Greenwashing – misleading people into believing that a government or company is being more sustainable than it really is. This is viewed as a major problem because it decreases or delays significant actions.

Human-induced climate change – long-term alterations of climate in a place caused by human activities increasing greenhouse gases.

Learning objective – statements from the curriculum framework of the expectations of knowledge, understanding and skills that learners will develop; they provide a structure for teaching and learning, and a reference against which to check learners' ability and skills development.

Mitigation – actions taken to decrease the amount of greenhouse gases in the atmosphere by decreasing emissions or by removing gases already in the atmosphere.

Model (noun) – see Scientific model.

Model (verb) – to demonstrate scientific understanding of a concept through the use of a scientific model.

Natural climate change – long-term alterations of climate in a place that are not the result of human activities (e.g. ice ages starting and stopping).

Natural greenhouse effect – the natural process by which greenhouse gases throughout the atmosphere absorb and re-emit infrared radiation from the Earth's surface. The effect is that enough of the Sun's energy is kept near the surface of the planet so that Earth does not freeze. Note: The analogy of a blanket is used to describe this process for Cambridge Lower Secondary learners; more sophisticated models are used for older learners who choose to study this process in more advanced qualifications.

Scientific model – a way of showing scientific understanding of phenomena, systems or processes that helps scientists explore and explain ideas.

Source (of information) – a person, or something that a person has written or made, that provides information.

Systems thinking – a set of analytical skills used to understand complexity by thinking about the whole and the relationships between its interconnected and changing parts.

Weather – a description of how hot, windy, wet or cloudy it is over hours, days or weeks.

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