



**GLOBAL EARLY CHILDHOOD EDUCATION
CLIMATE CHANGE LEARNING
STANDARDS
FOR 3-7 YEAR OLDS**

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ABOUT EARTH WARRIORS

[Earth Warriors](#) provides a comprehensive climate education school curriculum for 3-11 year olds using a positive and empowering approach, which has been reviewed by experts from Harvard and Stanford Universities. Our mission is to tackle the climate crisis by empowering 2 billion children to take action through age-appropriate climate education. The Earth Warriors approach empowers children to learn about climate change without causing any feelings of stress or anxiety and has been recognised as a [UNESCO Green Citizens initiative](#).

INTRODUCTION

Very few global climate change learning standards for students exist and those that do focus on the ages 7 and above. We have created a set of **comprehensive global early childhood climate change standards for children ages 3-7 years old** so that they have the foundational knowledge and skills needed to learn more complex climate change concepts in later years. These standards are age-appropriate and focus on building an emotional connection and bond with nature, harnessing students' innate willingness to help others and individual actions they can take to mitigate the effects of climate change.

METHODOLOGY

The following learning standards have been developed following a literature review¹, consultation and peer-review process:

- As a first step available learning standards for climate change for all age groups were reviewed and consultations held with various early childhood teachers and educators. It was established that there is no comprehensive set of standards focused exclusively on climate change for children aged 3–7 years old.
- The following climate change learning standards have been developed with 3 main objectives:
 1. First, the early childhood climate change learning standards should reflect the foundations needed for climate change learning in later years. To ensure this the standards were mapped against the available climate change learning standards for older age groups.
 2. Second, the learning standards should be age-appropriate. To ensure this the UK and US Early Childhood learning standards were cross referenced during development. The draft learning standards were then peer reviewed and finalised in consultation with our early childhood education expert.

¹Including the LEEDs University Climate Curriculum Learning Outcomes, the New Jersey State Standards, the US Next Generation Science Standards (NGSS), the California Environmental Education Learning Standards, and resources from the North American Association for Environmental Education (NAAEE)

3. Third, the learning standards domains must be the most relevant and accurate for climate change. The domains and standards were finalised in consultation with our climate change scientist.

- The peer-reviewed learning standards were circulated amongst a group of early childhood education teachers for further feedback before finalisation.

LEARNING STANDARDS

- All learning standards are progressive and build on standards learned in previous age groups (unless marked with an*). If students do not have the required prior knowledge from an earlier age group, the teacher should teach those standards before their specified age group standards.
- All learning standards should be viewed from a lens of student empowerment and taught in a positive manner rather than promoting defeatism and feelings of anxiety.

#	DOMAIN	AGES 3-4	AGES 4-5	AGES 5-6	AGES 6-7
1. FEELINGS, MINDSETS AND BEHAVIOUR					
1.1	Children believe their individual actions can make a difference	1.1.1 To make a connection with an Earth Warriors mission	1.1.2 Understand that individual actions can help control climate change	1.1.3 Identify individual actions that can help tackle climate change	1.1.4 Identify and articulate individual actions that can help tackle climate change
1.2	Emotional bond with and love for nature	1.2.1 Begin to develop an appreciation for the natural world by seeing our natural, local environment as something that they can protect through their own actions	1.2.2 Develop an appreciation for the natural world by seeing our natural, local environment as something that they can protect through their own actions	1.2.3 Develop an appreciation for the natural world by seeing our natural, local environment as something that they can protect through their own actions	1.2.4 Develop an appreciation for the natural world by seeing our natural, local environment as something that they can protect through their own actions
1.3	Positive attitude to tackle climate change	1.3.1a Get excited about their role as "Earth Warriors" in taking care of our home, planet Earth	1.3.2a Get excited about their role as "Earth Warriors" in taking care of our home, planet Earth 1.3.2b Understand there are children around the world who are tackling climate change	1.3.3a Get excited about their role as "Earth Warriors" in taking care of our home planet Earth 1.3.3b Know that they are part of a community of children tackling climate change	1.3.4a Articulate reasons why protecting the environment is important 1.3.4b Encourage others to tackle climate change and take care of our home, planet Earth

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2. EARTH'S SYSTEMS & INHABITANTS					
2.1	Why do we need to protect our Earth?	<p>2.1.1a Begin to understand that Earth is the planet we inhabit and our home</p> <p>2.1.1b Become familiar with the globe, begin to understand that it is a representation of planet Earth</p>	<p>2.1.2a Understand that Earth is the planet we inhabit and our home</p> <p>2.1.2b Begin to understand how people and animals are dependent on nature</p>	<p>2.1.3a Know how many different parts of an ecosystem can be connected</p> <p>2.1.3b Understand how people and animals are dependent on nature</p>	2.1.4b Understand that most of Earth's resources are finite so we need to use them sustainably
2.2	Earth is home to humans, animals and plants (biodiversity)	2.2.1a Communicate that people, plants and animals share planet Earth	<p>2.2.2a Understand that more than just people inhabit the planet and learn about different types of animals and plants</p> <p>2.2.2b Begin to understand that animals and plants live in and need different types of habitats</p>	2.2.3 2.2.3b Understand that plants and animals exist in many different habitats and environments	2.2.4b Understand the connections between plants, animals and their environments
2.3	Protecting habitats and biodiversity	2.3.1a Understand elements of a habitat and animals that live in it	<p>2.3.2a Understand that living creatures can change their environment to survive</p> <p>2.3.2b Begin to understand that some animals are endangered</p>	<p>2.3.3a Begin to understand how habitats can change positively and negatively with human activity</p> <p>2.3.3b Understand the stories of animals and the difficulties they face when their habitat changes</p>	2.3.4a Understand that there are things which humans do which negatively and positively affect biodiversity and habitats

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3. CLIMATE CHANGE FOUNDATIONAL SCIENCE					
3.1	Climate vs. Weather	<p>3.1.1a Relate to the changing seasons and weather</p> <p>3.1.1c Observe the weather outside of the classroom</p>	<p>3.1.2a Understand the concept of weather and relay the main weather events</p> <p>3.1.2b Begin to understand the concept of climate</p> <p>3.1.2c Observe the weather where they live</p>	<p>23.1.3a Understand the concept of climate and how it is different from the weather</p> <p>3.1.3c Understand the difference between average weather patterns and expected extreme weather events</p>	<p>3.1.4a Communicate what climate is and how it is different from weather</p> <p>3.1.4c Identify and differentiate between average weather patterns and different types of extreme weather events</p>
3.2	How do we know the climate is changing?	<p>3.2.1a Understand how ice melts</p>	<p>3.2.2a Observe that Earth's ice is melting because it's getting warmer</p> <p>3.2.2b Understand that when the climate changes, the Earth changes</p>	<p>3.2.3a Discern that the Earth's climate is getting warmer due to global warming</p> <p>3.2.3b Understand that there are many ways we can see climate change affecting the Earth including some extreme weather events increasing in frequency/intensity</p>	<p>3.2.4a Observe that long-term change in weather patterns means Earth's climate is changing</p> <p>3.2.4b Understand that there are many ways we can see global warming affecting the Earth including sea levels rising</p>
3.3	Why do we need to learn about climate change?	<p>3.3.1a Understand that people, plants and animals all have unique homes on planet Earth</p>	<p>3.3.2a Understand that people, animal and plants are dependent on the climate where they live</p> <p>3.3.2b To understand that Earth is constantly changing in some quick and some slow ways</p>	<p>3.3.3a Understand that people, animal and plants have adapted to their current climate conditions</p> <p>3.3.3b Understand that Earth's climate is changing faster recently</p>	<p>3.3.3a Understand that people, animal and plants have adapted to their current climate conditions</p> <p>3.3.3b Understand that Earth's climate is changing faster recently</p>

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4. CAUSES OF CLIMATE CHANGE					
4.1	The Greenhouse Effect	<p>4.1.1a Begin to understand the concept of air</p>	<p>4.1.2a Understand what the atmosphere and air are and why they are important</p> <p>4.1.2b Understand the concept of the greenhouse effect</p> <p>4.1.2c Recognize the mix of gases, including greenhouse gases that make up the atmosphere</p>	<p>4.1.3b Understand that greenhouse gases act like a blanket heating up the earth</p> <p>4.1.3c Connect that there is a natural balance of the mix of different gases in the atmosphere</p> <p>4.1.3d Understand that excess greenhouse gases have a negative impact on air quality</p>	<p>4.1.4b Identify different types of greenhouse gases and their sources (natural vs. man-made)</p>
4.2	Human activities	<p>4.2.1a Begin to understand the concept of air pollution</p>	<p>4.2.2a Understand what fossil fuels are and how they are used by humans</p>	<p>4.2.3a Recognize that the use of fossil fuels by humans has increased over the years and has changed the air</p> <p>4.2.3.b Equate increased use of fossil fuels with increase in greenhouse gases</p>	<p>4.2.4a Understand what carbon emissions are*</p> <p>4.2.4b Understand that a range of activities create carbon emissions that are not always obvious*</p> <p>4.2.4c Recognize that almost everything around us is made by creating carbon emissions*</p> <p>4.2.4d Observe that our own activity is linked to carbon emissions*</p>

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5. INTRODUCTION TO ENERGY					
5.1	Energy and its sources		5.1.1 Understand that sunlight warms the Earth's surface.	5.1.2 Understand that Earth has a range of energy sources and what they are	
5.2	Renewable vs. Non-renewable energy			5.2.1a Understand there are different types of energy. Some will run out, others are renewable*	5.2.2a Understand the difference between fossil fuels and renewable energy. 5.2.2b Understand why renewable energy is more sustainable
5.3	Who needs energy?	5.3.1a Begin to understand that humans need energy and what gives us energy (ex. food)	5.3.2a Relate that humans, animals and plants all need energy	5.3.3a Recognize that both living and non-living things need energy 5.3.3.b Distinguish which non-living things need energy	5.3.4a Observe where energy is used in their own lives

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6. DATA OBSERVATION & COLLECTION					
6.1	Data observation & recording	<p>6.1.1a Understand and record phenomenon in their local environment through verbal discussions and asking questions</p> <p>6.1.1b Make observations to determine the weather</p>	<p>6.1.2a Understand and record phenomenon in their local environment through drawings</p> <p>6.1.2b Make observations to determine the weather & record it by drawing</p> <p>6.1.2c Identify sources of energy in their local environment</p>	<p>6.1.3a Understand and record phenomenon in their local environment through drawings and writing</p> <p>6.1.3b Make observations to determine the weather & record it by drawing and writing</p> <p>6.1.3c Identify sources of greenhouse gas emissions in their local environment</p>	<p>6.1.4a Understand and record phenomenon in their local environment through writing</p> <p>6.1.4c Identify sources of greenhouse gas emissions in their local environment and brainstorm ways to reduce them</p>
6.2	Data analysis & patterns		<p>6.2.1a Use observations to describe patterns of weather over time</p>	<p>6.2.2a Use observations to describe patterns of weather over time</p>	<p>6.2.3b Interpret recorded data about phenomena in their local context and why certain results happen*</p>

THESE LEARNING STANDARDS WERE CO-DEVELOPED BY:



SHWETA BAHRI

EARTH WARRIORS

Shweta grew up in India and is an education policy specialist who has worked with governments, multilateral organisations and civil society in South Asia and Africa over the last 10 years. Alongside technical assistance, policy design and evaluation, Shweta also has strong experience in management and strategy development. Shweta started her career at Oxford Policy Management and most recently worked at the Ark Education Partnerships Group. She is also the founder of No More Waste which is a platform to promote sustainable solutions for individuals and businesses in India. Shweta has a Master's in Public Administration from the LSE & an undergraduate degree in Land Economy from Cambridge University.



KEYA LAMBA

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Keya grew up in Hong Kong and began her career as a Kindergarten teacher in California with Teach for America. Over the past eight years, Keya has taught in early childhood classrooms, designed and facilitated teacher professional development and created play-based curricula for low-resource settings. Most recently, Keya has designed the early childhood radio scripts for Rising Academy Network's Rising On Air program, supporting over 10 million students globally during COVID-19 school closures. Keya has a Master's in International Education Policy from the Harvard Graduate School of Education, where she was an Early Childhood Education Zaentz Fellow, & an undergraduate degree in International Development and Chinese from UCLA.



MICHAEL MASTRANDREA

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Michael is an interdisciplinary scientist focused on managing climate risks and the design and implementation of energy and climate policy in California and beyond. He is Research Director of the Climate and Energy Policy Program and a Senior Research Scholar at the Stanford Woods Institute for the Environment. He also serves as Chief Advisor for Energy and Climate Research at the California Energy Commission. Prior to joining Woods he was Director of Near Zero and a Senior Research Associate at the Carnegie Institution for Science. He was part of the leadership team for the Intergovernmental Panel on Climate Change Fifth Assessment Report, where he helped lead the development of two international scientific assessments of climate change science and policy options. He has also served as an author for the Fourth U.S. National Climate Assessment and as an associate editor for the California Fourth Climate Change Assessment. Mastrandrea sits on the Editorial Board and is a Managing Editor for the journal Climatic Change. He holds a Ph.D. from Stanford's Emmett Interdisciplinary Program in Environment and Resources, and a B.S. in Biological Sciences from Stanford.



DANA CHARLES MCCOY

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Dana is the Marie and Max Kargman Associate Professor in Human Development and Urban Education Advancement at the Harvard Graduate School of Education. Her work focuses on understanding the ways that poverty-related risk factors in children's home, school, and neighborhood environments affect the development of their cognitive and socioemotional skills in early childhood. She is also interested in the development, refinement, and evaluation of early intervention programs designed to promote positive development and resilience in young children, particularly in terms of their self-regulation and executive function. McCoy's research is centered in both domestic and international contexts, including Brazil, Peru, Ghana, Tanzania, and Zambia. She has a particular interest in interdisciplinary theory, causal methodology, and ecologically valid measurement. Before joining the HGSE faculty, McCoy served as an NICHD National Research Service Award post-doctoral fellow at the Harvard Center on the Developing Child. She graduated with an A.B. in psychological and brain sciences from Dartmouth College and received her Ph.D. in applied psychology with a concentration in quantitative analysis from New York University. McCoy's work has been published in journals such as Developmental Psychology, Child Development, Pediatrics, and The Lancet. She has presented her work to audiences around the world, including the WHO, UNICEF, and the World Bank.