



CAELI District Innovation Webinar

Climate Literacy Principles & Guidelines

Featuring:

Nate Ivy (FUSD), Jerry Song (LAUSD) &
Roni Jones (Ten Strands)

2/26/2025





CALIFORNIA
ENVIRONMENTAL
LITERACY
INITIATIVE

Tim Baird

Co-chair of District Innovation Hub (DIH)

California Environmental Literacy Initiative

cupofsupe@gmail.com



Map Padlet

:Padlet

Amy Frame + 30 • 19d

CAELI District Innovation Hub Webinars

Please add a map pin for you and your organization. Include a website or LinkedIn link.

Manteca, CA, USA
Kristine Stepping, Durham Ferry...

1910 Magnolia Ave, Los Angeles, CA 90...
Wildwoods + LA STEM Collective

55 Music Concourse Dr, San Francisco,...
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San Luis Obispo, CA

Fremont Unified School District, Tech...

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Amy Frame 4h

Visalia, CA

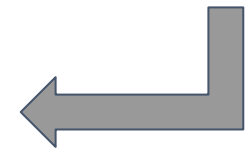
tenstrands.org

Ten Strands: Environmental Literacy for all California Students

Amy Frame, Ten Strands, Director of Strategic Partnerships
(<https://www.linkedin.com/in/amy-frame-273967100/>)

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CALIFORNIA ENVIRONMENTAL LITERACY INITIATIVE

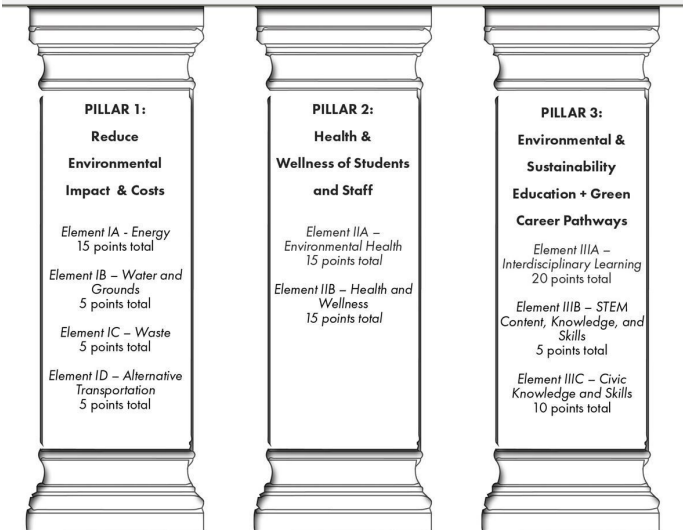
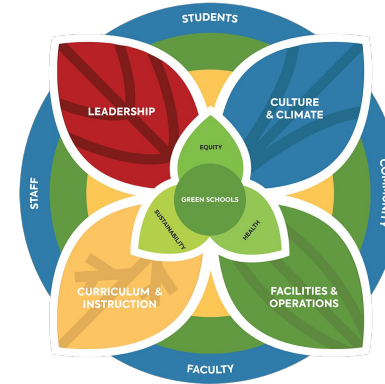


District Innovation Hub Goals

1. **Build a community** of district practitioners and partners.
2. Create, curate and **share** environmental literacy and sustainability **resources**.
3. **Build capacity** for district planning for environmental literacy and sustainability.
4. Cultivate, support, and **showcase leading edge exemplars**.
5. Research, design, and deliver the best green district support strategies.

District Innovation Hub

Systems Approaches



4Cs Whole Systems Framework for Environmental and Climate Action in Schools

*Adapted from Sustainable Schools Project & Plymouth University; Andra Yeghoian - 2013

CAMPUS	CURRICULUM	COMMUNITY & CULTURE
<p><i>Operations across the buildings and grounds model sustainable and resilient practices, minimize disruptions for learning, and serve as a lab for learning.</i></p>	<p><i>Curriculum integrates Environmental and Climate Literacy as well as principles and practices for Solunary Teaching and Learning.</i></p>	<p><i>Evidence exists within the “walk” and the “talk” of the school community for prioritizing sustainability and resiliency, and developing strategic partnerships with community based organizations.</i></p>
Constituents		
Students	Faculty and Staff	Administrators
		Community Partners and Families



Agenda

- 4:00 - 4:10 Welcome and Connections
- 4:10 - 5:00 Climate Literacy Principles & Guidelines (20 min)
 - District Examples (15 min)
 - State Curriculum Resource (15 min)
- 5:00 - 5:05 Closing, Feedback, and Resources
- 5:05 - 5:30 Q & A Breakout Room Discussions

Climate Literacy Perspectives



Nate Ivy
Instructional Coach
Fremont Unified
School District



Jerry Song
STEAM Coordinator
Los Angeles Unified
School District



Roni Jones
Director of Curriculum
Ten Strands

**What Does High
Quality Climate
Literacy Learning Look
Like?**



~685,000 CA Students in Climate Literacy Districts

2019

Oakland Unified School District: [Environmental and Climate Change Literacy](#) (2/13/2019)

2020

Lake Tahoe Unified School District: [Resolution in Support of School District Climate Literacy](#) (9/22/2020)

2021

Fremont Unified School District: [Educational Response to the Climate Emergency](#) (4/21/2021)

Berkeley Public Schools: [Educational Response to the Climate Emergency](#) (11/3/2021)

2022

Los Angeles Unified School District: [Climate Literacy](#) (2/8/2022)

2023

Santa Monica-Malibu Unified School District: [Establish a Minimum Standard of Climate Literacy for Students](#) (11/2/2023)

2024

Piedmont Unified School District: [Climate Literacy](#) (5/8/2024)

Hayward Unified School District: [Climate Literacy](#) (9/25/2024)

Livermore Valley Joint Unified School District: [Responding to Climate Change Through Education](#) (10/15/2024)



AB 285 Climate Science Education:

CAELI County Office of Education Innovation Hub's Overview and Recommendations for Educational Leaders

Purpose and Overview: The CAELI County Office of Education Innovation Hub developed this introductory tool to support county offices of education, districts, and schools to understand the requirements of AB 285 and begin taking next steps for implementing grade-appropriate climate change curriculum.

I. What Is California Assembly Bill 285 (2023)?

The bill amended Sections 51210 and 51220 of the California Education Code to require that courses of study for science in grades 1–12 include material “on the causes and effects of climate change, and on the methods to mitigate and adapt to climate change. Appropriate coursework including material on the causes and effects of climate change and methods to mitigate and adapt to climate change shall be offered to pupils as soon as possible, commencing no later than the 2024–25 school year.” For additional technical information about AB 285, please visit [CA AB 285: Ten Strands Overview and Resources](#).

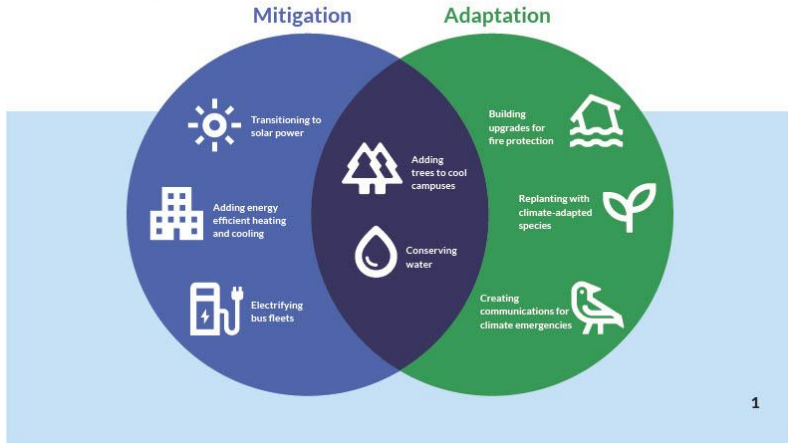
II. What Are the Four Components of Understanding Climate Change That Are Referenced in AB 285?

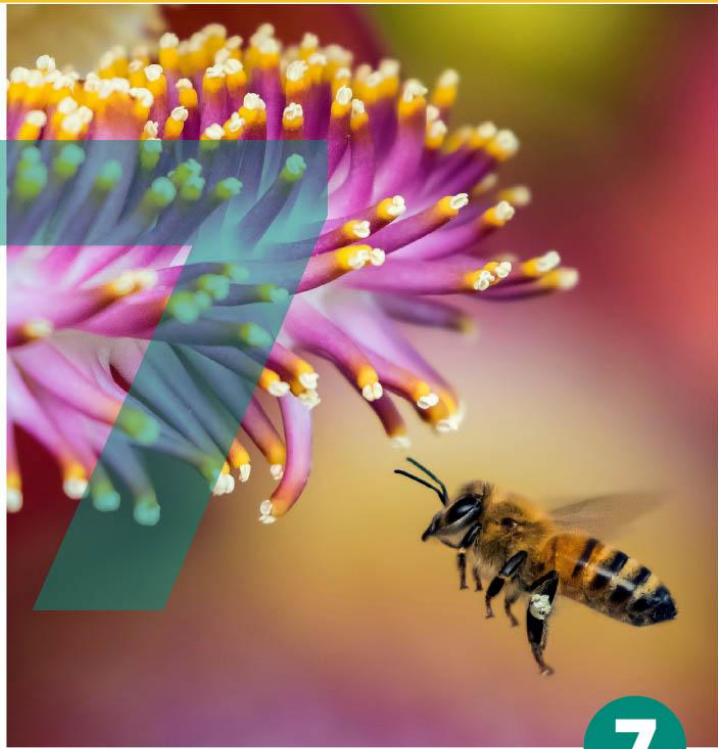
In order to be climate literate, AB 285 calls out four components that students need to understand about climate change (the long-term shifts in temperatures and weather patterns):

- **Causes of Climate Change:** Some of the human-enhanced causes include burning fossil fuels, cutting down forests, and farming livestock
- **Effect:** Some of the effects of climate change include increased temperatures, sea level rise, and increased severe storms
- **Mitigation:** Preventing or reducing the emission of greenhouse gasses (GHG) into the atmosphere to make the impacts of climate change less severe
- **Adaptation:** The process of adjusting to moderate the expected or actual consequences of climate change

Climate Science for All California Students

AB285 (2023) Toolkit





7

Guidelines for Excellence
Educating for Climate Action and Justice



Climate Literacy

Essential Principles for Understanding and Addressing Climate Change

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U.S. Global Change Research Program
Third Edition: September 2024
globalchange.gov



2009

Climate Literacy

The Essential Principles of Climate Science

A CLIMATE-ORIENTED APPROACH FOR LEARNERS OF ALL AGES

A Guide for Individuals and Communities



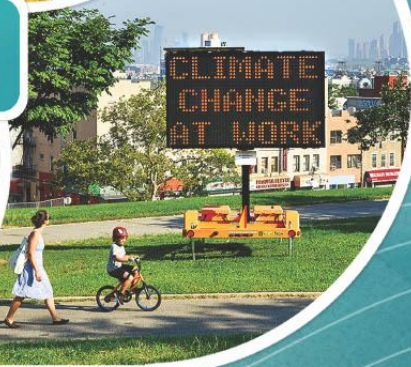
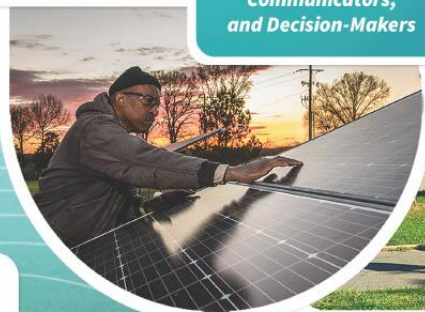
Second Version: March 2009
www.globalchange.gov

2024

Climate Literacy

Essential Principles for Understanding and Addressing Climate Change

A Guide for Educators, Communicators, and Decision-Makers



U.S. Global Change Research Program
Third Edition: September 2024
globalchange.gov



CALIFORNIA ENVIRONMENTAL LITERACY INITIATIVE

Climate Literacy Essential Principles

A climate literate person...	
2009	2024
<ul style="list-style-type: none">• understands the essential principles of Earth's climate system,• knows how to assess scientifically credible information about climate,• communicates about climate and climate change in a meaningful way, and• is able to make informed and responsible decisions with regard to actions that may affect climate	<ul style="list-style-type: none">• understands the essential principles of Earth's climate system and the options to address human-caused climate change,• recognizes credible information about climate change and knows where to find it;• communicates about climate change in accurate and effective ways; and• is able to make informed decisions related to climate change

Essential Principles

2009

- The sun is the primary source of energy for earth's climate system
- Climate is regulated by complex interactions among components of the earth system
- Life on earth depends on, is shaped by, and affects climate
- Climate varies over space and time through both natural and man-made processes
- Our understanding of the climate system is improved through observations, theoretical studies, and modeling.
- Human activities are impacting the climate system.
- Climate change will have consequences for the Earth system and human lives.

2024

- **HOW WE KNOW** Scientists understand the climate system through interdisciplinary observations and modeling.
- **CLIMATE CHANGE** Greenhouse gases shape Earth's climate.
- **CAUSES** Burning fossil fuels and other human activities are causing the planet to warm.
- **IMPACTS** Rapid warming and other large-scale climate changes threaten human and ecological systems.
- **EQUITY** Climate justice is possible if climate actions are equitable.
- **ADAPTATION** Humans can adapt social, built, and natural environments to better withstand the impacts of climate change.
- **MITIGATION** Reducing emissions of greenhouse gases from human activities to net zero by 2050 can help limit global warming and climate change impacts.
- **HOPE AND URGENCY** A livable and sustainable future for all is possible with rapid, just, and transformational climate action.

1

HOW WE KNOW

Scientists understand the climate system through interdisciplinary observations and modeling.

3

CAUSES

Burning fossil fuels and other human activities are causing the planet to warm.

5

EQUITY

Climate justice is possible if climate actions are equitable.

7

MITIGATION

Reducing emissions of greenhouse gases from human activities to net zero by 2050 can help limit global warming and climate change impacts.

2

CLIMATE CHANGE

Greenhouse gases shape Earth's climate.

4

IMPACTS

Rapid warming and other large-scale climate changes threaten human and ecological systems.

6

ADAPTATION

Humans can adapt social, built, and natural environments to better withstand the impacts of climate change.

8

HOPE AND URGENCY

A livable and sustainable future for all is possible with rapid, just, and transformational climate action.



Essential Principles for Understanding and Addressing Climate Change

ESSENTIAL
PRINCIPLE

6

ADAPTATION

Humans can adapt social, built, and natural environments to better withstand the impacts of climate change.

A. Adapting and building resilience to climate impacts in all aspects of society saves lives; reduces structural, environmental, and economic damage; protects natural resources; helps preserve cultures; and often results in improved quality of life.

>> [Learn more about climate adaptation](#)

B. Adaptation and mitigation are complementary strategies for reducing the risks of climate change. Taking actions to adapt and build resilience to current and future extreme events and other climate changes, while dramatically reducing emissions of greenhouse gases, will also reduce loss of life and property and limit damage to ecosystems and human health.

C. Adaptation will become more expensive and less effective as the planet warms. Building a costly seawall today, for example, will be insufficient if water levels rise above the height of the wall in the future. Without mitigation, there will come a time when the impacts of climate change overwhelm our capacity to adapt.

D. Current adaptation efforts and investments are insufficient to address today's risks and keep pace with future climate change. Adequate adaptation would involve not only scaling up efforts across a wider range of actors, sectors, and systems, but also more **transformative adaptation** involving profound shifts in our institutions, behaviors, values, or technologies. For example, transformative actions could shift housing development to less flood-prone areas to account for rising seas, or redesign buildings and cities to manage heat extremes.

>> [Learn more about transformative adaptation](#)

E. People may be able to adapt and reduce their vulnerability in different ways, depending on their circumstances. For example,



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ENVIRONMENTAL
LITERACY
INITIATIVE



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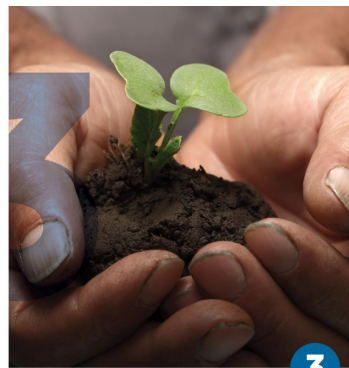
Guidelines for Excellence
K-12 Environmental Education

Executive Summary



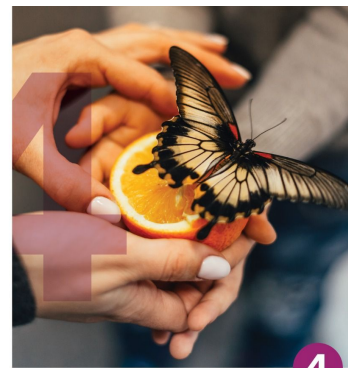
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Guidelines for Excellence
Environmental Education Materials



3

Guidelines for Excellence
Professional Development of Environmental Educators



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Guidelines for Excellence
Environmental Education Programs



5

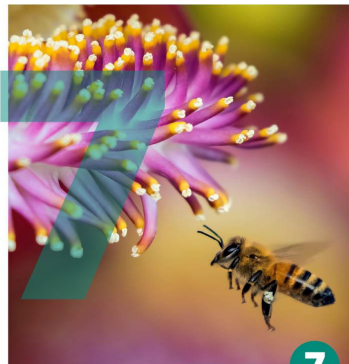
Guidelines for Excellence
Early Childhood Environmental Education Programs

For educators, parents, home schoolers, administrators, policy makers, and the public:



6

Guidelines for Excellence
Community Engagement



7

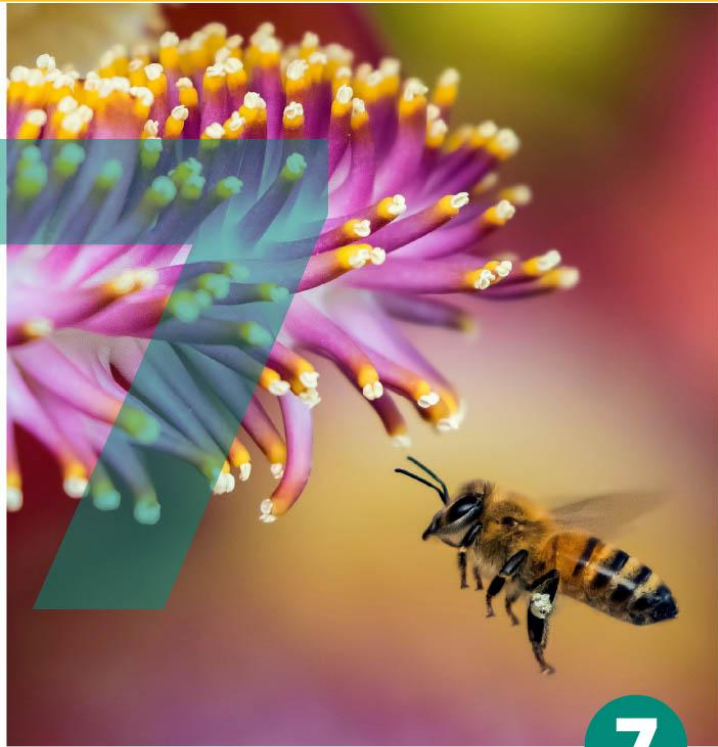
Guidelines for Excellence
Educating for Climate Action and Justice



NAAEE Guidelines for Excellence



naaee
North American Association
for Environmental Education



Guidelines for Excellence Educating for Climate Action and Justice

Guidelines Summary

Key Characteristic #1

Collaborative, Welcoming, and Responsive Learning Environments

- Ensure an inclusive learning environment
- Engage learners in open inquiry
- Explore worldviews and perspectives
- Examine climate change information and misinformation

Key Characteristic #2

Knowledge and Skills to Foster Climate Action

- Build awareness and appreciation
- Understand climate processes and systems
- Understand human systems related to climate change
- Apply systems thinking
- Develop action strategies and skills
- Build personal and civic responsibility

Key Characteristic #3

Attention on Climate Emotions

- Recognize and acknowledge climate emotions
- Cultivate constructive hope
- Develop self-efficacy and agency

Key Characteristic #4

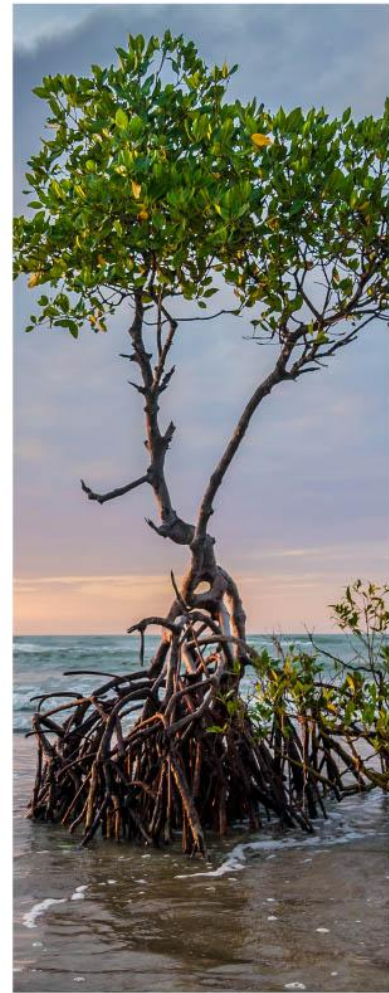
Locally Focused and Community Driven

- Know the community
- Identify key individuals, organizations, and communities of interest
- Build partnerships and collaborative relationships
- Collect community concerns about climate actions

Key Characteristic #5

Civic Engagement for Climate Action

- Investigate community-centered climate concerns
- Select a civic action goal and plan a strategy for achieving it
- Take action on selected climate issue(s) and concern(s)
- Celebrate and share progress toward a thriving community



Key Characteristic #2

Knowledge and Skills to Foster Climate Action

- Build awareness and appreciation
- Understand climate processes and systems
- Understand human systems related to climate change
- Apply systems thinking
- Develop action strategies and skills
- Build personal and civic responsibility

C. Understand human systems related to climate change

Educators provide opportunities for learners to develop an understanding of human systems (e.g., social, economic, political, and cultural) and how individual and group action influences climate change, climate justice, and climate resilience. Learners analyze differing beliefs and values within the same community and the larger society and consider how sustainable solutions rely on reconciling diverse perspectives

Indicators:

- Analyze historical, ethical, cultural, geographic, economic, and sociopolitical relationships to further understand climate impacts and how these impacts are unevenly distributed across communities, regions, and the world.
- Apply research and analytical skills to describe how human resource consumption and the use of technology affect environmental health, the capacity to be self-sustaining, and natural systems, including climate systems.
- Recognize that despite overwhelming evidence about the causes of climate change, people have different beliefs that can make finding solutions more challenging. Consider ways that individuals and groups with different values and belief systems can listen to each other, identify shared goals, and take collective actions.
- Understand the importance of civic engagement and how policies related to climate change are made and implemented locally and nationally.
- Identify and describe barriers to climate actions and how they can be addressed (i.e., policies in schools, local and national governments, and organizations).
- Analyze how varying actions, both individual (e.g., home energy use, food consumption, and waste reduction) and collective (e.g., improvements in mass transit, protection of coastal wetlands, and implementation of carbon pricing), can contribute to climate change mitigation and adaptation.
- Investigate how communities with climate justice concerns understand local climate impacts and build systems to support community resilience.

Educating for Climate Action and Justice: Guidelines for Excellence
Key Characteristic #2 • Knowledge and Skills to Foster Climate Action 59



A BRIEF HISTORY OF FUSD CLEAN

20/21

Resolution

[Educational Response to the Climate Emergency](#)



21/22

CLEEN 1.0

[Values & Vision Theory of Action](#)



22/23

CLEEN 2.0

[Definition & Climate Literacy Roadmap](#)



23/24

CLEEN 3.0

[Priority lessons & Action Plans](#)



24/25

CLEEN 4.0

Lesson screener,
website &
outreach



Fremont Unified School District

- Suburban San Francisco Bay Area
- Serves over 32,000 students TK-12 across 42 campuses
- 65% Asian, 15% Hispanic/LatinX, 9% white.

Shout out to the Sierra Club and former FUSD students:

- Shreya Ramachandran
- Sriya Bairy
- Srilakshmi Varma
- Rishi Gurjar

“it is time to define what it means to educate students for a future with human - induced climate change”

[FUSD] “commits to graduating students who are well versed in climate change and climate solutions”

Fremont Unified School District
Fremont, Ca

Resolution No. 030-2021
Educational Response to the Climate Emergency

“create an implementation plan, the goal of which is to detail the progressive development of the climate literacy program by grade level, and assess its results;”

Values

- Action Oriented
- Equitable
- Integrated
- Age-appropriate
- Culturally-proficient

Cafeteria Waste Reduction

Scratch cooked meals, reusable trays, food share tables, etc.



YOUTH CLIMATE ACTION SUMMIT

 Beyond Terra

summit.beyondterra.org



Youth Leadership

Climate Action Summit,
Fremont Green Challenge, Earth Day and more!

Fleet Electrification

More than 50% of FUSD large bus fleet is now electric. Solar and battery storage coming soon.



Professional Learning

FUSD Garden Network,
Environmental Education
Professional Development Series, CLEEN

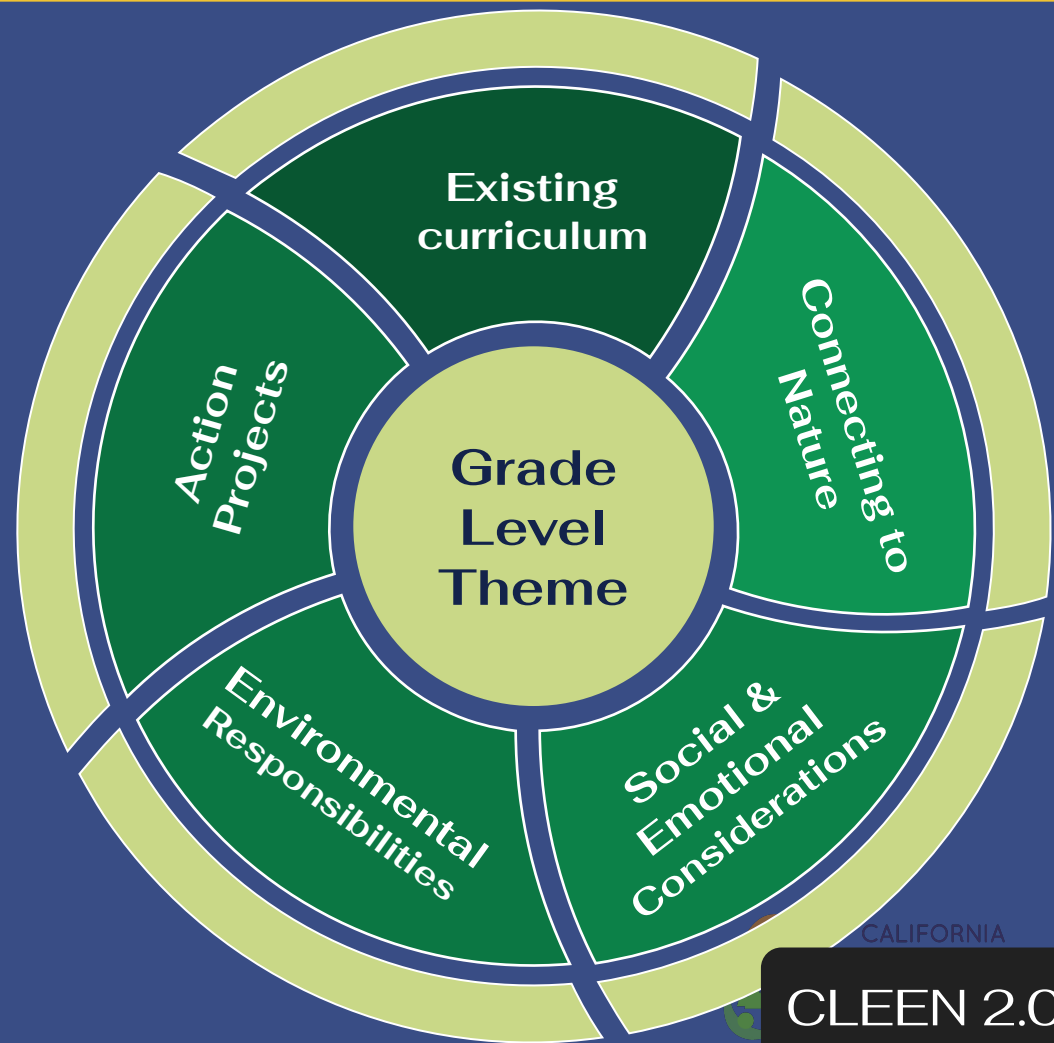


CALIFORNIA ENVIRONMENTAL LITERACY INITIATIVE

Climate Literacy Definition

A climate-literate person is able to:

- **understand** the essential principles of Earth's climate system
- **access and apply** scientifically credible climate information
- **navigate** the social and emotional challenges associated with climate change
- **communicate** about climate and climate change in a meaningful way
- **take actions** that reduce the potential for harm related to climate change



GRADEBAND THEMES



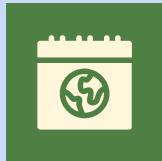
TK-2

Connecting to, exploring, and understanding nature. Establishing habits for protecting nature.



3-5

Understanding natural systems (e.g.: weather & energy, water). Building foundations for reading, research, collaboration.



6-8

People and the planet: Understanding spheres of influence within global systems (e.g. climate, politics)



9-12

Climate solutions for adaptation, mitigation, and justice through service-learning. (+college, career, and civic life.)

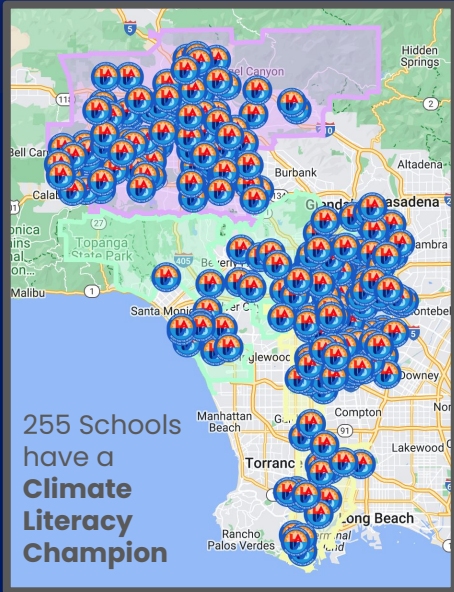
Vallejo Mill TK student exploring nature at Kennedy High School with the Green Ventures Academy



CLIMATE LITERACY

Division of Instruction

LAUSD UNIFIED



- Board Resolution 2022
- LAUSD UTLA MOU
- Climate Literacy Champions
- LAUSD Climate Literacy Approach

Board Resolution & MOU

Board Resolution

MOTIONS/RESOLUTIONS PRESENTED TO
THE LOS ANGELES CITY BOARD OF EDUCATION FOR CONSIDERATION

SUBJECT: Climate Literacy (Res-016-21/22)
DATE NOTICED: 01-25-22
PRESENTED FOR ACTION: 02-08-22
MOVED/SECONDED BY: Mr. Schmerelson
Ms. Goldberg

PRESENTED BY:
Mr. Schmerelson, Dr. McKenna
Ms. Goldberg, Mr. Melvoin,
Ms. Gomez, Ms. Ortiz Franklin and Ms. Kamaga

MOTION:
RESOLUTION: X

Whereas, The students of Los Angeles Unified School District, a majority of which are children of color, suffer disproportionately from the mounting climate crises, especially those who live in L.A.'s neglected city centers, which are becoming more dangerously hot;

Whereas, The pollutants from the freeways and refineries in our neighborhoods increase as the climate gets hotter, causing more students, parents, and teachers to get asthma, heart disease, and diabetes;

Whereas, Drought deepens due to global warming, making our water supplies less certain and more polluted, becoming additional uncertainty for our students;

Whereas, Pandemics like COVID-19, which have killed so many, will happen more frequently because we are destroying the natural habitats of plants and animals;

Whereas, The increasing heatwaves, fires, downpours, and floods are due to burning fossil fuels, which continues despite humanity's understanding, confronting students with increasingly unstable futures;

Whereas, Students' families, cultures, communities, and experiences, as well as their friendships, are resources to face these difficulties;

Whereas, Students' social and emotional health is supported by experiences in nature on schoolyards, parks, beaches, or trails;

Whereas, Our students' mental and emotional health must be supported by learning about the climate crises, thinking through solutions for themselves, and by taking part in climate solutions to be implemented in their surroundings;

Whereas, Schools can teach these deep considerations since they are strategically placed as the "beating hearts of communities," preparing students for the millions of jobs in the rapidly expanding green economy and for the work of realigning civilization to nature's flows;

Whereas, With proper support, all teachers can infuse climate themes into all subjects, well beyond STEM, all of which affect culture and governance;

Page 1 of 3

LAUSD-UTLA MOU

LAUSD-UTLA
MEMORANDUM OF UNDERSTANDING
HEALTHY GREEN PUBLIC SCHOOLS

As part of the Strategic Plan and the UTLA Beyond Recovery platform, the parties agree to establish a Climate Curriculum Implementation Task Force (CCITF).

Going forward from the signing of this agreement, the CCITF shall consist of four (4) UTLA appointees by the LAUSD Division of Instruction, up to four (4) guest speakers at a committee meeting. By mutual agreement, either party may meet four (4) times per year to consult and provide recommendations.

The parties agree to the implementation of curricula that infuses climate literacy with a racial justice lens. The parties agree to the implementation of outdoor education space, programs and green space.

The parties agree to the implementation of internships and opportunities for youth to obtain internships and opportunities in fields that support green energy and reduce greenhouse gas emissions.

The parties agree to the implementation of facilities using unionized contractors.

The parties agree to the implementation of the District's fleet using unionized contractors.

The parties agree to the implementation of public transportation for students.

The parties agree to the implementation of the removal of detectable levels of lead from school buildings.

The parties agree to the implementation of (EV) chargers on school campuses for charging electric vehicles.

The parties agree to the implementation of streamlining and/or defray costs of school buildings.

The parties agree to the implementation of an Eco-sustainability Officer no later than the end of the fiscal year.

The parties agree to the implementation of an Eco-sustainability Officer no later than the end of the fiscal year.

Climate Literacy Champions

CLIMATE LITERACY | LAUSD
Division of Instruction UNIFIED



ENSURING ALL STUDENTS ARE
READY FOR THE WORLD!



Highlights



Working closely with TreePeople to form units around waste management leading to water conservation.
- Zane Grey Cont. HS

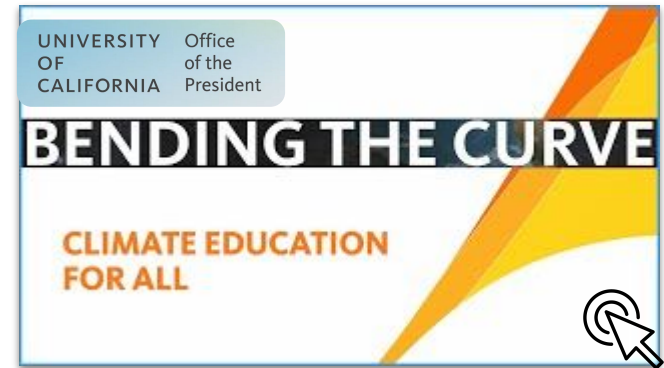
Teaching using Subject to Climate lesson plans for after school book club. The kids are loving learning through these lessons. So far I taught CL in Art, SEL, Science. - Topeka ES

Compost program finally started!
Hurray! - Westside Global Awareness



Earth Day Campaign
DOI & ESO

Climate Action Clubs



LAUSD Social Emotional Competencies

Self-Awareness

Self-Awareness is the ability to understand one's own emotions, thoughts, and values and how they influence behavior across contexts. This includes the capacity to recognize one's strengths and limitations with a well-grounded sense of confidence and purpose.

- I can identify my emotions.
- I know my values & beliefs.
- I can identify my strengths and personal areas of growth.
- I can identify ways to improve.
- I can understand how my thoughts and values influence my actions.
- I can identify my prejudices and biases.

Self-Management

Self-management is the ability to effectively manage one's thoughts, emotions, and behaviors in different situations in order to achieve one's goals and aspirations. This includes managing stress, delaying gratification, self motivation, and setting and working towards goals.

- I can describe my feelings and emotions.
- I can stay calm in the face of challenging situations.
- I can develop my emotional intelligence with effort.
- I can motivate myself with positive self-talk and affirmations.
- I can set goals and work hard to accomplish them.
- I can identify strategies and tools to help me self-regulate.

Self-Efficacy

Self-efficacy is the belief in one's ability to succeed in achieving a specific outcome or reaching a goal. This includes self-confidence in one's ability to exert control over one's own motivation, behavior and social environment.

- I can set realistic goals.
- I can use positive self-talk and optimistic thinking.
- I can visualize my successes.
- I can ask for help and feedback.
- I can observe and learn from other's success.
- I can identify past situations where I was successful.

Responsible Decision-Making

Responsible decision-making is the ability to make caring decisions and constructive choices about personal behavior and social interactions in diverse situations. This includes the ability to consider ethical norms and safety concerns, and to evaluate the benefits and consequences of one's actions.

- I can admit when I make a mistake.
- I can take responsibility for my actions.
- I can think about possible outcomes before making a decision.
- I can follow through with my responsibilities.
- I can say no to things that don't align to my values and goals.
- I can understand my impact on my family, and community well-being.

Growth Mindset

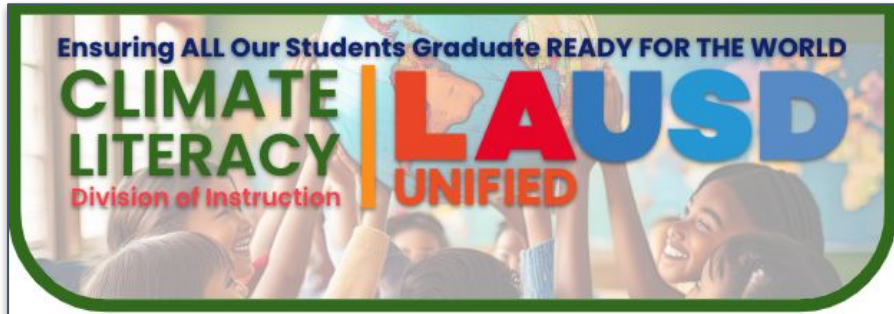
Growth mindset is the belief that you can grow your talents and abilities with effort. This includes the ability to see mistakes as a part of learning, help embrace challenges, learn from criticism, and persist in the face of setbacks.

- I can change my intelligence with hard work.
- I can see mistakes as learning opportunities.
- I am capable of learning anything.
- I can persist in the face of setbacks.
- I can use the power of "YET" when I am learning something new.
- I can achieve more with effort.

Social Awareness

Social awareness is the ability to understand multiple perspectives and empathize with others, including those from diverse backgrounds, cultures, and contexts. This includes showing compassion for others, understanding social norms in different settings, and recognizing resources and supports.

- I can acknowledge and show appreciation to others.
- I can carefully listen to and respect others' points of view.
- I can show compassion and empathy to others.
- I can get along and work well with others regardless of our differences.
- I can work with others to create positive change and help others in need.
- I can remain respectful of their views even if we disagree.



Discover The Intersection of Social Emotional Learning and Climate Literacy



Discover how Social Emotional Learning (SEL) can elevate your approach to Climate Literacy! Join us for an engaging session where you'll delve into the fundamentals of SEL and explore the six key SEL competencies defined by LAUSD. You'll learn not only how these skills can enrich your teaching practices, but also how they can engage your students in meaningful climate conversations.

Ready for the World



Tell me and I forget,
teach me and I
may remember,
involve me
and I learn.



Why Real-World Problems?

Empathy

Context

Rigor

Student Cultures
and Assets

Empowerment

Real-World Problems



SUSTAINABLE DEVELOPMENT GOALS



Seeds
to Solutions™



“Things in our backyard were drying up. Summers have been super hot or unnaturally cold. I’m seeing the world around me change.”

— California student



A photograph of a teacher sitting at a desk, looking at a book. The desk is cluttered with various educational materials, including papers, a calculator, and a pencil. A red banner is overlaid on the image, containing white text. The background shows a wooden desk with several papers and a calculator. The teacher is wearing a green sleeveless top. The overall scene is a classroom or office setting.

Not all teachers have access to instructional materials on climate change or environmental justice that are California-specific



To meet this need, the California Legislature called for the creation of instructional materials for grades K–12 about climate change and environmental justice



Supports teachers in meeting state standards

- ✓ Free supplemental resources
- ✓ Aligned with standards and frameworks
- ✓ 15-hour unit per grade level
- ✓ Applicable to science, math, history/social studies & more

Engages and empowers by sparking student curiosity

- ✓ Solutions-oriented
- ✓ Age-appropriate
- ✓ California-specific
- ✓ Inquiry-based approach
- ✓ Culturally relevant
- ✓ Trauma-informed

Guidelines Summary

Key Characteristic #1

Collaborative, Welcoming, and Responsive Learning Environments

- Ensure an inclusive learning environment
- Engage learners in open inquiry
- Explore worldviews and perspectives
- Examine climate change information and misinformation

Key Characteristic #2

Knowledge and Skills to Foster Climate Action

- Build awareness and appreciation
- Understand climate processes and systems
- Understand human systems related to climate change
- Apply systems thinking
- Develop action strategies and skills
- Build personal and civic responsibility

Key Characteristic #3

Attention on Climate Emotions

- Recognize and acknowledge climate emotions
- Cultivate constructive hope
- Develop self-efficacy and agency

Key Characteristic #4

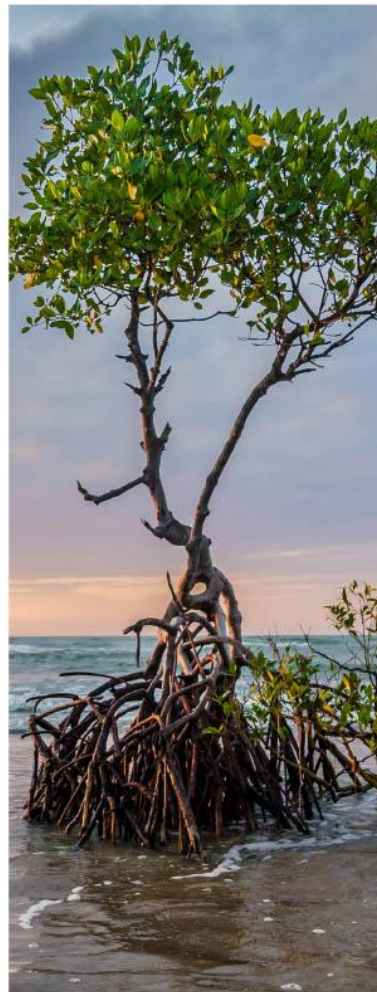
Locally Focused and Community Driven

- Know the community
- Identify key individuals, organizations, and communities of interest
- Build partnerships and collaborative relationships
- Collect community concerns about climate actions

Key Characteristic #5


Civic Engagement for Climate Action

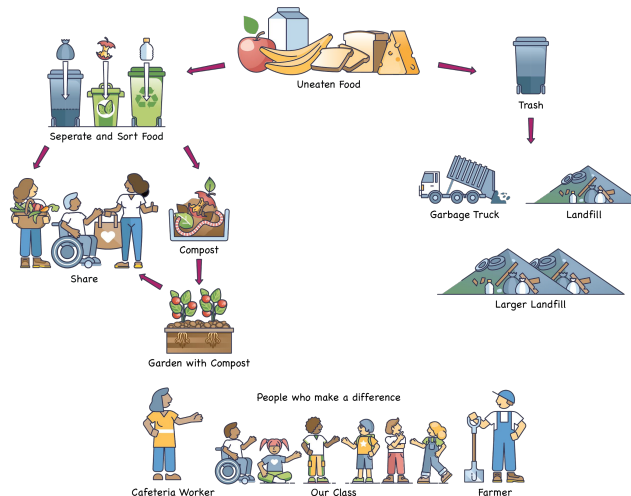
- Investigate community-centered climate concerns
- Select a civic action goal and plan a strategy for achieving it
- Take action on selected climate issue(s) and concern(s)
- Celebrate and share progress toward a thriving community





Seeds to Solutions Unit Storyline

Anchor Lesson	Investigation Lessons	Consensus Model Building Lesson	Culminating Engagement Lesson
<div style="border: 1px solid black; padding: 5px; background-color: #ffcc80; display: inline-block;"> Anchoring Experience </div>	Student Centered, Teacher Facilitated, Inquiry Lessons 		<div style="border: 1px solid black; padding: 5px; background-color: #bbdefb; display: inline-block;"> Meaningful Culminating Engagement / Action </div>



	Class Participation Structure		
	Individual Students work individually toward a common purpose for the class.	Pairs/small groups Students work in pairs or small groups toward a common purpose for the class.	Whole class The whole class works together toward one common purpose.
Option 1: Smaller Lift This row has suggestions if you have less available time in class and less time to prepare.	Example: Students individually create posters or short videos or produce other media to post around the school building to share the effects of food waste and how to waste less food with their school community.	Example: Pairs or groups create shared or individual plans to shift their practices at lunch to be more intentional about wasting less food. Pairs or groups document their plan and determine how and when to check-in with each other, track how much food did not get thrown away, and provide support/brainstorm ways to continuously improve plans.	Example: Whole class designs a lunch menu that reflects students' food preferences and promotes the menu with school lunch chefs and administration.
Option 2: Bigger Lift This row has suggestions if you have more available time in class and more time to prepare.	Example: Using what they learned throughout the unit, students individually develop a poster or chart to share with another student in a different class or grade level to help teach them about how to waste less food.	Example: Pairs or groups determine several efforts to waste less food such as implementing a Share Table, plan for saving food, a plan for sorting food into a compost bin, or developing menu suggestions based on food preferences. Each pair or group takes on developing an advocacy plan for one of these efforts and then shares it with school administration.	Example: Whole class designs a coordinated campaign to promote extending the amount of time for lunch at schools across California. Students develop materials that showcase research and the benefits of extending lunchtimes.





Anchor Lesson

The purpose of an Anchor Lesson is to introduce an anchoring experience related to climate justice that students want to explain, address, or solve. The anchoring experience motivates all subsequent investigations in the unit.

- Starts the unit off by grounding the learning in a **common shared experience**.
- Encourages students to **ask questions** about how, why, and where an issue/phenomenon/problem occurs and who it might affect.
- Could provide a chance for students to **consider aspects of a problem to solve**.
- Provides context and motivation for students to **figure out new ideas**.
- Empowers students to share their initial ideas by **creating *Initial Explanatory Models*** that respond to the puzzling question, issue, or problem posed by the anchoring experience.
- Establishes a **shared mission** for the class community to work on together through the rest of the unit.



Investigation Lessons

Then, the unit moves into spiraling inquiry-based investigation lessons. In these lessons, **students figure out key concepts** that help them to answer part of the *Unit Driving Question* by gathering, synthesizing, and making sense of evidence.

- The lesson is guided by a **lesson-level question** that follows from the class *Driving Question Board* and helps to address the broader *Unit Driving Question*.
- Students “**figure out**” **key model ideas** that will eventually be part of the *Final Explanatory Model* to address the *Unit Driving Question*.
- Students work independently, in pairs, small groups, jigsaws, and **use a variety of task structures** depending on the content.
- Using a *Model Tracker* tool, students return to their models to revise or update their model with **new understandings and track ideas** for meaningful action or engagement.

Consensus Model Building Lesson



Students work together to **connect key concepts** from across the unit and build consensus around addressing the *Unit Driving Question*.

- Students revisit their *Initial Explanatory Models* and *Model Trackers* to review changes and additions made related to **what they learned across all the investigation lessons**.
- Students **collaborate and build consensus** through eliciting all student voices and engaging in argumentation to decide how to create their class model.
- As a class, students create a *Final Explanatory Model* that provides a **satisfying grade-level appropriate answer** to the Unit Driving Question.
- Students consider ways the *Final Explanatory Model* can **inform actions** students can take to address climate justice.



Culminating Engagement Lesson



The purpose of the Culminating Engagement lesson is to provide an **opportunity for students to apply their new understanding to propose and/or enact potential solutions** to the unit's climate justice issue.

- Leverages the concepts and understanding in the *Final Explanatory Model* to **inform designing solutions and/or taking action**.
- Supports students in planning and/or taking **meaningful actions** related to climate justice.
- Sample actions may be provided in the curriculum or may be student-generated.
- Support and guidance will be provided for **student-generated solutions to ensure equitable participation**, grade-level appropriateness, and to set students up for success.



Kindergarten

Observing Our Natural World

How do we explore and make choices about the world around us?



1st Grade

Food Systems

How does the food we throw away affect our community, and how can we waste less food?



2nd Grade

Open Space

Why is open space important?





3rd Grade

Extreme Temperatures

What impact does extreme heat have in California, and what can we do about it?



4th Grade

Power Outages and Energy Systems

What does climate change have to do with power outages, and what can our community do to become more energy resilient?



5th Grade

Wildfires

How can Californians use fire responsibly to prevent destructive wildfires?



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6th Grade Food Systems

How does a changing climate impact our food, and what can we do about it?



7th Grade Land Subsidence and Groundwater

Why is the Central Valley sinking, and what can we do about it?

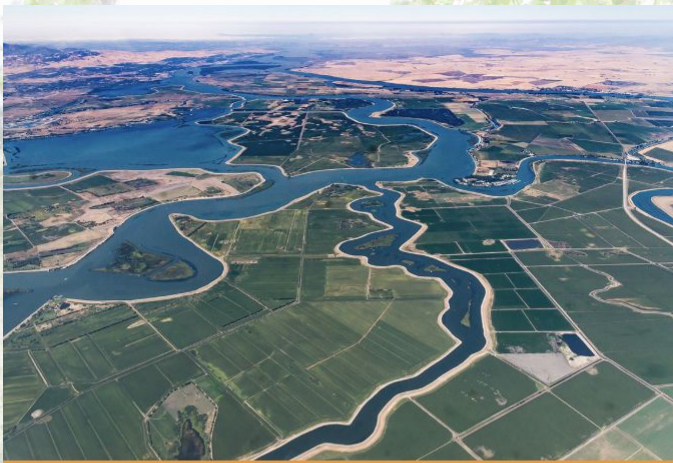


8th Grade Air Quality

What affects air quality in the San Bernardino-Riverside area, and what can we do about it?



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9th & 10th Grade: Life & Environmental Science

Managing Water for California Communities and Ecosystems

How can we manage water for California communities and ecosystems in a changing climate?



9th & 10th Grade: Physical & Environmental Science

Greenhouse Gas Emissions and Consumerism

How does our stuff impact climate change?



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11th Grade: Interdisciplinary Environmental Science

Engaging in Research

Why does environmental injustice persist, and what can we do about it?



12th Grade: Interdisciplinary Environmental Science

Conducting Case Studies

How does bringing together different types of knowledge make an effective case for environmental justice?



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On target for 2025-26 school year

- Topics informed by community organizations working with those most impacted by climate change
- Draft lessons were tested in select classrooms in 2024





Supporting teachers & school communities

- This is a new topic; teachers and parents didn't learn about this in school
- Planning a statewide rollout to introduce teachers to the materials and train them to incorporate the lessons





Stay Informed!



Roni Jones
rjones@tenstrands.org

Appreciation, Reflection, & Commitment



Take a moment to reflect on today's presentation, and the work still to come:

- ★ *What is something you appreciate about this work?*
- ★ *What questions do you still have?*
- ★ *What is your next step?*

Share one of your thoughts in the chat.

District Innovation Hub Webinar Closing, Feedback, and Resources



District Innovation Webinar Feedback

 aframe@tenstrands.org (not shared) [Switch account](#)



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Name

Your answer

Organization

Your answer

What did you enjoy, appreciate, or learn from today's meeting?

Your answer

Meeting Feedback & Suggestions Link:

<https://forms.gle/9vvi9FMDM9JzSbhh6>

Contact:

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CAELI Announcements

- **February 27:** *California Green Ribbon Schools Achievers and Applicants Network* 3:30-4:40 via zoom. [Register here.](#)
- **March 27:** *CAELI District Innovation Hub Webinar featuring Green Schoolyards America* 4:00-5:30 via zoom. [Register here.](#)

Breakout Rooms



Breakout Rooms



1. Nate (Questions/discussion about principles, guidelines & FUSD)-
2. Jerry (Questions/discussion about LAUSD)
3. Roni (Questions/discussion about Seeds to Solutions)