**Implementing Sierra Club Climate Change Literacy Resolution**

*Prepared by the San Francisco Bay Chapter Climate Literacy Committee,*

*with guidance from Kathy Dervin and Rebecca Franke. This is the April 2018 version.*

Thanks for helping ensure that all high school students in California graduate climate literate! Here's everything your local Sierra Club California chapter needs in order to begin engaging your local school district(s) and community members to make it happen.

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**Some Background –The Basis for this Initiative**

We all know it. We all see it. Time is wasting. Rising temperatures, melting ice, and unheard of weather events all point to a destabilizing climate. Now, more than ever, it's imperative that every young person in California know the facts about the world they are inheriting and what they can still do to head off the worst effects of climate change. Responding to this need, the Club's California Conservation Committee passed the resolution below. It is now up to all of us to give it substance through our local high schools.

**Climate Change Literacy Resolution
Passed by Sierra Club California Regional Conservation Committee, May 1, 2016**

Sierra Club California wants all high school students to know the fundamentals of climate literacy, including (1) causes of climate change; (2) its potential for harm; (3) what is required to avoid climate destabilization; (4) actions needed to ensure a livable future; and (5) the key people and institutions involved in implementing those actions.

For more on how to understand – and explain – the resolution to teachers, administrators, school board members, and others, check out this [guide](#Guide).)

The resolution is aimed specifically at ***high school students***. They are the ones who are closest to having an impact on climate policy; every year that goes by without a significant lowering of greenhouse gas emissions is another year lost. They have also reached a stage where their cognitive abilities have advanced, enabling more in depth, critical thinking.

Note that the resolution can't be implemented fully – be actionable – unless the development of climate literacy stretches across a student's four year experience. This includes coursework, classes like physics and chemistry, of course, AND social science courses such as economics and civics.

It also includes outreach to the community to learn about the current impact of a fossil fuel based economy and to contribute to climate action plans, renewable energy programs, and to groups and businesses which recognize the necessity and value of decarbonizing society.

**Turning the Resolution into Action**

To reach all high school students, both present and future, requires two basic actions:

1. Persuading district boards of education to go on record supporting climate literacy as a critical part of the four year high school curriculum.
2. Engaging in ongoing work with the district after the resolution is passed to ensure that climate literacy is part of all forward planning, e.g., the adoption of new textbooks, and to assist teachers as they enhance their own understanding of the subject and create lessons that address it.

**How It's Going So Far - Initial Efforts**

The San Francisco Bay Chapter was the first, and so far only, Sierra Club chapter to begin working on implementing this resolution. Its research and experiences may provide a model for how your chapter can begin its efforts.

Teachers, environmentalists, school volunteers, scientists, writers, labor educators, and other concerned individuals came together to establish the first Bay Chapter Climate Literacy Committee (BCCLC) in late 2016. At the beginning of 2017, it began to work on 1) how best to engage school districts in passing and implementing a climate change resolution and 2) what support a district and its teachers would require to integrate climate change into the high school curriculum.

The BCCLC initially drafted a [model resolution](#ModelResolution) to take to a local district's school board. It commits a district to putting a program together which ensures that all high school students become climate literate. The BCCLC drew inspiration from a [resolution](https://www.pps.net/cms/lib/OR01913224/Centricity/Domain/219/FINAL%20Climate%20Change%20Reso%205.11.16%20MR%20revised.pdf) passed by the Portland Board of Education. Its backers have published a helpful, lessons learned article[[1]](#footnote-1) reflecting on their effort.

The BCCLC also looked for resources which students and teachers could utilize. Fortunately, there's no shortage of suitable climate change material. The Committee put together a partial [list](#List). You will undoubtedly find additional resources. However, do keep in mind that teachers need to be provided with opportunities for professional development so they have the space to master the materials and adapt them to their classrooms.

Beginning in October 2017, individual members of the BCCLC began to engage four districts in which they live and work. They've put together a helpful [Climate Literacy Engagement Guide](#ClimateLiteracyEngagementGuide) to help get going. It includes tips on building a coalition, getting students and teachers involved, and developing a timeline for taking the resolution to the board and getting it approved.

**Points of Leverage**

Fortunately, California has been a pioneer in addressing environmental issues, especially climate change. This effort extends to state-level changes in educational standards and programs in recent years. Consequently, you should feel confident in leveraging the existing momentum as you approach a district.

* **New curriculum** - Now is an opportune time to work with districts as they are facing new curriculum frameworks from the state. California is in the midst of implementing frameworks approved for history-social studies and science in 2016. New frameworks draw especially from multi-state efforts to develop Common Core and Next Generation Science Standards (NGSS). The overall thrust, especially in NGSS, is to focus on student centered learning. For example, a recommended instructional strategy aims at students achieving better understanding through direct experience:

"Students learn science as an iterative, dynamic, creative, and collaborative process similar to how real scientists and engineers do their work."[[2]](#footnote-2)

 Yet another strategy defines the broader picture that students should also absorb:

"Discussions of the nature of science also address issues related to the historical, social, cultural, and ethical aspects of science. Explicitly drawing attention to these issues fosters student appreciation for how scientists know what they know and the intrinsic limitations of that knowledge."[[3]](#footnote-3)

 Both strategies would lend themselves to developing a student's understanding of the climate, the methods scientists employ to establish how the climate functions and the impact of humans upon it, and of the role this knowledge should play in society.

 The state has established goals for educating every student about the environment in [A Blueprint for Environmental Literacy](https://www.cde.ca.gov/pd/ca/sc/documents/environliteracyblueprint.pdf). A foundation for achieving this objective has been laid through the state developed guidelines known as the [Environmental Principles & Concepts](http://californiaeei.org/curriculum/whatistaught/epc) (EP&Cs). Adopted in 2010, the EP&Cs are required to be included in textbooks and all other materials adopted for instruction in California. The 15 topics covered include climate change, environmental justice, resource conservation and recycling, and energy. District administrators and teachers must familiarize themselves with the new frameworks and the EP&Cs as they evaluate new materials. Community members can be involved in this process.

**California's Environmental Principles & Concepts**

Must be incorporated into textbooks & instructional materials,

including . . .

[California History-Social Science Framework](https://www.cde.ca.gov/ci/hs/cf/sbedrafthssfw.asp)

[California Science Framework - Next Generation Science Standards](https://www.cde.ca.gov/ci/sc/cf/scifwprepubversion.asp)

Note that district high schools are responsible for their own curriculum and structuring their courses to meet state standards. Accordingly, they directly review and acquire instructional material that best meets their needs. This process gives districts more flexibility in grades 9-12 than in K-8.

* **District Planning and Budgeting -** Districts receive much of their funding from the state. In return, districts must be transparent and accountable. Consequently, each district must create a Local Control and Accountability Plan (LCAP). A LCAP sets out the goals of a district over the course of three years. It includes a description of all significant education activities and their funding. The plan is updated annually, detailing the progress the district has made in achieving its goals. A county board of education and the state Department of Education can intervene if the district isn't doing an adequate job of creating a plan and achieving its goals.

 The state guidelines for developing a LCAP do not call out climate change or environmental literacy. But a priority that is explicit is that every LCAP address the state standards. This would include the new science standards and history/social science standards. The new curriculum, materials, and activities that a district assembles in support of these standards can provide an avenue for ensuring that students develop an increasingly sophisticated understanding of climate change during their four years of high school, and how they will address it during their lifetimes.

 A district is required to solicit input from the community as it creates a LCAP. The development of a LCAP is open to all members of the community. This includes formation and active involvement of a Parent Advisory Committee. The Lawrence Hall of Science has provided an excellent description of LCAP and a [set of tools](https://www.lawrencehallofscience.org/programs_for_schools/lcap_toolkit) for engaging with districts as they develop their LCAPs. You can quickly find your [district's current LCAP](http://lcapwatch.org/) here.

Guide

**Guide for Understanding Climate Change Literacy Resolution**

**SF Bay Chapter Climate Literacy Committee**

**Climate Change Literacy Resolution
Passed by Sierra Club California Regional Conservation Committee, May 1, 2016**

Sierra Club California wants all high school students to know the fundamentals of climate literacy, including (1) causes of climate change; (2) its potential for harm; (3) what is required to avoid climate destabilization; (4) actions needed to ensure a livable future; and (5) the key people and institutions involved in implementing those actions.

Sierra Club California wants all high school students to know the fundamentals of climate literacy, including:

1. . . . **causes of climate change**. Gases that trap heat in the atmosphere, such as carbon dioxide and methane, are called greenhouse gases (GHGs). Climate change is caused by concentration of these gases in the atmosphere as increasing amounts of fossil fuels (oil, coal, natural gas) have been extracted and burned by humankind. The accumulation has made the planet warmer by about .8°C (1.4°F) since 1880. The largest source from human activities is the burning of fossil fuels for heat, transportation, and electricity. The rate at which GHGs are accumulating is likely unprecedented for the last 66 million years. As seen in the graph below, the higher the Annual Greenhouse Gas Index goes, the more heat from the sun is trapped in the Earth system.[[4]](#footnote-4)

 

1. . . . **its potential for harm**. Harmful effects are no longer potential; they are taking place, and have been for some time. Even if the emissions of GHGs ended tomorrow, warming would still occur, given that CO2 remains in the atmosphere for years. The changes are damaging/will continue to damage California in many ways, including:
* Decline in the Sierra snowpack – a natural water reservoir – over the last 50 years. Increasing amounts of precipitation will come as rain, which is more difficult to store and use. Additionally, snow has been melting earlier, causing less water to be available for people, crops (about 90% of crops harvested on California farms depend on irrigation), and ecosystems.
* Higher temperatures, causing more heat stroke, dehydration, and other health problems in people. Higher temperatures also accelerate formation of ozone which harms the respiratory system, promote the growth of allergen forming plants, and dry out soil and vegetation. Rising temperature can also lead to lower crop yields and increasing CO2 can even reduce nutrients in foods grown.
* Changes in the oceans. A rising sea level of 1 to 4 feet, could flood infrastructure (roads, bridges, wetlands, even airports); for example, in the San Francisco Bay Area. Also warming oceans produce more harmful algal blooms and slow the growth of phytoplankton, a key source of food for marine life. And ocean acidification, caused by increasing absorption of CO2, damage calcifying sea creatures such as coral and shellfish.
* Increasingly frequent but outside the norm severe weather that includes stronger storms, enormous wildfires, and extended droughts.
1. . . . **what is required to avoid climate destabilization**. Work is required to reduce further destabilization and prevent a swing in the climate through reinforcing feedback effects over which humans will have no control. The actions required include reducing energy demand and GHG emissions, transitioning rapidly to clean energy and transportation, and removing CO2 from the atmosphere and oceans.
* The current global goal (UN Paris Agreement) is to limit the rise in global temperature to less than 2°C (3.6°F), preferably 1.5ºC. To achieve a 2°C target would require that emissions of GHGs peak in the first half of the century at no more than 450 parts per million (ppm). Net zero emissions would then be achieved in the second half. To achieve a 1.5ºC target, the schedule would be more aggressive, achieving net-zero emissions by 2040-2060.[[5]](#footnote-5) Note that human civilization developed with a CO2 concentration of about 280 ppm and is today at 405 ppm. Including other GHGs, it is currently at 490 ppm CO2 equivalent. It would have to decline to 350 ppm CO2 equivalent to restore stability.
* Developed countries, especially the U.S., historically contributed the largest share of GHGs, 60-80%, according to one study.[[6]](#footnote-6) However, even if all developed countries achieved zero emissions by 2050 it would be close to impossible to reach current GHG targets given the growth in emissions of developing countries.[[7]](#footnote-7) Consequently, while all countries must commit to reducing their own GHGs, it's clear that developed countries must take on a large role in aiding developing countries to fulfill their GHG reduction commitments through financial aid and technology transfer
* Worse case scenarios exist if countries do not aggressively pursue greater reductions and efficiency. It is possible that there is already enough CO2 in the atmosphere to exceed 2°C. A rise to 4°C (7.2°F) by 2100 (based on a CO2 concentration of 800 PPM) would change the Earth in drastic ways, many of which are unknown.[[8]](#footnote-8)
1. . . . **actions needed to ensure a livable future**. Only by addressing damage inflicted in the past, while pressing forward to avoid further damaging the future is a truly livable world possible. The reliance on fossil fuels for industry, transportation, and power generation has long impacted the quality of life for many people. The disproportionate placement of refineries, chemical plants, shipping hubs and other sources of pollution in close proximity to disadvantaged communities without regard to the health or safety of residents has made environmental justice an integral part of addressing climate change. A livable future requires actions that include:
* Stabilizing the Earth's climate to be as close to the one in which communities, societies, and cultures have developed over the last 12,000 years of human civilization.
* Working towards sustainable, just and equitable global standards of living, particularly for those who have been denied a fair share of well being in the past.
* Achieving high impact change. Personal choices to improve the environment are always good, such as taking public transit and recycling. But the irreversible effects of climate change are so dire and so near that efforts that have sufficient scale should be everyone's focus.

 Students should recognize that large scale change can happen through a combination of education, regulation, investment, and incentives (negative and positive). They can work towards ensuring a livable future by taking part in actions aimed at:

* Reducing the supply and demand for fossil fuels.
* Increasing the role of renewable energy sources.
* Preserving and enhancing natural systems which are integral to maintaining a livable climate.

 There are numerous avenues students can pursue to have an impact, for example:

* Emphasizing the health benefits to their community of reduced pollution from the extraction, transportation, and burning of fossil fuels.
* Helping pass legislation to place constraints on the fossil fuel industry and encourage energy efficiency.
* Articulating to fellow students, friends, family, and others the risks of climate change and the benefits of moving to a zero-carbon society.
* Helping to upgrade buildings to become more energy efficient.
* Advocating changes in diet which would reduce GHGs, including eating less meat, sourcing food locally, and purchasing food grown according to sustainability standards.
* Preserving forests and natural working lands
1. . . . **the key people and institutions involved in implementing those actions**.

Students should be engaged at all levels of government, although they will more often be most effective at the local level. They should take heart that a recent poll found that 72% of Americans believe climate change is happening and 55% think state and local government should do more to address it.[[9]](#footnote-9) And in related issues such as fracking, there are sizeable percentages of people who simply don't know enough to be opposed or in favor; this creates an opportunity for students to be sources of information and discussion leaders.

* Local – 1) Work with their administrators and boards of education to reduce energy usage in schools – lighting, heating, and transportation; 2) Push city councils and county boards of supervisors to adopt strong climate action plans; 3) Monitor regulatory and enforcement agencies (e.g., environmental health departments) to ensure that rules to protect communities from the effects of fossil fuel use are fully enforced.
* Regional – 1) Participate in the discussions of agencies and support initiatives that operate across municipal and county boundaries to address common, regional issues, e.g., green house gases produced by oil refineries, trucks and passenger cars, and power generation; 2) Suggest and support new initiatives to save energy, replace fossil fuels, and redress the harm caused by fossil fuels, e.g., electrify transportation, start community choice aggregation programs.
* State – Meet with state legislators, the governor, and heads of agencies to ensure that plans are implemented and followed to reduce GHG emissions and remove CO2 from the atmosphere; improve conservation and energy efficiency; obtain more clean energy; support sustainable land use and agriculture; incentivize use of renewable energy; and prevent further expansion of the fossil fuel infrastructure.
* National – Contact Congressional representatives and senators to ensure that the Federal government adequately funds research into climate change (e.g., NASA, NOAA); invests in private and government initiatives to save energy and develop alternatives to fossil fuels; passes laws and supports regulations to keep fossil fuels in the ground.
* International – 1) Lobby the Federal government to provide financial and technological support to countries moving away from fossil fuel based economies; 2) Encourage the government to be flexible in negotiating GHG reductions with developing countries, given their minimal contribution to the buildup of greenhouse gases; 3) Support international agreements aimed at stopping any further climate destabilization.

 Examples include:

* + A city government has committed to educating a city's residents on the need to develop programs to reduce local use of fossil fuels. After time passes with no action, students conclude that there is a need for direction action. They make their concerns known by writing letters to the local newspaper, scheduling meetings with officials, and organizing community events to build support for action.
	+ A company is seeking to build new fossil fuel infrastructure and is seeking a permit to do so; for example, to expand a refinery's capacity to process more crude oil. Students get involved to stop development by lobbying their elected officials to deny the permit.
	+ An election campaign for a state legislative position has begun. Students see a clear distinction between the candidates. One demonstrates a strong understanding of the risks of climate change and has gone on record with the steps she would take to address it if elected. Although not all students are eligible to vote, they still become involved in supporting the candidate, especially by contacting prospective voters and discussing the environment and climate change with them.

Model Resolution

 **Sierra Club, San Francisco Bay Chapter**

**Climate Literacy Committee**

**Model School District Climate Literacy Resolution**

**Whereas**, leading scientific bodies in the United States, including the American Association for the Advancement of Science[[10]](#footnote-10) and the National Science Foundation,[[11]](#footnote-11) and throughout the world, including the Royal Society, Russian Academy of Sciences, Chinese Academy of Sciences, Indian National Science Academy, and German Academy of Sciences,[[12]](#footnote-12) have established that the Earth's climate is changing and that the largest contribution to that change is humankind's release into the atmosphere of heat-trapping gases; and

**Whereas**, while the Earth’s climate has changed many times in the past, in part due to increases in heat-trapping gases, the magnitude and rate at which it is currently changing appears to be unprecedented during the past 66 million years,[[13]](#footnote-13) consequently pushing human civilization out of the relatively stable climate in which it developed over the last 12,000 years;[[14]](#footnote-14) and

**Whereas**, in light of the overwhelming international consensus, the nations of the Earth met in Paris in 2015 to agree[[15]](#footnote-15) to intensify their fight against climate change and its effects and that agreement entered into force in 2016;[[16]](#footnote-16) and

**Whereas,** the state of California is highly vulnerable to the effects of climate change, being impacted by the overall global increase in temperature as reflected in the rise of the average temperature in the state by about 1.7◦F since 1895, and resulting in an environment in which wildfires become more intense, flooding from sea level rise is more frequent, reliable water supplies are at greater risk, ecosystems are irreversibly damaged, and the health and well-being of the public is imperiled;[[17]](#footnote-17) and

**Whereas**, many Californians, especially low income residents, live along port and transportation corridors, or near fossil fuel extraction and refining facilities, industrial sites, and agriculturally intensive regions that emit heat-trapping gases and particulates which, in addition to contributing to climate change, damage their health; and

**Whereas**, some 89% of the California public sees climate change as a serious threat to the economy[[18]](#footnote-18) with California on the forefront in addressing the issue through legislation and regulation, such as the Global Warming Solutions Act of 2006 (AB 32) and updated in SB 32 (2016); and

**Whereas**, [Name] County approved its Climate Action Plan in [Year], identifying specific measures to reduce its heat-trapping gases [XX%] below baseline levels by the year [2020]; and **Whereas**, the City of [Name] also completed its Climate Action Plan in [Year]; and

**Whereas,** thefate of current and future climate change initiatives is multigenerational, yetthe state of California has recognized that "... K-12 students in California do not currently have consistent access to adequately funded, high-quality learning experiences, in and out of the classroom, that build environmental literacy";[[19]](#footnote-19)and

**Whereas**, various organizations have gone on record calling for students to be educated on the impact of climate change, including Sierra Club California,[[20]](#footnote-20) the California Parent Teacher Association (PTA),[[21]](#footnote-21) and the National Education Association,[[22]](#footnote-22) referring its state and local affiliates to the climate change resolution passed by the Portland, OR Board of Education in 2016;[[23]](#footnote-23) and

**Whereas**, the State of California has taken steps to improve student understanding of climate change, which include formulating the State’s Environmental Principles and Concepts (EP&C's)[[24]](#footnote-24) to guide development of the California Education and the Environment Initiative (EEI) curriculum[[25]](#footnote-25) and all future instructional materials, embedding these principles into the new frameworks for both the Next Generation Science Standards[[26]](#footnote-26) and the history-social science curriculum,[[27]](#footnote-27) and convening an Environmental Literacy Steering Committee in 2016 to work on implementing the state's *A Blueprint for Environmental Literacy: Educating Every Student In, About, and For the Environment*;[[28]](#footnote-28) and

**Whereas**, implementation of state standards rests with the local education agency (LEA), and that among its responsibilities is assuring that instruction for grades nine through twelve adheres to state-adopted standards; and

**Whereas,** educators, as historically a force for reason, progressive change and social justice can, and must, play a powerful role in calling for swift action to address climate disruption and in teaching tangible solutions that ensure we are strengthening, not weakening our communities and creating a path to an equitable, just transition to a more sustainable economy[[29]](#footnote-29); and

**Whereas,** it is essential that all high school students in their classrooms and communities not only explore and understand the causes and urgent consequences of climate disruption but also explore and understand the many, varied and evolving opportunities and strategies to adapt to current and now unavoidable consequences of heat-trapping gas pollution, and to mitigate heat-trapping gas emissions so as to avoid consequences that are still preventable; and

**Whereas,** in the context of California’s growing commitment to STEAM (science, technology, engineering, art and math) education, the climate situation should also be recognized as an unparalleled opportunity and civic mandate to equip and prepare students to participate in and contribute to the multiple, burgeoning disciplines and occupations involved in both studying and responding to climate disruption, including energy efficient and zero carbon building practices, local renewable energy generation (e.g., from East Bay Community Energy,[[30]](#footnote-30) Clean Power Alliance of Southern California,[[31]](#footnote-31) and Redwood Coast Energy Authority[[32]](#footnote-32)), zero carbon modes of transportation, zero waste and waste reduction, carbon sequestration and carbon farming[[33]](#footnote-33), and additional ways to responsibly recover heat-trapping gases from the atmosphere; and

**Whereas,** in addition to the benefits of a STEAM approach to climate literacy, using the Environment as an Integrating Context (EIC) approach as a teaching strategy across all disciplines to connect students’ local and natural surroundings as a context for learning has been proven to elicit better academic performance, increased student engagement and enthusiasm for learning[[34]](#footnote-34); and

**Whereas,** the [X Unified School District] does not currently have an articulated strategy to assist district educators to develop or implement comprehensive curriculum on climate disruption; and

**Whereas,** because climate change represents a mortal threat to all of human society, and it is critical that we equip all students with the knowledge and skills they will need to understand and respond effectively to the climate situation in order to shape a sustainable future for generations to come.

**Be It Therefore Resolved**, that the [X Unified School District] Board of Education ensure that all high school students graduate climate literate beginning with the graduating class of 2018.

**Be It Further Resolved**, that the Board direct the Superintendent to work with [X USD] students, teachers, and community members to develop a comprehensive climate literacy program that includes new curriculum and materials, professional development and training opportunities for educators, and creation of links to environmental organizations and community groups for equity and inclusion.

**Be It Further Resolved**, that the district update its Local Control and Accountability Plan (LCAP) such that it identifies climate literacy as a priority and describes the strategies to be followed and resources required for a program which provides each cohort of students with opportunities to become climate literate, paying particular attention to the four year experience of the graduating class of 2021.

List

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| --- |
| **12/18/17 - Climate Literacy Resources - Version 2.3** |
| **Advocacy:** |
| * National Education Association (NEA) - <http://ra.nea.org/business-item/2016-nbi-113/>

 "NEA will encourage state and local affiliates to create climate literacy resolutions using as a model the Portland, Oregon School Board climate resolution, which was passed with the support of climate activists, members of Portland Association of Teachers, and Rethinking Schools magazine. Rationale/Background Climate change is already having a negative impact on nature and people. Governments are redefining their economies to end the fossil fuel era. Climate literacy is essential for our students success as members of their communities and global citizens." |
| * California PTA - <http://downloads.capta.org/res/ClimateChange_is_a_ChildrensIssue.pdf>

 "In May 2015, delegates to the 2015 California State PTA Convention adopted a resolution entitled 'Climate Change is a Children’s Issue.' The resolution states that children represent a particularly vulnerable group already suffering disproportionately from both direct and indirect adverse health effects of climate change. By adopting this resolution, PTA is putting climate change on the agenda of PTAs throughout California with the goal of mobilizing over 800,000 California PTA members." |
| * Climate Parents - <http://www.climateparents.org/about.html>

 "Climate Parents is a diverse national movement of parents, grandparents and families mobilizing for clean energy and climate solutions. We work to influence public policy makers and energy providers to take bold steps to protect kids and communities from the health and climate impacts of burning fossil fuels---and to move toward 100% clean energy. Motivated by love for our kids, we’re striving to harness the moral and political force of millions of families for the healthy, equitable and just world all children deserve." "Now Climate Parents has joined with the Sierra Club to mobilize families to advocate for clean-energy policies at the local and national level. As part of the biggest and oldest environmental organization in the country, Climate Parents will help busy parents connect with Sierra Club chapters and engage in family-friendly activism (think poster-making parties).   |
| **Teaching Resources:** |
| * Energizer Schools - http://www.energizeschools.org

 "Energize Schools is a project of [Strategic Energy Innovations](http://www.seiinc.org) that launched in 2013 to help schools invest in energy efficiency and renewable energy projects while engaging students in energy conservation, education, and leadership. Today, our team of professionals and educators are helping high schools across California transform education while focusing on energy and environmental literacy. Our programs are designed to make it easy and affordable for schools to reduce resource use and engage students in sustainability education and leadership." |
| * Strategic Energy Innovations - https://www.seiinc.org/

 "We offer support to build sustainability career awareness and skills through project-based learning. Supportive services include: * Project-based curriculum, aligned with the Common Core, CTE, and Next Generation Science Standards
* In-person and online teacher trainings
* Instructional planning and direct instructional support"
 |
| * Alliance for Climate Education (ACE) - <https://acespace.org/>

 "Alliance for Climate Education's mission is to **educate young people on the science of climate change and empower them to take action.** **Our Climate Our Future** ACE is proud to offer [Our Climate Our Future](http://ourclimateourfuture.org), a unique online multimedia resource featuring our signature mix of dynamic animation, music, video, and interactivity. It teaches the latest climate science and inspires young people to take action. **Action Fellowship** The [ACE Action Fellowship](https://acespace.org/fellowship) is a yearlong training program that gives young people the knowledge, skills, and confidence to be powerful climate leaders. We have developed and tested our model through workshops delivered to more than 4,000 students over the past five years. **Teacher Resources** ACE supports teachers with best-in-class lesson plans, a monthly newsletter with professional development opportunities, and dynamic online resources to deepen students’ knowledge beyond [Our Climate Our Future](http://ourclimateourfuture.org)."  |
| * *California Regional Environmental Education Community (CREEC) - http://creec.org/*

 "**(CREEC)** is a communication network supporting the environmental literacy of California’s students by providing teachers with access to high quality environmental education resources. In addition to communicating news and information about environmental education, grants and local events, this website will soon offer a searchable database of standards-based programs, field trips, on-line resources and professional development opportunities from environmental education providers across the state. An online calendar of events will also be added. Along with statewide sponsors and partners, each California CREEC Region is supported by Regional Coordinators. Regional Coordinators provide professional development and resources to educators as well as foster communications among schools and organizations interested in supporting environmental literacy of California’s teachers and students." |
| * Green Ninja - http://greenninja.org/ (Aimed at middle school students)

 "Mission: We build science curriculum that inspires students to design a more sustainable world. Green Ninja is an educational initiative to inspire interest in the science and solutions associated with our changing climate. Adventures of the Green Ninja – a superhero – are told in a youth-oriented and humorous way, but grounded in science and data. Green Ninja curriculum is used to support teachers in the classroom and promote hands-on learning experiences that are designed to meet the Next Generation Science Standards. Green Ninja media are popular on YouTube, with a current viewership of over 2,000,000." |
| * EarthTeam - http://www.earthteam.net (SF Bay Area)

 "EarthTeam programs **empower youth to become lifelong environmental stewards**. Students implement action projects that provide active learning about environmental science. They engage in **peer-to-peer education** activities, sharing their school-based service- learning projects with other students. EarthTeam's leadership opportunities promote **pathways to college and environmental science and technology careers**. EarthTeam was formed in 2000 by a coalition of educational, environmental, and governmental representatives who saw a need to provide community-based, curriculum connected environmental programs for overwhelmed high school and middle school teachers who lacked the time or resources to create such programs. Many secondary school students and teachers felt disconnected from others of similar interest and discouraged by the lack of interest in environmental issues among the general student body. **EarthTeam was created to support these teachers and students** in connecting with each other, increasing knowledge of pressing environmental issues, and participating in hands-on educational projects." |
| * National Center for Science Education - https://ncse.com/

 "**NCSEteach:** A free network for all science teachers, providing opportunities to learn from each other, access to vetted resources for teaching evolution and climate change, and advice on how best to address controversy in the classroom. **Scientists in the Classroom:** Pairs local scientists with teachers to collaborate on classroom presentations and activities." |
| Curriculum Resources: |
| * California Education and the Environment Initiative (EEI) Curriculum - http://www.californiaeei.org/

 "The California Education and the Environment Initiative (EEI) is part of statewide effort to ensure all California K- 12 students are environmentally literate and can help shape a prosperous and sustainable world. The EEI was signed into law in 2003 and mandated the creation of a standards-based curriculum to bring education about the environment into California’s K-12 schools. The EEI Curriculum consists of 85 state-adopted and approved science and history-social science units that complement existing instructional materials, allowing teachers to substitute EEI lessons for portions of their current textbooks." |
| * National Oceanic and Atmospheric Administration (NOAA) - https://www.climate.gov/

 "NOAA Climate.gov provides science and information for a climate-smart nation.  Americans’ health, security, and economic well-being are closely linked to climate and weather. People want and need information to help them make decisions on how to manage climate- related risks and opportunities they face. NOAA Climate.gov is a source of timely and authoritative scientific data and information about climate.  Our goals are to promote public understanding of climate science and climate-related events, to make our data products and services easy to access and use, to provide climate-related support to the private sector and the Nation’s economy, and to serve people making climate-related decisions with tools and resources that help them answer specific questions. **"Teaching Climate** offers learning activities and curriculum materials, multi-media resources, and professional development opportunities for formal and informal educators who want to incorporate climate science into their work." |
| * *National Institute of Environmental Health Sciences (NIEHS) – https://www.niehs.nih.gov/health/scied/teachers/cchh/*

"Climate Change and Human Health Lesson Plans. This module is intended to promote student discovery and learning about the complex interactions between climate change, the environment and human health."  |
| * California Environmental Protection Agency, Air Resources Board – https://www.arb.ca.gov/cc/curriculum/curriculum.htm

 "The California Air Resources Board (ARB) has collected an assortment of climate change-related curriculum. Provided below are links to lesson plans, activities and teaching modules on climate change subjects. Information is categorized by elementary school, middle/high school and various grade levels that may include a combination of kindergarten through 12th grade." |
| * *CLEAN – Climate Literacy and Energy Awareness Network – http://cleanet.org/index.html*

 "A collection of 650+ free, ready-to-use resources, rigorously reviewed by educators and scientists. Suitable for secondary through higher education classrooms." CLEAN also hosts a weekly call for practitioners, educators and researchers.  |
| * *California History-Social Science Project - http://chssp.ucdavis.edu/programs/environment*

 Free Webinar Series: Environmental Literacy in History-Social Science "Are you looking to tap into your students’ interest in the environment? Are you interested in the new History-Social Framework and its inquiry model? These free webinars are geared toward the history-social science classroom and will highlight elements of the Framework that are supported by California’s Environmental Principles and Concepts (EP&Cs). **Teachers will receive inquiry-based lesson materials with grade-appropriate content and literacy support."** |
| * *LCAP Toolkit for Science and Environmental Literacy -http://www.lawrencehallofscience.org/programs\_for\_schools/lcap\_toolkit*

 "In 2014, fewer than half of California’s school districts included references to science education or identified plans to implement the Next Generation Science Standards (NGSS) — and even less districts included environmental literacy — in their **Local Control Accountability Plans, or LCAP’s**. In an effort to strengthen science education and environmental literacy through the state’s local control finance and accountability processes, the Lawrence Hall of Science, along with handful of partners, has assembled an LCAP toolkit to help stakeholders successfully advocate for science and environmental literacy in their local school district budget development process."* *Lawrence Hall of Science - http://www.lawrencehallofscience.org/programs\_for\_schools*

 The site also offers information on Next Generation Science Standards (NGSS), a program to bring science to school sites, curriculum programs, and professional development.  |

Climate Literacy Engagement Guide

|  |  |
| --- | --- |
| **Task** | **Description** |
| Do some initial research and begin building your coalition | * Identify the key decision-makers: superintendent, director of curriculum, high school principals, and the school board.
* Try to determine whether there's an insider who is capable of carrying the idea internally. This is a person who understands the district and its issues and who is able to relate to the decision-makers on a personal level. For example, the director of curriculum.
* Find out what the district has already done on environmental education and sustainability and who has led these efforts. Review existing resolutions or policies that deal with sustainability, green schools, etc. You are likely to find allies here!
* Determine the climate of curriculum development: Where is your district when it comes to implementing Common Core and Next Generation Science Standards (NGSS)? How about the new framework for history-social studies?
* Identify who it makes sense to approach first. In some cases it might be best to gather support from parents and teachers vs. going straight to the administration and superintendent.
* Learn about your district’s funding and budget-making cycle. What people or groups make the decisions? What is their timeline? What avenues are there for community involvement?
* Identify PTAs and other civic engagement groups that could be supportive of the cause. The more allies you can line up, the better!
 |
| Get students and teachers involved! | * Identify teachers who would be willing to make the campaign for climate literacy into a class project or student groups, such as a “green club” at a high school campus.
* Get the teacher’s union on your side!
* Engage groups focused on promoting environmental justice and expanding educational opportunities for students of color and low income students.
 |
| Hold a meeting and get others involved! | * Spend time thinking about how you will recruit attendance for your meeting. Consider approaching PTAs, student groups/cubs to gather community support.
* Identify your key allies who will be present at the meeting. These are folks that you have confirmed support from, and who are committed to showing up to this meeting and in the future at school board meetings to show support for the resolution.
* Introduce the goal: All students in District X will graduate climate literate.
* Introduce the first step: District X’s school board will adopt a Climate Literacy Resolution
* Solicit input from attendees. The path of this work will be reliant on community input and support. It is important to come up with a plan that is well received and generated from within the community so that all voices feel heard and represented.
* Identify leadership: One person cannot do this alone.
* Distribute assignments: Think of the jobs you assign at the first meeting as a way to gather information on who you can count on. Some people may seem very enthusiastic at the first meeting, but may be too busy to really contribute. Others may seem quiet, but have great follow-through.
 |
| Continue to gather information | * Take the temperature:
	+ School Board
	+ District Administration
	+ High School Administration
	+ Teachers
	+ Other district employees
	+ Parents
* Be aware that districts are different. There is no one recipe for success.
* Recognize that while the superintendent is closely linked to the school board, that doesn't mean necessarily that he or she is best positioned to carry this issue. She may not be that involved in instructional and curriculum issues, or believe that there are more pressing issues confronting the district.
* Find out who/when/where the parent advisory group for Local Control and Accountability Plan (LCAP) meetings are held. This is a key group that can help influence textbook purchasing, curriculum development and teacher training for the district.
 |
| Develop a Plan With a Timeline! | * Make a calendar of important events in your district (or by school, depending on the size of your district). Include both important meeting times (PTA, School Board, Teachers Union, School Site Council, Parent-Teacher Conferences) and important social events. Make your plan around those events, thinking about how you can leverage them to your group’s advantage.
 |
| Customize the resolution to fit your district’s needs | * A successful path to climate literacy may look different from district to district. Think about putting specific targets and timelines into the resolution and be realistic as you do so. Seek feedback from people who understand how your district works, both in terms of curriculum dissemination and funding streams.
* Craft the strongest possible position in a resolution that your team agrees with before considering compromises.
 |
| Introduce the resolution to the school board | * Be strategic about how you do this. Choose whether to spark the discussion of climate literacy through engagement with community groups or through attracting the interest of a particular administrator or board member. Or do both.
 |
| Keep Meeting | * Keep interested parties involved. Make sure every meeting has a purpose, so that people stay interested and they feel their time is respected.
 |
| Engage the Board | * Demonstrate that there is broad support for the resolution. This showing will increase the comfort level of the board that they are making the right decision; the resolution does reflect the community they represent.
* This can be accomplished through emails, phone calls, individual conversations, and public comment by **a wide array** of community members.
* Make sure you distribute talking points to the community.
* Maximize in-person attendance at school board meetings
* Engage each of the board members individually, making sure that any questions and concerns are addressed.
 |
| When the resolution is up for a vote | * Bring in as many people as you can to show their support.
* If people can't attend in person, have them submit written comments.
 |
| After the resolution is approved | * Create an implementation task force: Even if the school board signs on to a resolution, there’s no guarantee that things will change at the classroom level. Schools have multiple priorities and limited resources. Integrating climate literacy into instruction will take time. Keep monitoring and hold the district accountable. Make sure that the district is aware of the resources which do exist and is pointing teachers to them. Build the initial effort around getting the board to pass the resolution but plan on continuing involvement in implementation as well, e.g., creation of curriculum, funding of professional development.
 |

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