

MAINE GREEN SCHOOLS

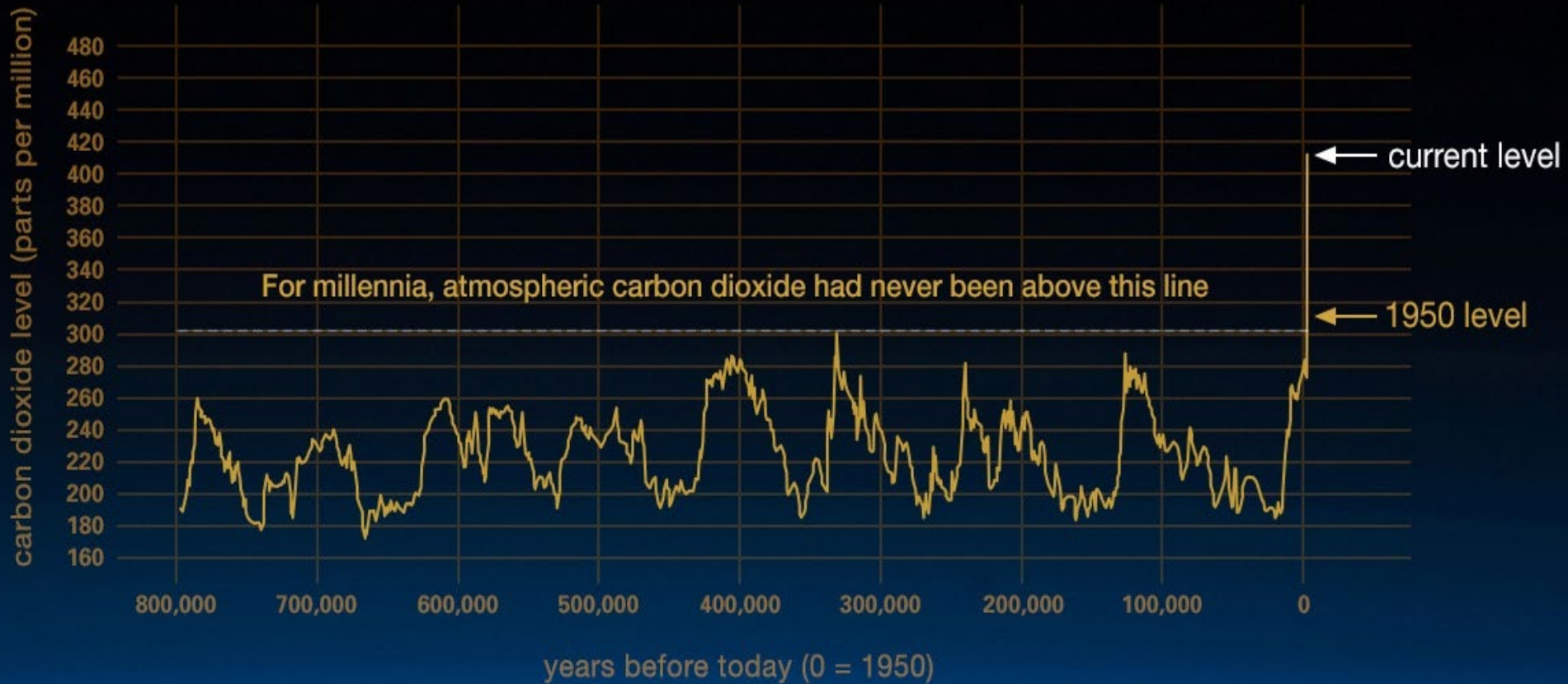


Sustainability in Every School Community

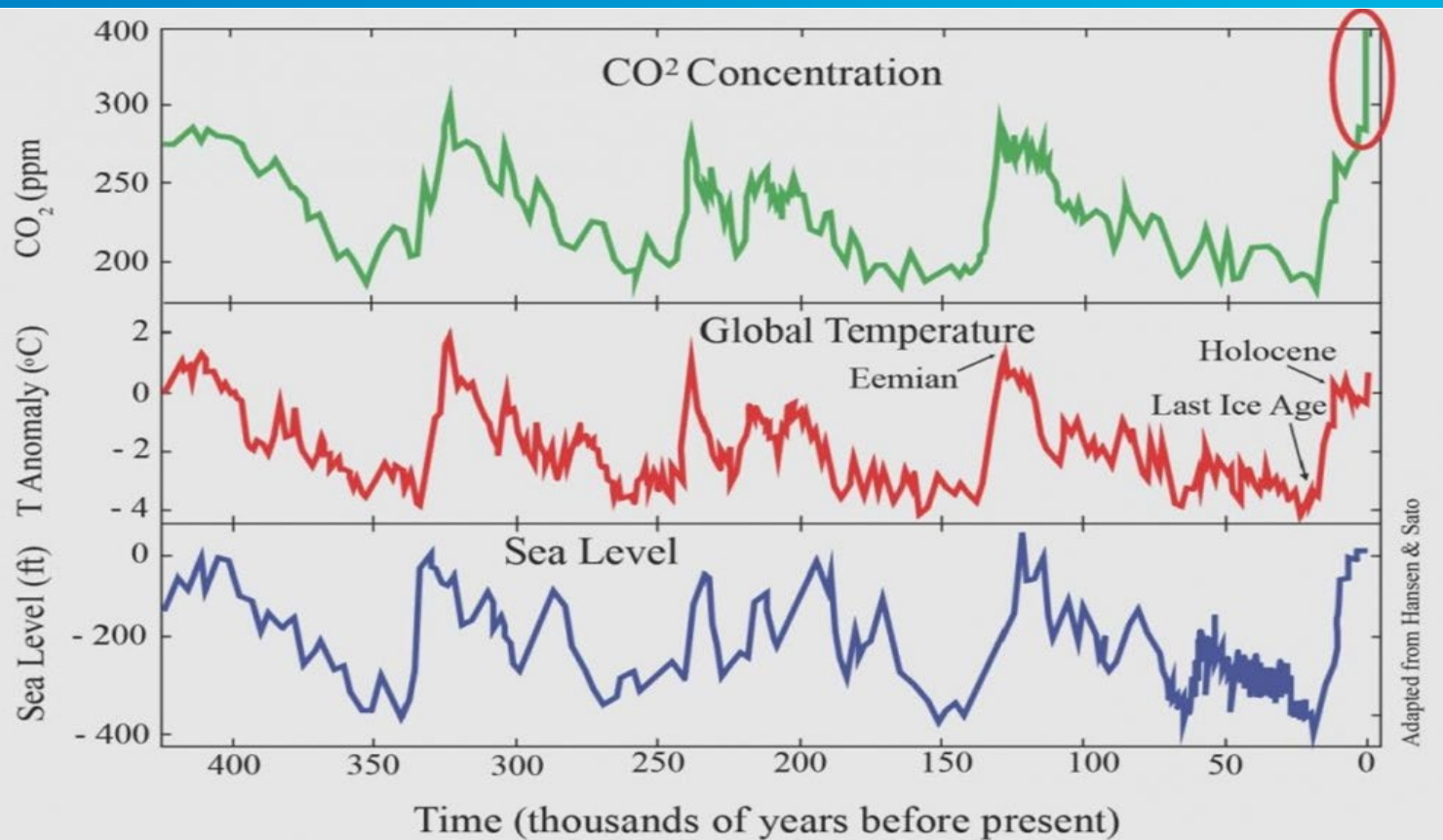
Glenn Cummings, Teddy Lyman, Peter Dugas

March 20th, 2026

CO2 levels highest in 800,000 years



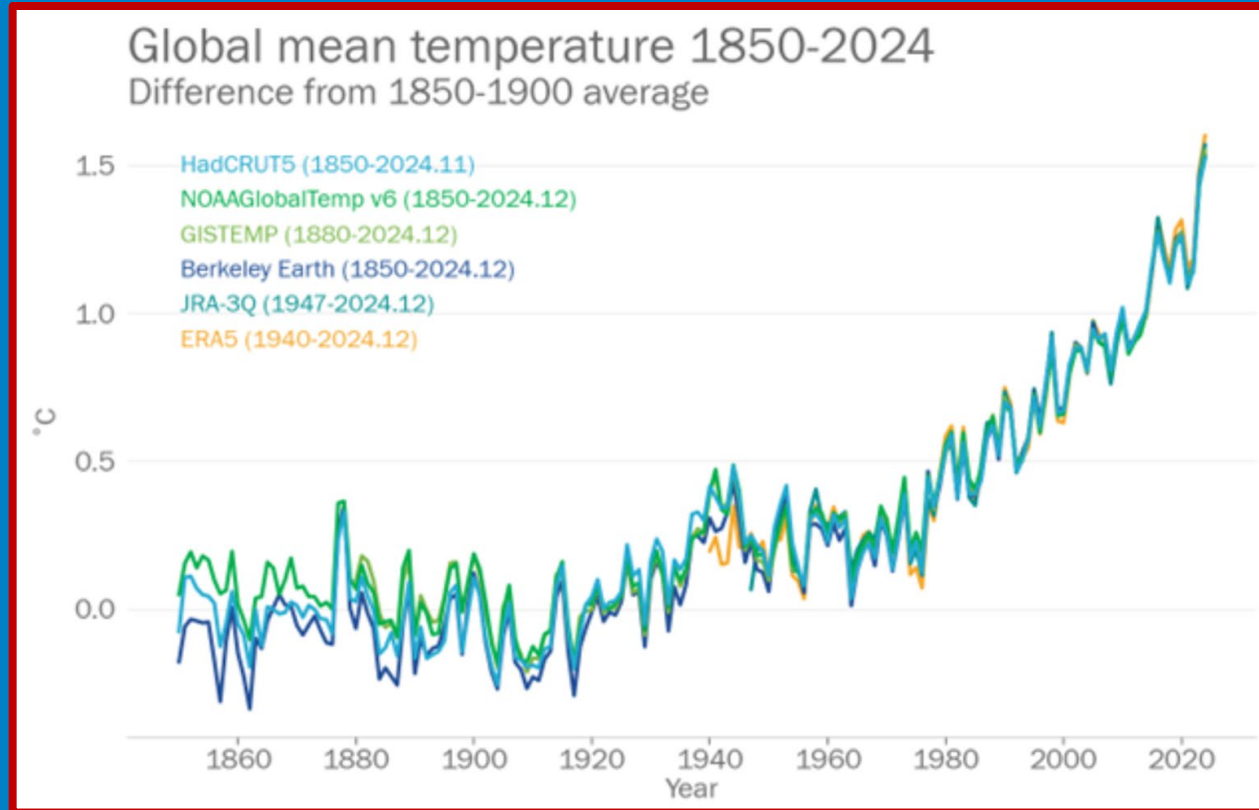
CO2 Emissions are driving Climate Change



...and it's Getting Warmer, Faster

2024 was the first year to exceed the 1.5° C goal, averaging +1.6° C (+2.7° F) warmer than pre-industrial times.

+ 1.5° C is the desired limit set in the 2015 Paris Accord.



Adaptation is not Enough

“Despite an increase in adaptation actions across the country, current adaptation efforts and investments are ***insufficient to reduce today’s climate-related risks*** and keep pace with future changes in the climate.”

- Fifth National Climate Assessment Report 11/2023

If not, what is the most effective strategy to take?

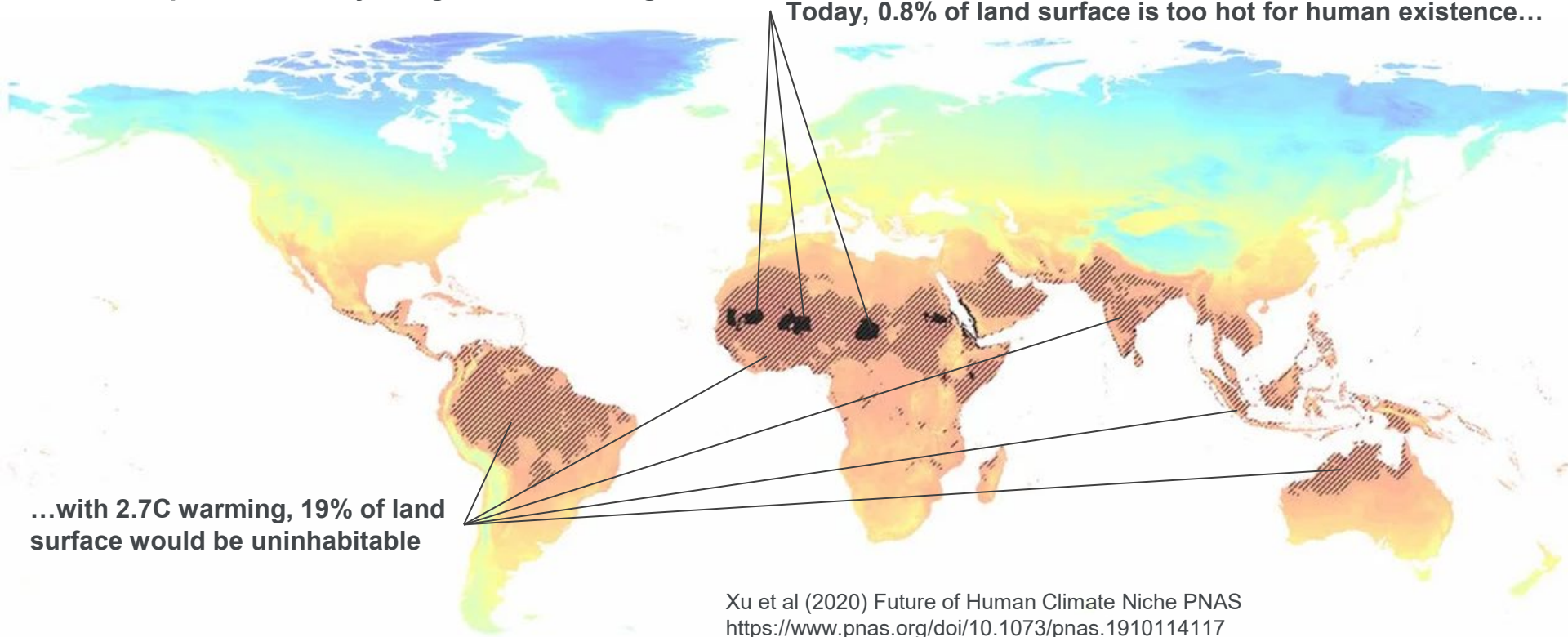
The Consequences are Dire

1 Billion displaced for every 1 degree C of warming

Today, 0.8% of land surface is too hot for human existence...

...with 2.7C warming, 19% of land surface would be uninhabitable

Xu et al (2020) Future of Human Climate Niche PNAS
<https://www.pnas.org/doi/10.1073/pnas.1910114117>



Climate Crisis Threatens Market Economy

Climate crisis

Climate crisis on track to destroy capitalism, warns top insurer

Action urgently needed to save the conditions under which markets - and civilisation itself - can operate, says senior Allianz figure

Damian Carrington
Environment editor

Thu 3 Apr 2025 05.41 EDT

 [Share](#)



Introduction

Name

Pronouns (if comfortable)

Where are you coming from in the state?

What do you love about Fall?

What experience or curiosities are you bringing to this session?

Norms

1. Stay Engaged

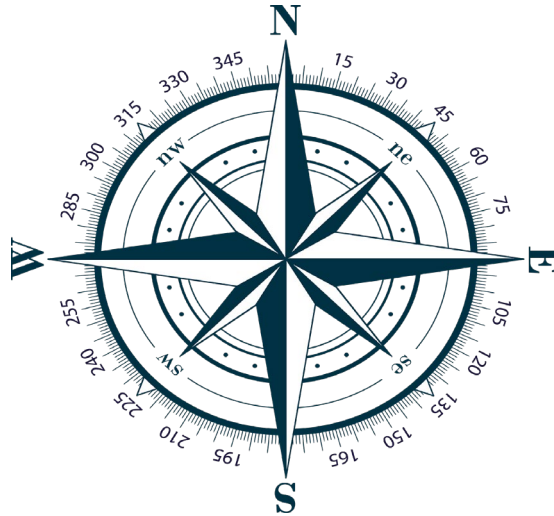
1. Why sustainability in our schools and communities is so crucial
2. What is the Green Schools Initiative
3. How to get start:
 - a. Leadership: Exploring your community resources, assets, and needs
 - b. Curriculum: En-ROADS and Climate Policy

9:00 - 10:15	Introduction Frameworks Asset Mapping
10:15 - 10:30	Break
10:30 - 11:30	Lesson Planning Enroads Wrap Up
Take breaks that help you learn best	

Maine Green Schools Initiative

NORTH

Leadership for Climate Action



WEST

Climate Ready Career Pathways

EAST

Clean Energy Systems and Buildings

SOUTH

Climate Curriculum, Instruction, Assessment

WHY?



Benefits of Being in Nature

1

Walks in Nature
Improve Memory

2

You Feel Happier

3













Nature Can Literally
Heal

4

Helps with
Concentration



How are languages Literally different?

Traditional Name	Pronunciation	Meaning	Westernized Name
Mi'kmaq 	meeg-muck	My kin friends	Micmac 
Panawahpskeweyak 	Buh-na-wuhp-skeh-w-ee-yug	People of where the rocks widen out	Penobscot
Alenapayi-menehan 	Ahl-nuh-buyee min- n-hun	"The people's island"	Indian Island 
Peskotomuhkatiyik 	Beska-d'm-oo-kud-ee-yig	People who hunt pollock	Passamaquoddy
Sipayik 	Z-bye-ig	"At the edge"	 
Motahkomikuk 	moo-dock-me-guhg	"At the sharp, steep land"	Indian Township 
Wolastoqiyik 	woh-luhst-tuk-ee-ig	People of the beautiful river	Maliseet 
Abenaki	ah-ben-ahk-ee oh-dun-ahk	People of the East in the village	Abenaki 
Odanak		"Coming home"	Odanak 

RESEARCH (Brown University)

[SustainableED - Sustainable Education Research Initiative | Annenberg Institute at Brown](#)

1. Schools are a **major part of the nation's public infrastructure** and contribute significantly to carbon emissions through energy use, transportation, and food systems.
2. Climate-related **disasters** are increasing in frequency and intensity, putting physical **strain on school facilities** and finances.
3. Environmental pressures **negatively impact students' cognitive development, health, attendance, and achievement**, and also strain **teachers' well-being** and ability to support learning.
4. Many U.S. students graduate with **limited knowledge about climate science or careers** that advance sustainable practices.
5. Schools have influence beyond the classroom: they shape students' and families' climate beliefs and behaviors, serve as **trusted community hubs**, and have the potential to drive broader environmental awareness and resilience.

Learning Results

[Learning Results with Environmental Literacy Overlay Guide](#)



Two Eyed Seeing



Green School Frameworks



UN Green School Quality Standard

“Think Global, Act Local” - [THE 17 GOALS | Sustainable Development](#)

4 Core Dimensions

1. School Governance
2. Facilities and Operation
3. Teaching and Learning
4. Community Engagement

Action related to ...								
Action	Level of resources needed	Energy efficiency	Water conservation	Waste management	Sustainable transportation	Green infrastructure	General infrastructure	Health and well-being
Promote energy-saving habits in relation to the reduction of greenhouse gas emissions, by maximizing natural lighting in classrooms and common areas, opening/closing windows to regulate room temperature and fixing reminders to turn off lights/equipment when not in use.	Low	✓						✓
Implement waste reduction measures at source such as minimizing paper usage, opting for electronic document sharing and promoting the use of reusable water bottles, utensils and lunch boxes, and adopting strategies to reduce food waste, while discussing the link between resource consumption and climate change. Considering the unique perspectives and experiences of youth, women and indigenous communities can lead to more inclusive, culturally appropriate and effective solutions.	Low			✓				✓
Ensure waste bins are properly labelled, conveniently situated and provided in sufficient quantities.	Low			✓				

Essential First Steps:

1. Entrust the Green Committee to develop a Green School vision and policy
2. Develop a Monitoring Team
3. Create lesson plans
4. Organize Awareness Campaign

GreenPrint™ - Green
Schools National Network -
US Green Building Council



A Few WHY's



60%

of youth between the ages of **16 & 25** described themselves as very worried about the climate and nearly half said the anxiety affects their daily functioning. [*Lancet Planetary Health, Global Study 2021*](#)



Studies show that curriculum-based environmental education can reduce energy use in schools by over **30%** and in student homes by more than **15%**, directly lowering operating costs [*Choosing Our Future: Education for Climate Action Sabarwal et al., \(2024\)*](#)



86%

More than **86%** of educators support climate education in their classrooms and **84%** of parents support climate education in schools yet **75%** of educators have not received any professional training or education on the topic. [*Columbia Climate School \(2023\)*](#)

If just **16%** of secondary school (equivalent to middle and high school) students around the world in middle and high income countries studied climate change, **it would result in cutting almost 19 gigatons of CO2 by 2050.** [*Columbia Climate School \(2023\)*](#)

That's the equivalent of over 4 billion passenger cars emissions in a year.



AND... *Because the next generation needs our support*



Higher climate anxiety can contribute to poor mental health which in turn can contribute to higher loneliness and higher perceived social isolation *Climate Anxiety, Loneliness and Perceived Social Isolation: André Hajek & Hans-Helmut König 2022*



“Our findings suggest that engaging in collective action can buffer the effects of climate change anxiety.” Sarah Lowe, Ph.D., Assistant Professor of Public Health at Yale University *Yale School of Public Health Study 2022*

- **Create Future Leaders**
- **Lessen Anxiety**
- **Create More Connected Resilient Communities**



Bridge macro global issues to tangible, local impacts

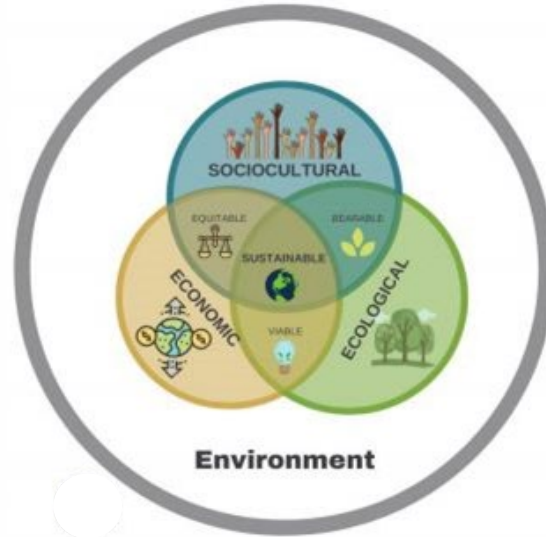
From Overwhelm....

To Empathy.....

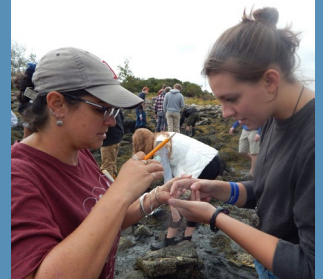
To Understanding



Sometimes the whole cake at once is tough to take



To Empowered Local ACTION!



How Does This Help Youth?

Holistic Learning- Transdisciplinary

- to inspire critical thinking and understand the complexities of the subject and the problem

Inspire Civic Engagement

- Become future civic and pro-environmental behaviors
- Empowers their sense of agency

Place-based Learning

- Connecting abstract concepts to a local context for civic learning
- Grows empathy
- Creates a sense of community and connection

Community Based Action Projects

- Greening Schools Projects
- Adaptation/Mitigation Projects for the Community
- Ideas for future careers and pathways



Foundation: Setting yourself up to succeed

Outdoor School Yards

- Decrease pavement for permeable solutions
- Enhances Biodiversity
- Intergenerational connection combat loneliness
- Alternate Transportation
- Healthier play areas

Addressing local issues

- Lowering costs for the school helping families at the fringes
- Creating future opportunities for employment and job creation

Mental well-being

- Better mental and physical health
- Equitable access to nature
- Stress reduction

Community Based Action Projects

- Greening Schools Projects
- Adaptation/Mitigation Projects for the Community



Foundation: Setting yourself up to succeed



Community and Social Connection

- Increased community engagement
- Enhanced sense of place
- Intergenerational connection combat loneliness

Addressing local issues

- Lowering costs for the school and addressing community issues through projects
- Creating future opportunities for employment and job creation

Mental well-being

- Better mental and physical health
- Equitable access to nature
- Stress reduction as well as overall health

Community Based Action Projects

- Greening Schools Projects
- Adaptation/Mitigation Projects for the Community



Socio-Cultural Lens: Thinking about the people

Economic Lens: Cost-Benefit Analysis- Cost of Inaction

United States Billion-Dollar Disaster Events 1980-2025 (CPI-Adjusted)

- Drought Count
- Flooding Count
- Freeze Count
- Severe Storm Count
- Tropical Cyclone Count
- Wildfire Count
- Winter Storm Count
- Combined Disaster Cost
- Costs 95% CI
- 5-Year Avg Costs

Last 5 Years (2020-2024)

Events

115

23.0 per year

Cost

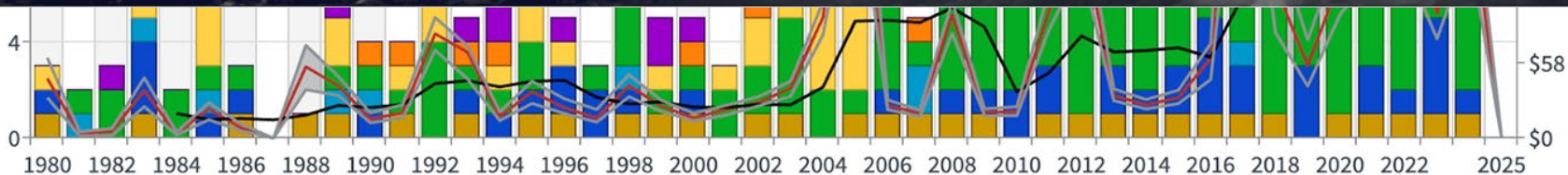
\$755.8

\$151.2B per year

Deaths

2,520

504 per year



Updated: April 8, 2025

NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2025).

<https://www.ncei.noaa.gov/access/billions/>. DOI: 10.25921/stkw-7w73

Powered by ZingChart

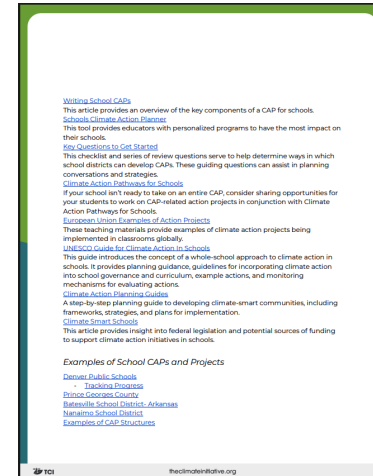
Foundation: Setting yourself up to succeed



- Who is at the table
- Who *Isn't* at the table
- Who should be consulted
- What don't you know?

I've done my research - where do I start?

- Set up your categories and your objectives
- Assessment to see where you are (conduct a baseline audit)
- Look at other schools for examples of CAPs and Action Projects
- Search for potential funding Organizations to draw from
- Draw up a timeline
- Create a sustainability plan for ongoing monitoring
- What is easily accessible to get successes quickly
- Present to the school board (with a school resolution)



Who Can I Consult?

- NOAA
- Subject to Climate
- Undaunted K-12
- Other Schools in Maine
- Maine DOE
- MEEA
- UNESCO
- Aspen Institute
- Project Drawdown



How Can I Involve Youth?

Holistic Learning- Transdisciplinary

to inspire critical thinking and understand the complexities of the subject and the problem

Inspire Civic Engagement

They talk to their parents- future civic and pro-environmental behaviors

Place-based Learning

Connecting abstract concepts to a local context for civic learning and growing empathy

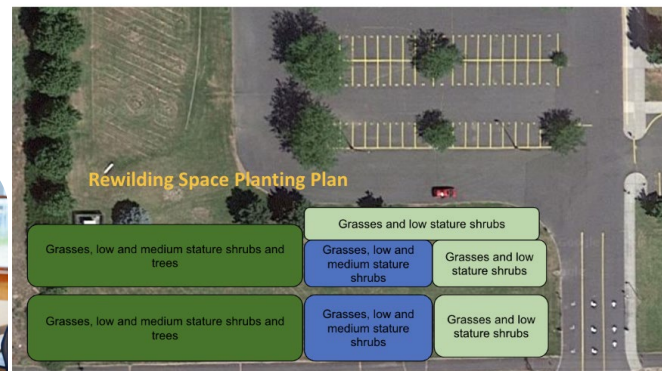
Community Based Action Projects

Greening Schools Projects (monitoring, data collection, community interviews and presentations,

Adaptation/Mitigation Projects for the Community



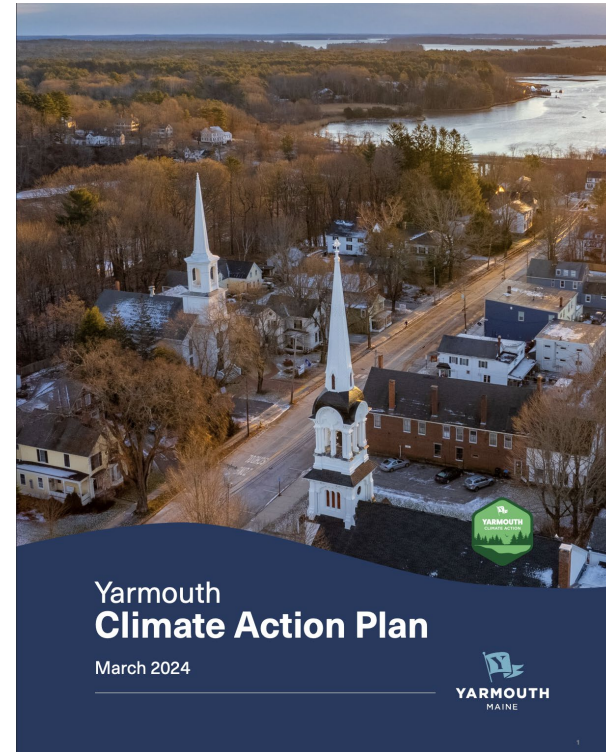
How Can I Involve Youth?



Case studies and examples

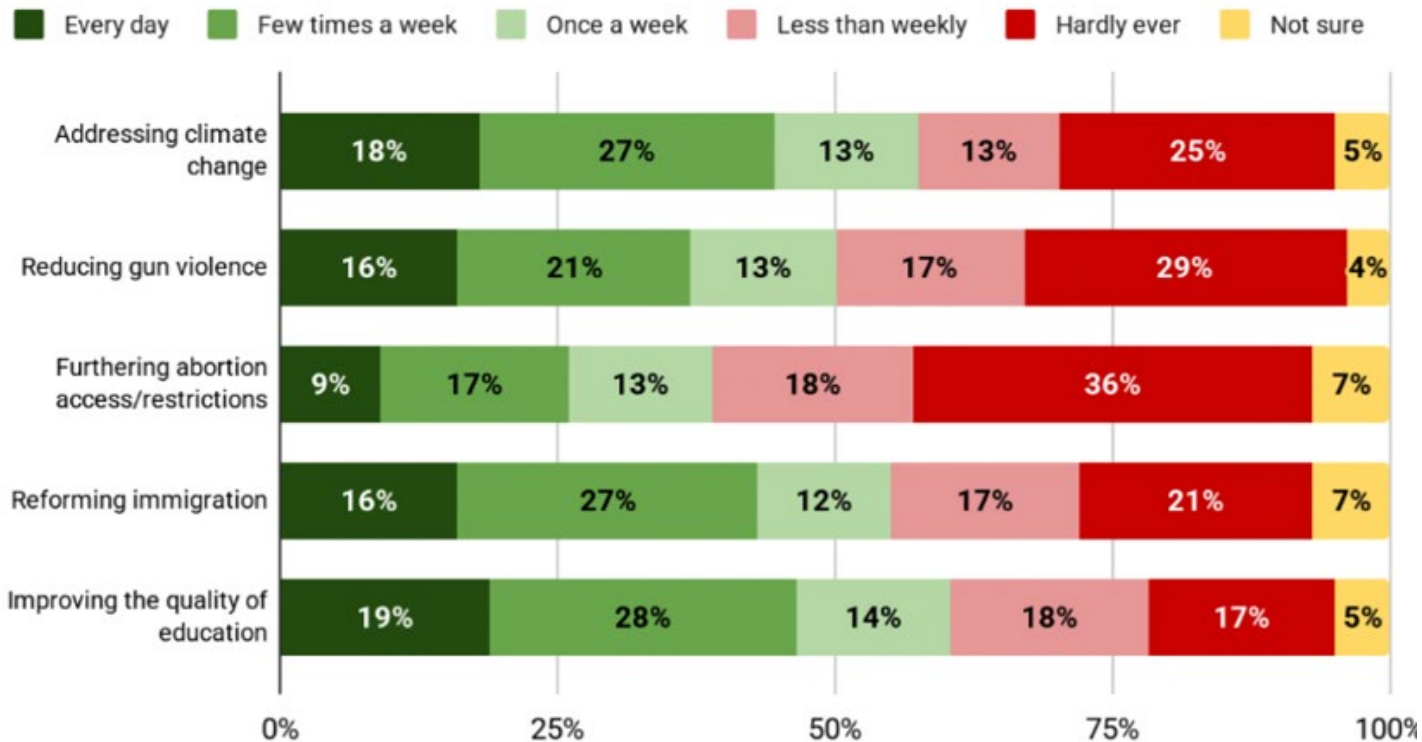
Climate Action Plan Phase I - Recommendations for Action

Submitted to Cumberland Town Council
& MSAD 51 Board of Directors
February 2021
By
Climate Action Plan Subcommittee
Cumberland Lands and Conservation Commission (LCC)

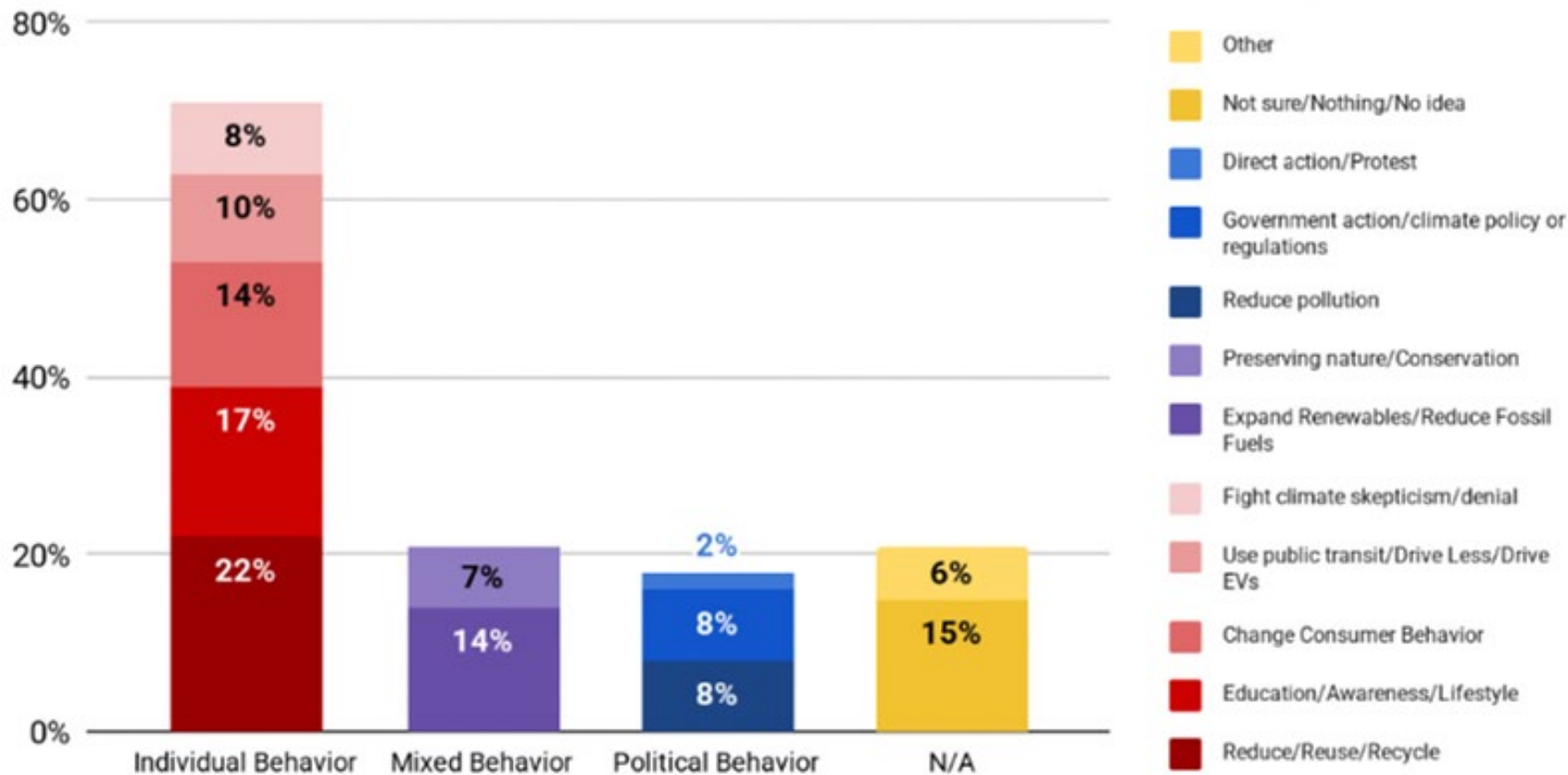


Climate Change is a Growing Priority...

Frequency Americans Think About Particular Issues



...but Our Response is Inadequate...

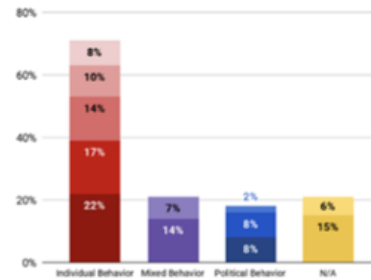


...Uniquely Inadequate.

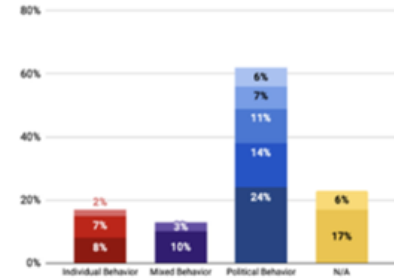
Top-of-Mind Response Categories

- Types of individual behavior
- Types of mixed behavior (political & individual)
- Types of political behavior
- Don't know / Unsure

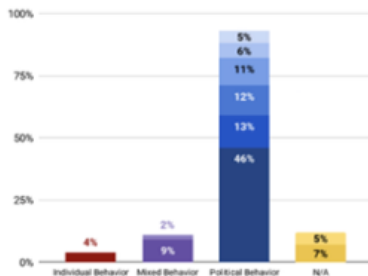
Ways to Address Climate Change



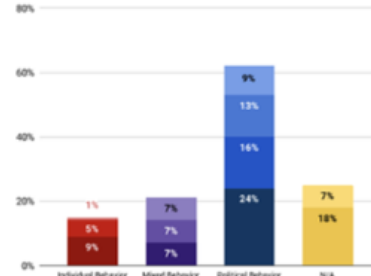
Ways to Reform Immigration



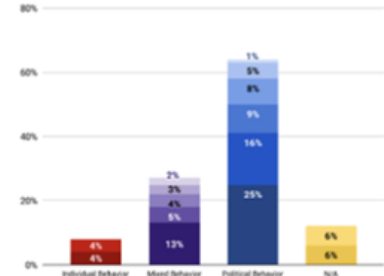
Ways to Reduce Gun Violence



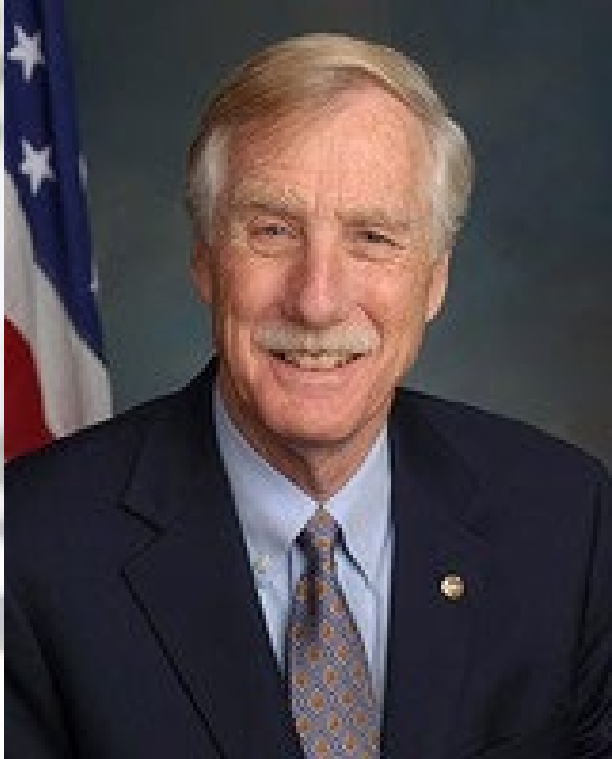
Ways to Further Abortion Access/Restrictions



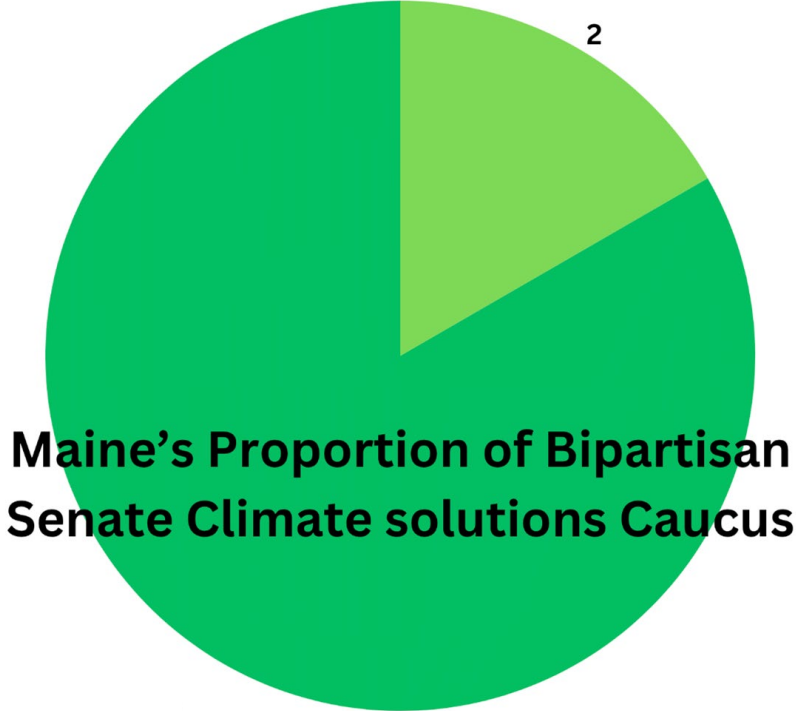
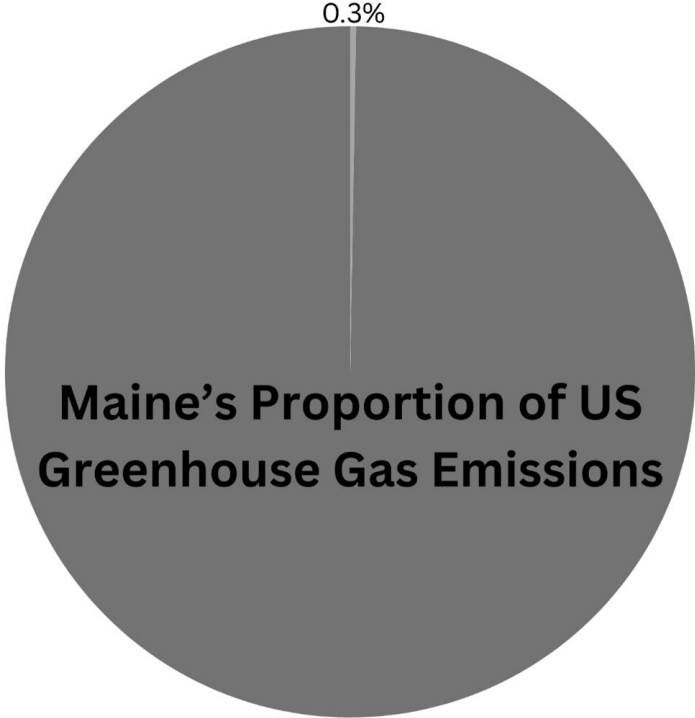
Ways to Improve the Quality of Education



Maine has Unique Climate Policy Leverage



Maine has Unique Climate Policy Leverage



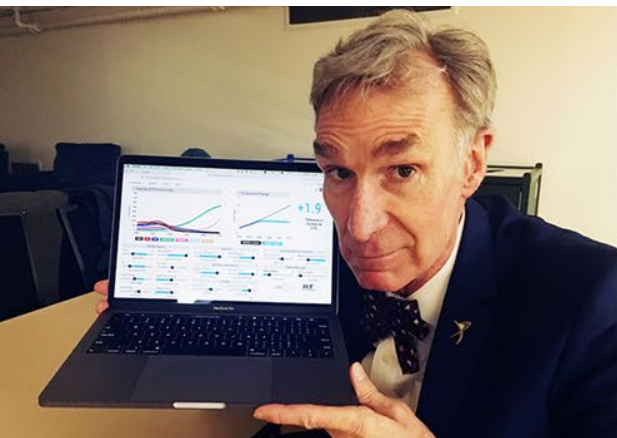
What are most Effective (& Equitable) Solutions

The IPCC—the intergovernmental panel on climate change—says we need to reduce GHG emissions *by 40-60% by 2030*.

COP 28—almost all global governments—in December concluded we need to “transition away from use of fossil fuels”.

What's the most effective & fair way do that?

MIT's EN-ROADS Climate Policy Simulator

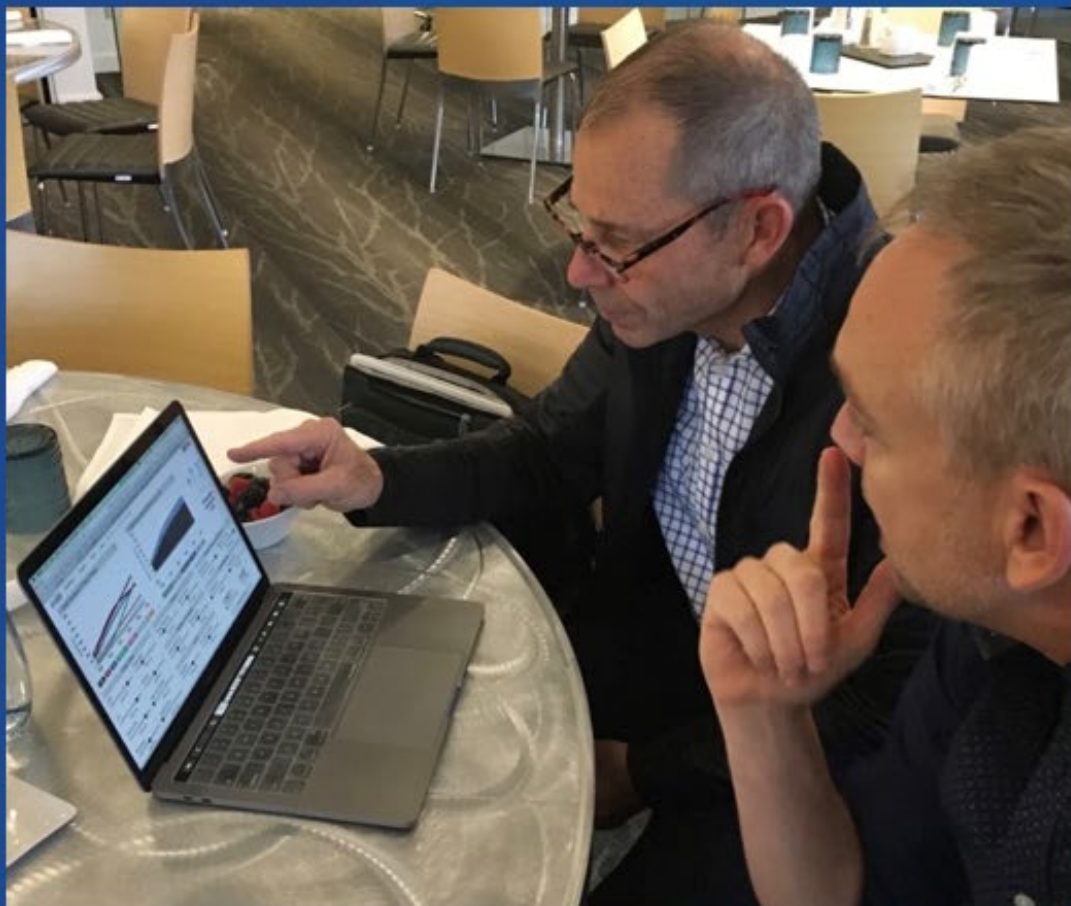




*“Engaging with the En-ROADS climate simulation has been **one of the best ways** for me, as a policy maker, to learn about how **solutions to tackle climate change can reinforce or interfere with one another.**”*

Sheldon Whitehouse

U.S. Senator
Rhode Island



*“What I like about En-ROADS is how it can **support a really thoughtful conversation** – I can see the ways that policy actions could be worth the pain.”*

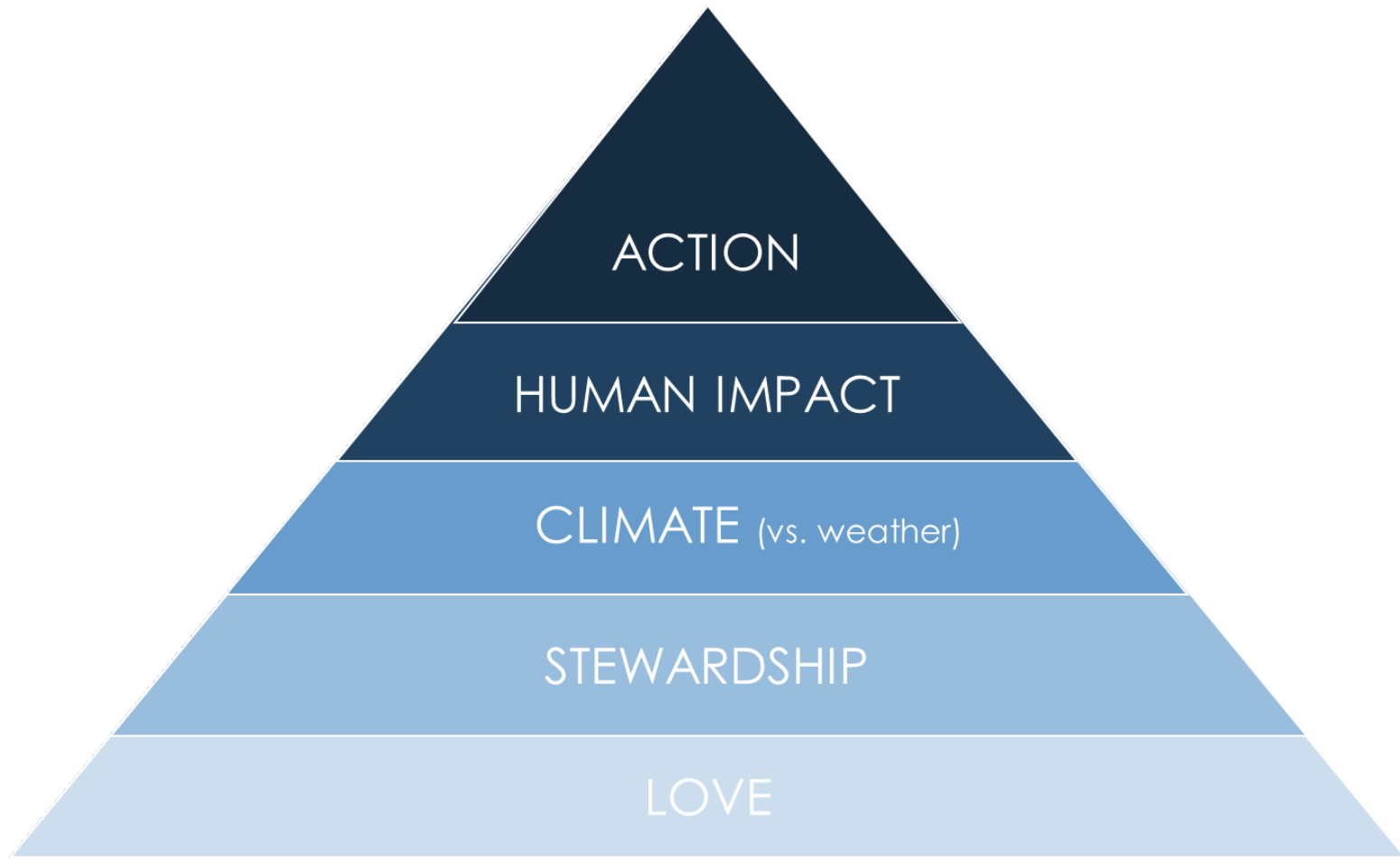
Rep. John Curtis

U.S. House of Representatives

Republican, Utah: 3rd District



Climate Education: Where to Start





Learning Results with Environmental Literacy Overlay Guide

ESS3-2

Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects

1) **Local lens:** Investigate high tide flooding vulnerability in Maine.

Use the [Climate Explorer | U.S. Climate Resilience Toolkit](#) to investigate data on Maine's high tide flooding.

a) Explore local areas vulnerable to climate hazards using the [National Risk Index Map](#) and the [Maine Geological Survey SLOSH Maps](#)

Disaster preparedness

Explore social/economic impacts of natural disasters?

Are we at risk? What natural disasters is our community at risk for? Do we have a plan to respond?

K-ES-S2-1
(Science and
Engineering)

D.A2.2c

1.MD.C.4
(Statistical
Reasoning:
Measurement and
Data)

Use and share observations of
local weather conditions to
describe patterns over time.

Repurpose found objects to
make a new artwork or design

Organize, represent, and
interpret data with up to three
categories; ask and answer
questions about the total
number of data points, how
many in each category, and
how many more or less are in
one category than in another.

1) **Data Literacy:** Interpret graphs to determine long-term trends in weather and climate change.

Ask: What is the weather like today, and what is the weather usually like in Maine? What is Maine's climate? Over time, how do we expect our climate to change?

Investigate: Use the [Climate Explorer | U.S. Climate Resilience Toolkit](#) to compare daily weather averages to long term trends.

2) **Observation to Investigation:** Measure local precipitation levels by making a rain gauge.

Ask: During what season does it rain the most? Has the average amount of rain in Maine changed over time? Why do we need the rain?

Investigate: estimate and measure local precipitation levels by having students construct a rain gauge from upcycled plastic bottles.

a) [Rain Gauge Activity | Precipitation Education](#) (NASA)

3) **Outdoor education:** Institute a weekly weather watch activity to track seasonal changes. Use a chart to record the weather over the course of the week, identifying the amount of sun, clouds, wind, temperature, and precipitation.

History 2: D2

Students understand historical aspects of unity and diversity in the United States, the world, and Native American communities by:

D2) Making use of primary and secondary sources, identifying and analyzing major turning points and events in the history of world cultures as it pertains to various historical and recent migrant groups.

Climate Migration:

Exploring global climate injustice and the disproportionate impacts of climate pollution.

How do policies and practices

promote environmental degradation in developing nations?

- Why are communities of color and communities impacted by poverty disproportionately impacted by environmental health hazards?

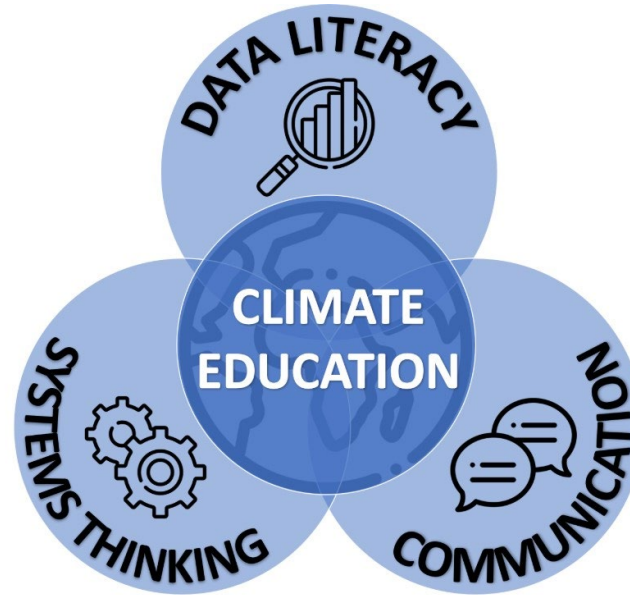
How can human exposure to

environmental health hazards be corrected or limited?

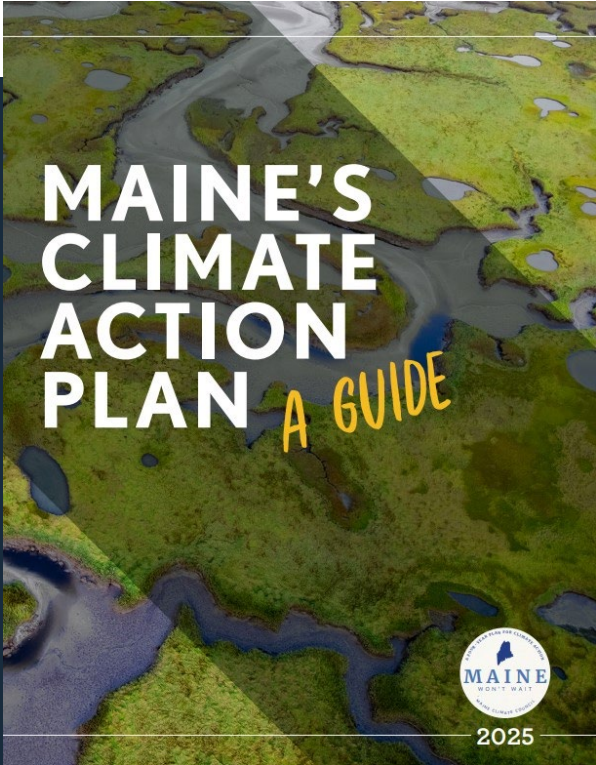
Maine Climate Education Hub



MOOSE Climate Learning Progression | Department of Education



How does climate influence us and how do we influence climate?



MAINE'S CLIMATE ACTION PLAN *A GUIDE*

Maine Climate Action Plan: A Guide - Educator Resources

- Data Stories through Art
- Climate Policy Action Project
- Evidence- Based Opinion

Katie Coppens, Freeport
Middle School



Relationships
Respect
Responsibility
Reciprocity

Short Reflection Survey

1. What elements of Green Schools would you like more information on?
1. What activities and/or concepts do you see yourself implementing in the classroom or using in your teaching in the future?

Maine Green Schools:
Sustainability throughout School
Communities Survey



Follow up - Questions and Support

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