



Arcadia Wildlife Sanctuary

Climate Change Programs

GRADES 7 to 12

massaudubon.org/arcadia



Arcadia Wildlife Sanctuary
127 Combs Road
Easthampton, MA 01027

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Arcadia Wildlife Sanctuary

Spanning Easthampton and Northampton, Arcadia's diverse terrain (forest, meadows, grasslands, marsh, and wetlands) attracts an extraordinary variety of wildlife. You will also find a thriving population of wildflowers, thanks to its rich, loamy soil, which is characteristic of the Connecticut River floodplain.

About Mass Audubon Programs

Through field studies and classroom explorations, Mass Audubon programs provide hands-on, inquiry based experiences with science content and practices. Our educators enhance students' scientific understanding of species and habitats; ecological concepts such as food webs, cycles, systems, adaptation, and evolution; climate change; and interrelationships between people and nature.

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Life in a Changing Climate Program

Our climate is changing and so have the state science standards. Arcadia is here to help your students and teachers prepare for both of these changes with hands-on, minds-on, and grade-level appropriate lessons on climate change. These lessons include an optional field trip and can be made high tech (laptops and projectors) or low tech (printouts and post-its) depending on your classroom needs.



Mass Audubon protects 36,500 acres of land throughout Massachusetts, saving birds and other wildlife, and making nature accessible to all. As Massachusetts' largest nature conservation nonprofit, we welcome more than a half million visitors a year to our wildlife sanctuaries and 20 nature centers. From inspiring hilltop views to breathtaking coastal landscapes, serene woods, and working farms, we believe in protecting our state's natural treasures for wildlife and for all people—a vision shared in 1896 by our founders, two extraordinary Boston women.

Today, Mass Audubon is a nationally recognized environmental education leader, offering thousands of camp, school, and adult programs that get over 225,000 kids and adults outdoors every year. With more than 125,000 members and supporters, we advocate on Beacon Hill and beyond, and conduct conservation research to preserve the natural heritage of our beautiful state for today's and future generations. We welcome you to explore a nearby sanctuary, find inspiration, and get involved. Learn how at massaudubon.org.

Stat Highlights from our Life in a Changing Climate Program:

- 88% of students who participated in 2016-17 reported an increased confidence in understanding, talking about, and taking action on climate change.
- After participating in LCC, 90% of students from one school mentioned eliminating fossil fuel use as a main way to fight climate change (up from 0%).
- 51% of the 80 7th graders from one school showed an increase in understanding of the potential impacts of climate change after the program.

Quotes:

"I knew that climate change was happening, but this has really helped me to understand how it works."

- 7th Grader at Hampshire Regional Middle School

"Thanks so much for delivering the wonderful climate change program to our 7th graders over the past few days. It really helped the students put the pieces together, and they had a lot of fun!"

- Science teacher at Hampshire Regional Middle School

"I just wanted to thank you for inviting me to that climate summit! I really, really enjoyed it. I was blown away by the opportunity to talk to the organizers in Germany, especially as they're right in the middle of this direct action on a world stage. Insanely cool... - Thank you again, I had a great time"

-Student participant, 2017 Western Mass Youth Climate Summit

"If there ever was a summit that was informative, fun, resilient, meaningful, and well-planned... I think that was it."

-Teacher participant, 2017 WMYCS

Contact Us:

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High School

Class #1: Climate Science

Students review the carbon cycle and greenhouse gas effect. They view scientific predictions and calculate their own carbon footprint.

Class #2: Tracking Climate Changes

Students use local maple sugaring data to hypothesize the impact climate change may have on an important and iconic species. They will then predict how changes will impact our economy, health, and infrastructure.

Fieldtrip: Forest Resilience and Solutions

On sanctuary or school grounds

Students learn about past, current, and future forest changes due to human activities. They use the forests of Arcadia or their school grounds to perform a forest resiliency study and propose management strategies and do a forest carbon sequestration calculation. They also explore climate solutions, participate in an optional outreach challenge, and discover which green career fits their personality.

HS-ESS2-4. Variations in the flow of energy result in changes in climate

HS-ESS2-6. Describe cycling of carbon through the ocean, atmosphere, soil, and biosphere

HS-ESS3-1. Changes due to variations in climate influence human activity

HS-ESS3-5. How forecasts are made of the current rate of climate change and associated future impacts

HS-LS2-5. Explain the cycling of carbon

HS-LS2-7. Analyze direct and indirect effects of human activities on biodiversity and ecosystem health



Middle School: 7th Grade

Class #1: Climate Science Basics

Students uncover some climate misconceptions and explore the carbon cycle's role in climate by becoming carbon atoms both before and after the industrial revolution.

Class #2: Changing Wildlife

Students brainstorm changes to local wildlife populations and use historical bird species data to track changes in populations over time. Students will use the online Mass Audubon State of the Birds and Climate Change report to answer questions about range, distribution, breeding, and habit, and interpret graphs to predict why there has been either an increase or decrease in their species in Massachusetts.

Fieldtrip: Changing Habitats and Solutions

Students visit Arcadia's vernal pool, forest, field, farm, river, and meadow habitats to discover past, current, and future changes. They propose ways to protect habitats for the future, explore climate solutions, and participate in an optional outreach challenge.

7.MS-LS2-3. Matter and energy are transferred among living and nonliving parts of an ecosystem
7.MS-LS2-4. Disruptions to an ecosystem can lead to shifts in all its populations
7.MS-LS2-5. Evaluate competing design solutions for protecting an ecosystem

Middle School: 8th Grade

Class #1: Climate Science Basics

Students discover the scale of the atmosphere and explore the role of greenhouse gases as they participate in a simulation of increased heat-trapping gases in our atmosphere.

Class #2: Using Climate Data: Keeling Curves

Students learn about ppm and use real carbon dioxide data to make inferences about our future climate by calculating slope and comparing to climate scientists' predictions.

Fieldtrip: Climate Impacts and Solutions

Students focus on the benefits and costs of climate solutions by touring Arcadia's attempts to "lead by example" throughout the sanctuary. Students will identify solutions they are willing to try, calculate the amount of carbon they will save, and create a pledge for their class.

8.MS-ESS3-5. Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century.

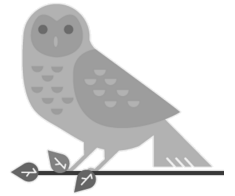


Program Options

Contact us if you would like to participate in our climate programs but can't find one that works for you or your school. We offer stand-alone, in class, and fieldtrip opportunities for all grade levels.

Professional Development

Our Life in a Changing Climate workshop focuses on climate change activities in the classroom. Teachers will gain confidence in the basic science of climate change, explore real data they can use with their students, try some age appropriate activities, and get a preview of Arcadia's Life in a Changing Climate fieldtrip. This workshop would also be appropriate for administrators, department heads, or curriculum directors. It can take place at the sanctuary or at your school.



Western Mass Youth Climate Summit

Inspired by the WILD Center in the Adirondacks, Arcadia Wildlife Sanctuary has partnered with the Hitchcock Center for the Environment to bring Youth Climate Summits to Western Massachusetts.

Summits are a unique and meaningful way of creating climate leaders by bringing high school students together with peers and local climate advocates. Contact us if your school would like to participate in the next Western Mass Youth Climate Summit.