

Climate Education and Biodiversity Curriculum Map

Martlesham Primary Academy

Geography and Science

Key Concepts

End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Weather Environment Atmosphere Climate Climate change	Greenhouse effect Carbon Carbon footprint	Global warming Renewable energy Carbon sink	Fossil fuels Ecosystem Global emissions	Carbon Sequestration Decarbonisation

Knowledge

Scientific Basis of Climate Change

End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Pupils can explain the difference between 'weather' and 'climate'. Pupils know that some human activity causes pollution and this can change the climate. Pupils understand the world is heating up because of human activity. Pupils are familiar with the term 'Climate Change'.	Pupils know weather and climate are affected by human activities that contribute to climate change. Pupils are familiar with the term 'greenhouse gas emissions'. Pupils know that the term given to the world's	Pupils investigate the scientific evidence behind climate change and how it is affecting global weather patterns. Pupils know how the Greenhouse Effect contributes to Global Warming and can explain this using simple models (like a car on a hot day or a greenhouse).	Pupils understand that varying lifestyles produce varying carbon emissions. Pupils identify and explain the link between burning fossil fuels and climate change. Pupils can describe how carbon levels have changed over time	Pupils know how the greenhouse effect, and excessive greenhouse gases, are now causing changes to our climate. Pupils understand the concept of a carbon footprint and how human activities, such as transportation and energy use, contributes to the greenhouse gas

	climate becoming hotter is the Greenhouse Effect. Pupils are familiar with the term 'atmosphere'. Pupils understand that the Earth's atmosphere traps heat from the sun. Pupils know that Carbon Dioxide contributes to the Greenhouse Effect. Pupils know that carbon is found in plants (and all living things). Pupils know that plants use Carbon Dioxide and take it from the air.	Pupils know that carbon has a role in the earth systems. Pupils know the amount of carbon dioxide being emitted has changed over time. Pupils have a basic understanding of the scientific processes involved when fossil fuels are burnt (including the impact on the climate). Pupils begin to explore renewable alternatives to fossil fuels. Pupils know some renewable energy sources (and their importance) such as solar, wind, and hydro power and how they can reduce greenhouse gas emissions. Pupils know some types of green technology such as electric cars and energy efficient appliances, and how they can be used in homes and businesses to	including during prehistoric periods, the preindustrial era, the industrial revolution and the modern era.	emissions that cause climate change. Pupils know some different types of sustainable energy such as solar, wind and hydro power and how they can help reduce carbon emissions. Pupils understand the process of carbon sequestration, which involves capturing and storing carbon dioxide from the atmosphere, and how it can help mitigate climate change. Pupils know some different carbon sequestration methods such as afforestation and carbon capture and storage technologies.
--	---	--	---	--

		reduce energy consumption.		
Impact, Urgency and Climate Justice				
End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Pupils recognise some of the impacts of our changing environment on people locally and globally. Pupils begin to understand some of the choices they and others make have an impact on the environment. Pupils begin to understand that the future will be different depending on what we do now. Pupils understand the impacts of the changing climate and environments on animals locally and globally. Pupils know that some impacts of climate change are currently happening, and others may happen in the future. Pupils are aware that choices they make have an impact on the environment. Pupils are able to rank some human activities according to how much of an impact they have on the environment.	Pupils are aware that increased temperatures are already having an impact on people locally and globally. Pupils know about some of the impacts that higher temperatures are having on the environment already. Pupils know that the climate has changed throughout history but is changing faster today than it has before. Pupils can name some of the things that they do that are responsible for climate change. Pupils understand that some human activity causes pollution in the	Pupils understand the implications of climate change and the range of impact both locally and globally. Pupils can articulate some of the agreements that have been made by governments, and between governments, to take climate action. Pupils know that different countries contribute varying emissions that cause climate change. Pupils know that the impact of lifestyles on climate change can be measured. Pupils can explain what the term 'climate emergency' is.	Pupils can name a range of negative climate change impacts, and how they have changed over time, both locally and globally. Pupils explore how scientists and geographers are studying the impacts of climate change on ecosystems, agriculture, and human health. Pupils understand that 2030 is not an end-of-the-world deadline, but a target to reduce emissions to manage future impacts of climate change.	Pupils can identify current impacts, and a range of predicted future impacts of climate change. Pupils can articulate the connection between lifestyle and climate change. Pupils know that the impact of climate change in a country is not always linked to how much emissions they emit. Pupils can explain the significance of human-environment relationships and how natural resource management can protect natural resources to support life on Earth.

air which is affecting the world's climate and making the world hotter.

Pupils can describe the meaning of the term 'carbon footprint' and explain some ways this can be reduced to protect the environment.

Pupils compare the carbon footprints of different lifestyles (including those in other countries).

Pupils know about, and interpret, current trends in total global climate emissions.

Pupils know what the IPCC (Intergovernmental Panel on Climate Change) is and draw on some of its current research.

Pupils can explain what climate tipping points are and why action is urgent.

Pupils can explore a range of future scenarios based on scientific research.

Pupils are aware of future scenarios based on current scientific understanding (including best case scenarios).

Pupils start to understand why there is a lack of certainty in future predictions.

Biodiversity

End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Pupils begin to explore habitat loss and impact on familiar animals. For example, locally, red squirrel and hedgehog. Pupils understand the impacts of our changing climate on some animals, plants and environments both in our locality and elsewhere. Pupils know the basic elements of a habitat. Pupils know how some animals have features that help them survive from predators. Pupils know how some plants have features that help them survive from being eaten.	Pupils know that trees help to absorb rainwater and prevent flooding. Pupils understand the role plants and trees have on carbon emissions. Pupils know the names of different native tree species in their school ground/local area. Pupils can name common species that could be found in trees in their local area. Pupils know some basic survey methods to use to identify what is in trees.	Pupils begin to understand that several natural processes (e.g. trees growing, healthy soils and oceans) take greenhouse gases out of the atmosphere. Pupils know the names of the different habitats in their school grounds. Pupils understand that different types of animals and plants live in different habitats. Pupils can give examples of different types of animals and plants that can be found in specific habitats. Pupils know some species that can be found in different habitats. Pupils know the difference between freshwater and saltwater habitats. Pupils know some simple survey techniques for aquatic habitats.	Pupils can name some key carbon sinks. Pupils can also explore the benefits of afforestation, such as reducing soil erosion and improving air and water quality. Pupils understand that the greater the variety of habitats in an area means that there will be a greater number of species overall. Pupils can identify a range of impacts on plant and animal species over time. Pupils can identify different ecosystems such as forests, coral reefs, and wetlands and the impacts of climate change on biodiversity. Pupils know that hedgerows are beneficial for a variety of different species. Pupils know that hedgerows can provide	Pupils begin to understand how rising temperatures and changing precipitation patterns are affecting the habitats and survival of different plants and animal species. Pupils understand the impact of climate change on biodiversity and how this may impact in future. Pupils understand the impact of climate change on ecosystems both locally and globally. Pupils understand that grasslands are home to a variety of different species e.g., wildflowers, grasses, butterflies and other invertebrates. Pupils can choose which classification key to use for a number of species they may find in grassland. Pupils know that there are different types of grassland, and this

			access to other habitats in different places and begin to understand habitat corridors. Pupils can name some species found in local hedgerows. Pupils begin to use classification keys (e.g. those produced by the Field Studies Council).	determines which species are found there. Pupils understand why grasslands are threatened and what can be done to improve them. Pupils can choose and use a range of survey methods for a specific purpose.
Key Vocabulary				
End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Environment pollution atmosphere climate Sustainability Recycling	Emission carbon carbon dioxide Greenhouse Effect	Carbon sink Renewable Thames Barrier	fossil fuels ecosystem Biodiversity Afforestation	sequestration Decarbonisation Stock Flow climate justice
Actions				
Mitigation and Adaptation				
End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Pupils take part in actions which positively impact our world. For example, Planting, watering plants, litter collection, rainwater collection, walk to school). Pupils can choose some actions they / their class / school / family could take a positive impact on the climate.	Pupils can describe an example of how a group of people are taking positive action together and why they are doing it. Pupils can name several actions which would have positive impact on the climate and	Pupils can name some examples of how a group are taking climate action together and what impact this has had. Pupils can describe how natural resources can be harnessed to create sustainable energy.	Pupils investigate ways in which farmers are reducing their carbon footprint such as through conservation tillage, cover cropping, and the use of renewable energy sources. Pupils begin to understand the impact	Pupils are familiar with actions that are being taken locally, and globally within the context of international agreements. Pupils can describe a range of positive examples of how groups have taken climate

Pupils can name some positive actions that would help us stop having a negative impact on the environment. Pupils can describe a simple example of how a group of people are taking positive action together. Pupils name ways to protect natural environments, such as woodlands. Pupils can describe how human behaviour can be beneficial to our local and global environments now and in the longer term.	environment and some ways in which we can stop having a negative impact. Pupils can choose some actions they / their class / school / family could take a positive impact on the climate.	Pupils understand how energy use is linked to emissions. Pupils can identify actions they can take to reduce emissions.	of agriculture on climate change and how sustainable farming practises can help mitigate greenhouse gas emissions. Pupils know some of the ways in which consumers can support sustainable food systems, such as buying local and organic produce and reducing food waste. Pupils explore ways in which individuals and communities can reduce their carbon footprint through conservation, recycling and lifestyle changes. Pupils can explain how a carbon footprint is calculated and give some examples of different types. Pupils identify and explain ways that people can improve the production of products without compromising the needs of future generations.	action together. They can also articulate the impact of this. Pupils begin to discuss what makes climate action effective. Pupils can name some examples of effective climate action.
---	---	---	--	--

			Pupils can name a range of different climate action strategies: reducing consumption, using renewable energy and protecting or restoring carbon sinks. Pupils are familiar with the concept of emissions reduction targets but can identify different targets and begin to connect these with current scientific estimates for degrees of warming.	
Critical Thinking and Emotional Regulation				
End of Key Stage 1	End of Year 3	End of Year 4	End of Year 5	End of Year 6
Pupils are exposed to different viewpoints on the earth through stories and song. Pupils celebrate different landscapes and cultures locally. Pupils can reflect on how they feel when surrounded by nature vs (for example) a polluted road. Pupils understand that people value the environment differently. Pupils can name some things that people do that are harmful to the natural environment and some that are beneficial.	Pupils are exposed to different viewpoints on the earth and articulate their feelings in response to them. Pupils begin to understand that the future will be different depending on what we do now and can give some examples of how it might be different.	Pupils are exposed to different viewpoints on the earth and compare these experiences to their own. Pupils begin to understand that the future will be different depending on what we do now. They can give some examples of how it might be different and explain why.	Pupils are exposed to different viewpoints on the earth and relate this to their own experiences and beliefs. Pupils start to imagine different futures based on different emissions scenarios. Pupils explore how action, or lack of it, now will influence these different futures.	Pupils begin to form their own opinions on responses to climate change. Pupils begin to articulate personal beliefs and those of others in society. They identify sources that have influenced such mindsets. Pupils use information available to begin to

Pupils understand that spending time in nature helps us to feel calm and relaxed. Pupils begin to understand our actions can change the future. Pupils talk about their own feelings about the natural world and the environment. Pupils understand that nature is valuable.	Pupils can identify and name their own feelings about the earth, the natural world and the climate. Pupils understand that the natural environment needs to be looked after and respected. Pupils notice actions that are beneficial/harmful to the natural environment.	Pupils can identify and name their own feelings about the earth, the natural world and the climate and explain why they feel that way. Pupils show gratitude for the natural world and can give reasons why. Pupils have an awareness of different ways they can positively reduce emissions through personal change.	Pupils can identify and name their own feelings about the earth, the natural world and the climate and explain why they feel that way. Pupils can name key services that the natural environment provides. Pupils began to make lifestyle choices based on what is best for the natural environment.	develop their own ideas about rights and responsibilities now and in the future. Pupils can imagine different futures within their own likely lifetime based on different levels of heating including optimistic scenarios. Pupils know that the action people take now is directly linked to what will happen in the future. Pupils can identify and name their own feelings about the earth, the natural world and the climate and explain why they feel that way. Pupils can explain how/why having a healthy natural environment is beneficial for all life on earth. Pupils can explain how their lifestyle impacts on the environment and can identify ways to reduce their impact.
--	---	--	---	---

