The Big Ideas: What should young people know about **Climate Action** by the time they leave school?

Climate Curriculum Learning Outcomes

KEY IDEAS **SCIENTIFIC BACKGROUND**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils understand that some human activity causes pollution in the air which is affecting the world's climate / making the world hotter → Pupils understand the distinction between 'weather' and 'climate' → Pupils know that the climate is always changing but is changing faster today than it has before → Pupils know that trees help to cool the world down.	→ Pupils understand that burning coal, oil and gas has an impact on the climate and have a basic understanding of the scientific processes involved → Pupils are familiar with the terms 'atmosphere', 'Climate Change' and 'greenhouse gas emissions' → Pupils know that some natural processes like trees growing, healthy soils and oceans take greenhouse gases out of the atmosphere.	→ Pupils can clearly articulate the link between burning fossil fuels and climate change using appropriate scientific vocabulary → Pupils can name key carbon sinks such as forests, peatlands, oceans, algal blooms, and healthy soil → Pupils know what the Intergovernmental Panel on Climate Change is and can discuss some recent findings	→ Students can clearly explain the scientific consensus that human burning of fossil fuels is the main and original cause of today's climate change → Students can describe processes that undermine or boost carbon sinks → Students are aware that in the public arena there are alternative points of view and can begin to use scientific evidence to assess arguments for themselves → Students have explored vested interests and understand how these may shape arguments.	→ Students can name a range of greenhouse gases and describe in detail the processes that lead to their increasing concentrations in the atmosphere → Students know where uncertainties remain in climate science, e.g. how atmospheric water vapour will change; when tipping points may be reached; climate inertia; how ocean currents will change... → Students can give examples of confirmation bias (cherry-picking) both by climate deniers and by proponents of Near Term Human Extinction → Students understand the process of peer-review in science, and why it exists.

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The Big Ideas:

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Climate Curriculum Learning Outcomes

KEY IDEAS **URGENCY OF NEED FOR CLIMATE ACTION**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils know that some impacts of our changing climate are happening now and others will happen in the future	→ Pupils can explain why many institutions have declared a 'Climate Emergency', and what this means (see below re impacts of Climate Change) → Pupils know about some of the impacts that higher temperatures are having on people already.	→ Pupils can give examples of institutions that have declared a 'climate emergency' at different scales and are aware of synonyms such as 'climate crisis' → They are familiar with the concept of emissions reduction targets and can identify different targets and begin to connect these with current scientific estimates for degrees of warming → Pupils understand that 2030 is a scientific estimate of a year by which global emissions must have peaked in order to give humanity a reasonable chance of controlling eventual warming levels, and that it is not a deadline for an end-of-the-world scenario → Pupils know about current trends in total global climate emissions, i.e. whether they are rising, peaking or falling → Pupils begin to understand what climate tipping points are and can connect these with the urgency to act → Pupils are familiar with the findings of cost-benefit analyses comparing quicker and slower global responses.	→ Students can explain the significance of the threat that climate change potentially poses to life-forms on earth. They are aware that the global average temperature rise is accelerating → Students are familiar with current targets and understand what computer models suggest the impacts will be of achieving or not achieving these targets → Students know about current trends in global emissions and carbon sinks → Students are familiar with a range of climate feedbacks and understand their significance → Students can discuss their views about the risks associated with different global responses.	→ Students can explain key climate feedbacks in detail e.g. albedo changes, permafrost melt, soil degradation and wildfire frequency → Students can summarise current actions being taken at regional, national and international levels to reduce greenhouse gas emissions and boost carbon sinks in response to the current situation → Students are aware of geoengineering options, how they would work in theory, and recent evaluations of their potential

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The Big Ideas: What should young people know about **Climate Action** by the time they leave school?

Climate Curriculum Learning Outcomes

KEY IDEAS **IMPACTS OF CLIMATE CHANGE**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils understand the impacts of our changing climate on some animals, plants and environments both in our locality and elsewhere → Pupils know some of the impacts of our changing climate on people, both in our locality and elsewhere	→ Pupils can identify a range of impacts of past and / or present climate change on plants and animal species, including ***extinctions***, and on environments locally and across the world → Pupils can identify a range of observed impacts of our changing climate on people locally and across the world the world	→ Pupils understand how climate change is a factor in the current loss of biodiversity and can describe some future predictions in connection with this → Pupils understand the impact of climate change on ecosystems locally and across the world, both in the present and a range of future scenarios → Pupils can identify a range of impacts of our changing climate on people in the past and present, in their local area, in the UK, and also across the world → Pupils can identify current impacts, and a range of predicted future impacts depending on levels of heating, including human migration.	→ Students can explain current impacts of climate change on ecosystems locally and across the world, including habitat loss, food chain disruption and heat stress, and how these are contributing to the 6th mass extinction of species → Students can identify different future scenarios for species and ecosystems, and connect these projections with different levels of additional heating → Students can explain current impacts of climate change on humans locally and across the world → Students can identify different future scenarios for the impact of climate change on humans, and connect these projections with different levels of heating → Students consider current issues and future predictions for climate conflict	→ Students can explain a range of benefits and additional stresses caused by climate change on a range of species and ecosystems → Students can give examples of technologies that may be deployed to help species and ecosystems adapt to climate change → Students can give several examples of expected impacts of global heating on human health

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The Big Ideas:

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Climate Curriculum Learning Outcomes

KEY IDEAS **RESPONSES TO CLIMATE CHANGE**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils can name some actions which would have a positive impact on the climate and some ways in which we can stop having a negative impact → Pupils can choose some actions they / their class / their school / their family could take to have a positive impact on the climate → Pupils can describe at least one simple / familiar example of how a group of people are taking positive climate action together	→ Pupilsunderstandhowusingless energy can reduce emissions → Pupils understand what renewable energy is and can explain why it is important in reducing greenhouse gas emissions → Pupils understand the importance of trees for the climate and can explain why protecting / replanting forests is important for the climate → Pupils can identify actions that they can take personally to reduce emissions / promote carbon sinks → Pupils can identify actions that can be taken at the level of their school and locality → Pupils understand that leaders of governments make agreements with each other about climate action and can identify some of the content of these agreements → Pupils can name different examples of how a group are taking climate action together and can talk about the outcomes.	→ Pupils are familiar with a range of different climate action strategies including reducing consumption, using renewable energy and protecting/ restoring carbon sinks → Pupils begin to discuss what makes some strategies more effective than others → Pupils can identify actions they can take personally and with a group of which they are part → Pupils are familiar with actions that are being taken locally, nationally; and with key content of international agreements → Pupils begin to form their own opinions on these responses → Pupils can describe a range of examples of how a group have taken climate action together, both locally and across the world, and can talk about the outcomes → Pupils can discuss what makes for effective climate action	→ Students are familiar with some strategies for climate action at different levels and can evaluate their effectiveness → Students understand that climate action is taking place at the level of international agreements; national and local governments; businesses; particular groups and individuals → Students can explain why action on all of these levels is important to address the climate crisis → Pupils can identify actions they can take personally and with a group of which they are part → Students are familiar with the most recent intergovernmental agreement on climate action and the main points → Students understand arguments from different perspectives on how effective the agreement and its implementation are → Students can explain the importance of people participating in collective climate action and describe a range of examples of successful collective actions (e.g. the replanting of forests in Kenya, the lobbying of governments) → Students can identify some elements that have made these actions successful	→ Students can offer opinions about the aims and methods of political groups / movements that are responding to aspects of the climate emergency → Students understand arguments for and against legislative responses, including creating a “level playing field”, and limiting individual freedoms → Students understand connections between personal, collective and political responses to the climate emergency → Students begin to understand how political principles might shape the policy responses of different political parties

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The Big Ideas: What should young people know about **Climate Action** by the time they leave school?

Climate Curriculum Learning Outcomes

KEY IDEAS **CONSUMPTION AND CLIMATE JUSTICE**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils know that many of the choices they and others make have an impact on the environment / climate → Pupils begin to be able to rank human activities they are familiar with e.g. how they travel to school, according to how much of an impact they have on the environment / climate	→ Pupils can name some of the things that they and others do that are responsible for climate change → Pupils begin to explore alternatives to these activities which are less harmful → Pupils understand that you can measure how much impact an activity has and know that different lifestyles have a greater or lesser impact → Pupils understand that some individuals and countries are more responsible than others for greenhouse gas emissions to date → Pupils compare the carbon footprints of people with a different lifestyle to them, including in other countries	→ Pupils can clearly make the connection between climate change and things that they and others consume / activities they and others participate in → Pupils understand that different lifestyles cause much lesser or greater carbon emissions → Pupils can suggest a range of alternatives which might reduce greenhouse gas emissions → Pupils can explain simply what a carbon footprint of an individual, a product, or an activity is → Pupils can explain how some countries are more responsible than others for producing greenhouse gas emissions and compare this with where the climate crisis has the most severe impacts. They can use this information to begin to develop their own ideas about rights and responsibilities now and in the future.	→ Students are able to explain how patterns of human consumption, including their own, links to climate change → Students can identify a wide variety of activities which cause climate change and also suggest low / zero-carbon alternatives → Students can explain what a Carbon Footprint is, including the footprint of an organisation, city, region or nation → Students can put their own lifestyle in global and historical context → Students can describe practical strategies that individuals, organisations or regions can implement to reduce their carbon footprints → Students understand what 'carbon offsetting' is and can offer arguments for and against using it as a strategy → Students understand the concept of 'Climate Justice' and can clearly connect it to issues such as human rights and gender equality.	→ Students can articulate the benefits of low / zero-carbon alternatives and lifestyles → Students can explain and debate their own informed views about aspects of modern life associated with high emissions, such as flying, 'cloud' data storage, and cruises → Students can compare cap-and-trade, cap-and-share, and carbon tax approaches to reducing emissions → Students understand the distinction between zero emissions and net-zero emissions → Students develop their own opinions on climate justice proposals such as climate reparations, and contraction and convergence → Students are familiar with the idea of a 'just transition' and can give examples of what might be involved

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KEY IDEAS **POSSIBLE FUTURES**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils begin to understand that the future will be different depending on what we do now	→ Pupils can imagine different futures within their own likely lifetimes based on different levels of heating, including optimistic scenarios → Pupils know that action or lack of it now will have an effect on these different futures	→ Pupils can outline different possible future scenarios - typically in 2100 - depending on levels of heating → Pupils have an understanding of current scientific consensus on what these future scenarios may look like, including best-case scenarios → Pupils begin to understand the lack of certainty in future predictions → Students know that our scientific understanding is developing and being revised → Pupils are familiar with the 12 permaculture principles	→ Students are familiar with some current data findings and the possible implications of these for levels of heating in the future – typically in 2100 → Students can begin to identify which realistic future scenarios may be connected with which alternative course of action on emissions reduction / carbon drawdown / adaptation → Students know that our scientific understanding is developing and being revised all the time as data is collected and they appreciate the lack of certainty in predictions → Students can begin to synthesise their understanding of climate science, society, human nature and human potential to describe or visualise their own most optimistic and most likely scenarios in 2100 → Students can use permaculture principles to imagine future norms	→ Students can name a range of greenhouse gases and describe in detail the processes that lead to their increasing concentrations in the atmosphere → Students know where uncertainties remain in climate science, e.g. how atmospheric water vapour will change; when tipping points may be reached; climate inertia; how ocean currents will change... → Students can give examples of confirmation bias (cherry-picking) both by climate deniers and by proponents of Near Term Human Extinction → Students understand the process of peer-review in science, and why it exists.

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KEY IDEAS **MINDSETS AND VIEWPOINTS**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils are exposed to different viewpoints on the Earth, e.g. that of indigenous peoples	→ Pupils have the opportunity to explore viewpoints on the climate crisis, including people of colour and / or people of the Global South expressing their view in their own words	→ Pupils reflect on different views of the relationship of humans with the Earth (This might include a variety of different perspectives from around the word including some spiritual / faith perspectives) → Pupils begin to identify the viewpoints which have influenced their own mindset, and which influence society more widely in the UK. They are given opportunities to think critically about these.	→ Students critically reflect on attitudes to the earth which have influenced them and wider UK society → Students explore a range of different perspectives to climate change including those of indigenous communities, spiritual / religious perspectives, people of colour, the global south etc, if possible directly, or at least in the words of people from those communities → Students reflect on how different viewpoints might lead to different behaviours → Students explore which perspectives on the Earth they are personally drawn to and why	→ Students can confidently evaluate a range of ways of understanding the relationship between Earth and humanity from different perspectives → Students can begin to suggest how prevailing human mindsets might need to change or develop in response to the climate emergency.

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KEY IDEAS **FEELINGS AND BEHAVIOUR**

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Pupils can talk about their own feelings about the earth, the natural world and the climate	→ Pupils can talk about their feelings about the earth and the natural world, our changing climate and its impacts. They know that others have a range of different feelings, including anxiety and fear → Pupils begin to understand how some people can feel less anxious when they take action with other people	→ Pupils can talk about their feelings about the climate crisis and about their own future → Pupils are familiar with a range of methods people use to cope with anxiety about climate change including by taking collective action → Pupils begin to understand that awareness of the problem does not always lead to action and begin to explore some of the reasons why	→ Students understand that anxiety is a normal response to understanding climate change → Students can discuss their own and others' feelings in connection with climate change → Students have been introduced to a range of practices that can help to reduce anxiety → Students understand that there is often a contradiction between people's awareness of the problem and people actually changing their behaviour and can explain some of the reasons for this	→ Students have a range of strategies for managing anxiety about climate change → Students can demonstrate self-awareness in their lifestyle choices, including of internal contradictions. They can empathise with people whose choices are different from their own

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SKILLS FOR A NET CARBON ZERO FUTURE

- Food Growing
- Clothes Repair Skills
- Cycle Safety
- Cycle Maintenance
- Sustainable Cookery
- Household item repair skills
- Cutting down food waste

INTRODUCING KEY TERMS

By the end of Year 2:	By the end of Year 4:	By the end of Year 6:	By the end of Year 9:	By the end of Year 11:
→ Weather and Climate	→ Climate change → Atmosphere → Greenhouse effect → Greenhouse Gas emissions ./ → Carbon emissions → Carbon dioxide → Fossil fuels → Renewable energy	→ Carbon footprint → Climate emergency → Tipping points → Intergovernmental Panel on Climate Change → Ecosystems → Climate justice → Carbon sinks → Biodiversity → Permaculture	→ Carbon drawdown → Carbon capture and storage → Climate debt / climate reparations → Climate denial → Computer model → Climate feedback → Mass extinction	→ Confirmation bias → Peer review → Geoengineering → Just transition → Mitigation → Adaptation → Net Zero

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