

Brought to you by  
Mike Roa  
mroa@sonic.net

# Grapevine



July, 2023

**\*If you represent an organization** and would like to write your own (short) description, that would be GREAT. If you offer opportunities for volunteering or citizen science, please **be sure to note that**.

## *What is the Grapevine?*

The *Grapevine* is a free monthly e-newsletter intended to help inform North Bay Area educators about science and environmental education resources, events, opportunities, etc. To receive the *Grapevine*, just send an email asking to be added to the *Grapevine* email list to: [mroa@sonic.net](mailto:mroa@sonic.net)

*Please share* this information with whomever might be interested, and if you find out about something that should be shared among science and environmental educators, please let me know.

*If you would like to have your event or other science or environmental education opportunity included in the Grapevine, send me an email with a short announcement that I can cut and paste. Send to: [mroa@sonic.net](mailto:mroa@sonic.net) Submissions are usually due on the fifth of the month. I plan to send the Grapevine the around the tenth of each month. (See Submission Due Date below.)*

*To unsubscribe, just send me an e-mail asking to be dropped from the Grapevine list.*

*Past issues of the Grapevine are being archived at the North Bay Science Discovery website at:*

<https://www.northbayscience.org/grapevine>

## **Submissions Due:**

I've decided to change the due date so that I can send out the *Grapevine* closer to the first of each month. Submissions for the next *Grapevine* are due **July 26**. The next issue will include events approximately through **August 16**.

## **Sharing...resources, information, opportunities**

### **Stewards of the Coast and Redwoods...**

#### **U.C. California Climate Steward Certification**

Wednesday, August 16, 2023 - Wednesday, November 1, 2023  
6:30 pm - 9:00 pm

Help your community find resilience in a changing climate.

[MORE INFO](#)

# Discovery Day

The 2024 North Bay Science Discovery Day has been scheduled for Saturday, March 9, 2024. If you're interested in participating either as an exhibitor or visitor, please mark your calendar. Visit the web site at [northbayscience.org](http://northbayscience.org)

## EPA Invites Youth to Serve on Agency's First-Ever National Environmental Youth Advisory Council

**WASHINGTON (June 22, 2023)** – Today, the U.S. Environmental Protection Agency (EPA) announced the formal establishment of the agency's first-ever National Environmental Youth Advisory Council (NEYAC). The NEYAC will provide independent advice and recommendations to Administrator Michael S. Regan on how to increase EPA's efforts to address a range of environmental issues as they relate to youth communities. The NEYAC will provide a critical perspective on how the impacts of climate change and other environmental harms affect youth communities. The Administrator announced his intent to launch the youth council last June at the Austrian World Summit.

EPA is soliciting applications for youth to fill 16 vacancies on the NEYAC. Selected applicants will contribute to a balance of perspectives, backgrounds, and experience of the council and will be appointed by the Administrator. As a first-of-its-kind committee, all members of NEYAC will be between the ages of 16 and 29.

As part of the agency's commitment to centering environmental justice communities, at least 50% of the overall membership of NEYAC will come from, reside primarily in, and/or do most of their work in disadvantaged communities as defined by the Climate and Economic Justice Screening Tool (CEJST) as part of Justice40. "We can't tackle the environmental challenges of our time without input from our younger communities, who've long been at the forefront of social movements," **said EPA Administrator Michael S. Regan**. "This committee will help ensure that the voices and perspectives of our youth are included and valued in EPA's decision-making as we continue to advance President Biden's commitment to ensuring everyone in this country has access to clean air, safe water and healthy land, now and for generations to come."

**Applications to the NEYAC are due by August 22, 2023 at 11:59PM ET.** To apply for appointment to the council, the below information is required:

- Contact information
- Resume **OR** short biography **OR** qualification essay
- Statement of interest
- Media Project

Visit the [EPA NEYAC webpage](#) for more information on the council and to apply.

**EPA will be hosting virtual application webinars where the public can ask EPA staff questions live. The webinars will be on Zoom and will be hosted at the following times:**

- ~~Friday, June 30, 2023 @ 3PM – 4PM ET // [Register here](#)~~
- **Monday, August 7, 2023 @ 12PM – 1PM ET // [Register here](#)**

## Sturgeon's Mill:

If you haven't visited Sturgeon's Mill in Sebastopol during one of their free demonstration runs, I highly recommend that you check it out. The demonstrations and objects on display can provide interesting background for your own understanding of redwood logging. Check it out at:

<https://www.sturgeonsmill.com/>

dates are Sept. 16/17, Oct. 14-15. Note that they take lunch from 12:00-1:00

# Science Buzz Café

BRINGING SCIENCE, ECONOMICS & CURIOSITY BACK INTO CULTURE ...

(707) 292-5281 [daniel@economicbuzzcafe.com](mailto:daniel@economicbuzzcafe.com)

Discover the Scientist Within and Widen Your Horizon!

JULY 25th G. Grill Daniel Osmer, Entrepreneur # 515 4th TUESDAY 7PM World History Through Economics & Finance Three Financial Amigos that Made America

AUGUST 14th ABBEY R. Jay Kniffen, Engineer & Technologist # 516 2nd MONDAY 7PM EVs and the Personal Transportation Revolution! WEST County – Electric Vehicle Capital of the World

AUGUST 22nd G. Grill # 517 4th TUESDAY 7PM SEPTEMBER 11th ABBEY Apocalypse, CryptoArtist # 518 2nd MONDAY 7PM The Creativity & the CryptoArt REVOLUTION!

## National Science Teachers Association Summer webinar series

**July 20**

[Science Update: Do NASA Science LIVE!](#)

**August 31**

[Science Update: An Eclipse 'Double-Header' Is Coming This School Year!](#)

## Children's Museum of Sonoma County

The Children's Museum is making a commitment to elevate our nature education programming. This will mean being more intentional with our message with education around understanding the earth's systems and encouraging responsible stewardship for all of them!

We are looking to enhance our nature education for families\* starting this Fall and are reaching out to invite other SEEC\*\* organizations to come present at the Museum or assist us in creating specific programming. What would that look like? We're not entirely sure but we wanted to get the conversation started with the like-minded educators in SEEC. It is also very important to us that we also provide bilingual programming, so we are looking for opportunities for that.

\*CMOSC typically provides experiences for children around 10 years old or younger.

\*\*SEEC is the Sonoma Environmental Education Collaborative. It is a group of organizations that provide environmental education. You can check it out at: <https://sonomacountyee.org/>

We look forward to these discussions as we demonstrate the power and importance of environmental education to the entire family!

Contact Theresa Giacomino at [theresa@cmosc.org](mailto:theresa@cmosc.org)

## **From the June Forestry Challenge Teacher Newsletter:**

### **Community Resources for Science:**

#### **Plan Now for Two Upcoming Solar Eclipses**

The NGSS puts phenomena at the center of learning in science. In October 2023 and April 2024 your students will have the chance to observe (weather permitting) the phenomena of solar eclipses. There are lots of great resources available to help you plan for a safe solar eclipse viewing session with your students. In the Bay Area both of the eclipses will be partial eclipses.

[Saturday, October 14](#) will be an annular eclipse from Oregon to Texas. It will be a partial eclipse in the Bay Area (with more of the sun covered than the April eclipse). It will start around 8:05 am, peak at 9:19 am, and end around 10:42 am.

[Monday, April 8](#) will be a total eclipse from Texas to Maine, but will be a partial eclipse in the Bay Area. It will start at 10:14 am, peak at 11:13 am, and end at 12:15 pm.

The Exploratorium has put together an [extensive website about all things eclipse](#). They have created [videos](#), [resources](#) and [activities](#) to give you and your students everything you need to know about viewing and understanding eclipses through a variety of scientific, cultural, and social lenses.

The American Astronomical Society has a [list of trusted suppliers of solar glasses for safe eclipse viewing](#).

---

## **BODEGA MARINE LABORATORY invites you to join us for public tours on Friday afternoons!**

IMPORTANT:

Due to limited capacity, you must reserve a date and time to take part in a tour. Additional dates will be added soon. To reserve your spot visit:

<https://www.eventbrite.com/e/public-tours-of-bodega-marine-laboratory-registration-622690533147>

#### **About the Event:**

When: Fridays, starting at 2pm

Where: 2099 Westshore Rd. Bodega Bay, CA 94923

#### **What will I see?**

These tours are led by our wonderful crew of ocean-loving docents, and visitors will learn about ongoing marine and coastal science research at Bodega Marine Laboratory and its history on the Sonoma Coast. Plus, you'll get to meet a variety of colorful and diverse ocean creatures.

**Who's invited?**

Although we welcome all ages, these tours are best for people who are school-aged and above. Dogs and other pets are not allowed, with the exception of service animals.

Public tours are only available by reservation. If your preferred tour time is already full, you can place your name on a waitlist through Eventbrite to claim a spot if one becomes available.

If you are interested in arranging a tour for a school or other group of 10 or more people, please contact [alcarranza@ucdavis.edu](mailto:alcarranza@ucdavis.edu) instead of booking through the public tour reservation system.

**What else should I know?**

As you drive up to the lab, please be mindful that we are on the Bodega Marine Reserve, a protected home for many marine and terrestrial creatures. We ask that you reduce your speed to the posted limits and watch out for wildlife.

While on the tour, please stay with your group and do not explore on your own, as parts of the laboratory and reserve contain sensitive organisms and research data that are easily damaged.

**Does the tour cost money?**

We provide our public tours free of charge, but donations are encouraged and appreciated. Donations are critical to supporting the care and maintenance of the aquaria and animals you will see during your tour.

If you would like to make a gift, you can do so by selecting the donation option when you reserve your tour spot or visit our website to learn about more ways to give: [marinescience.ucdavis.edu/give](https://marinescience.ucdavis.edu/give)

**High Schools: Announcing the Fall,2023 Forestry Challenge****\*Santa Cruz - October 11 to 14 - Redwood Glen near Loma Mar\***

Shasta - September 27 to 30 - Mountain Meadows Camp east of Redding

El Dorado - October 25 to 28 - Leoni Meadows Camp south of Placerville

San Bernardino - November 8 to 11 and 15 to 18 – Hume SoCal near Lake Arrowhead

This Event is FREE!

Watch a one-minute [introductory video](#)!

The Forestry Challenge is an academic event for high school students in technical forestry and current forestry topics. Participants spend four days in the forest learning about the ecology and management of the forested landscapes that provide communities with water, recreational opportunities, wood products, and wildlife habitat. For more about the program, visit the [Home](#) page of the Forestry Challenge website. School groups (typically 4 to 10 students and a teacher chaperone) are welcome to attend any event that is the best fit for location, school schedule, and interest.

# Forestry Institute for Teachers (FIT)

I've participated both as an instructor and as a "student," and can attest that FIT is one of the best professional development opportunities that I've ever done. You'll learn a lot about forests, forestry, and forest conservation. You will also receive some great curriculum materials as well as "room" and meals. You can even receive a \$200 stipend for doing a curriculum project of your own design. The sessions usually fill up, so I recommend registering soon. Here's the basic info:

## *Introducing NEW location in EL DORADO County* **Early Registration OPEN**

[Forestry Institute for Teachers \(FIT\)](#) is a week-long residence workshop for California educators.

Join natural resource professionals and credentialed educators to explore forest ecosystems and the impact they have on our communities. **40 hours of Academic Credit available!**  
Participants receive:

- Hands on training in California Content Standards using [Project Learning Tree](#) and [Project WET](#) curriculum guides
- Skills and materials for action-oriented student and classroom projects
- Meals and lodging
- 3 Continuing Education Credits from UC Davis or CalPoly Humboldt
- \$200 curriculum project stipend

Contact [forestryinstitute@gmail.com](mailto:forestryinstitute@gmail.com) for more information

### **Humboldt, July 9-15**

Humboldt State University, Arcata

### **Shasta, July 16-22**

Camp McCumber, Shingletown

### **El Dorado , July 23-29**

Blodgett Forest, Georgetown

\* Application includes room and board for the week.

[Apply Here](#)

## From the SSU Center for Environmental Inquiry:

Join an “Environmentally Ready” community working to eradicate nature deficit disorder. Become an Osborn Naturalist with this flexible training program or join us for any of the Naturalist Ed events.

### Become an Osborn Naturalist!

Naturalist Ed Series

[Aug. 26th - Sept. 9th various dates and times](#)

**Leaders:** University staff, faculty & regional experts

**Location:** Osborn Preserve

### For Questions

#### Galbreath Preserve (Mendocino County)

Margot Rawlins, Galbreath Program Coordinator: [rawlinsm@sonoma.edu](mailto:rawlinsm@sonoma.edu)

#### Osborn Preserve (Sonoma County)

Kerry Winingek, Outreach & Communications Lead: [winingek@sonoma.edu](mailto:winingek@sonoma.edu)

#### Naturalist Ed Series

Julie Wittmann, Nature Education Specialist: [julie.wittmann@sonoma.edu](mailto:julie.wittmann@sonoma.edu)

## Some interesting reading:

In the July issue of **National Geographic** :

- Attempts to “de-extinct” the Tasmanian tiger
- Olive Sea Snakes
- The Amazon’s first storytellers
- Return to the Cave of Bones” (about *Homo naledi*)
- Attempts to raise and release endangered species of sharks

The July issue of **Smithsonian** includes articles on:

- “trap feeding” by whales
- bandicoot

### **TED Talks: Science Worth Knowing:**

New science-related talks are frequently posted.

check it out at <https://www.ted.com/topics/science>

## Science in the News from Sigma Xi

(Sigma Xi is a science honor society. You can sign up to receive their **bi-weekly** science e-newsletter at: <https://www.sigmaxi.org/news/newsletters>)

Some stories from recent newsletters include:

- Why STEM Education – and Democracy – Need Civic Science
- Astronauts' immune systems slow down in space
- Monarch butterflies' wind colors may help them fly
- Europe's oldest engravings attributed to Neanderthals
- Daytime napping may preserve brain health
- Light pollution is worse than previously thought
- Scientists propose new theory of how Earth was formed
- World breaches 1.5C cap; record heat predicted for 2023
- Food allergy burden varies by race, income

## Sci Tech Daily

Sci Tech Daily is a (you guessed it...) **daily** brief summary of current events in a variety of science fields, including general science, health, space, technology and others.

Go to <https://scitechdaily.com/> Among many others, the **xxx** edition included:

- xxx

### Science Humor:

What do you get when you cross an elephant with a honeybee?

A ton of honey.

### *Live and Learn*

*( in which Mike shares something that he's recently learned. )*

The quarterly magazine of the Save the Redwoods League is called *Redwoods*. The cover article of the Spring issue is on redwoods and climate change.

In 2009, the League launched an initiative called the Redwoods and Climate Change Initiative. It is a partnership between the League, Cal Poly Humboldt, U.C. Berkeley, NatureServe, the U.S.G.S., and Colorado State University.

I've heard before that redwoods are very good at sequestering carbon and storing it, but the article gave some interesting statistics, such as:

Old-growth coast redwoods store more aboveground carbon per acre than any other forest type. The giant Sequoias come in second. Coast redwoods can have up to 890 metric tons of aboveground carbon stored per acre, which is equivalent to 8.3 million miles of passenger car emissions.

Even mature second-growth coast redwood forests can store carbon at a higher rate than most other forest types, as much as 339 metric tons per acre.



## Hot (Cool?) Links:

The Union of Concerned Scientists recently started a new podcast titled This is Science with Jess Phoenix. Check it out at: [www.sciencewithjess.org](http://www.sciencewithjess.org)

Also, the Union of Concerned Scientists has a YouTube channel at: [www.youtube.com/@unionconcernedscientists](http://www.youtube.com/@unionconcernedscientists)

## Jobs:

### Stewards of the Coast and Redwoods:

#### Volunteer Coordinator:

Reporting to Stewards' Program Manager, our Volunteer Coordinator assists in program delivery and is the primary point of contact for all volunteer inquiries. This is a customer service oriented position that requires patience and grace to serve our volunteers with a high degree of service and accountability. Our Volunteer Coordinator helps to onboard and train volunteers and also works closely with program coordinators (volunteers) to ensure new volunteers have an enjoyable and meaningful experience with Stewards.

More details at: <https://stewardscr.org/wp-content/uploads/2023/02/2023-Volunteer-Coordinator-Position.pdf>

To Apply: Please send a cover letter and resume to Stewards of the Coast and Redwoods at [stewards@stewardscr.org](mailto:stewards@stewardscr.org) with "Volunteer Coordinator" in the subject line. We will begin to review applications March 6th, 2023 and afterwards they will be accepted on a rolling basis. This position will be removed from our website when the position is filled. We urge you to apply ASAP.

#### Headwaters Science Institute is hiring Part-Time field science teachers.

*Headwaters Science Institute is seeking science mentors with prior field science research experience who are passionate about outdoor science education to assist with field days associated with school programs in the Bay Area. Headwaters Science Institute is a science education nonprofit based in Soda Springs, CA that works with students to bring them through the entirety of the scientific process. We aim to use local scientists to give students a glimpse into relevant science research that is happening in their communities. As a science mentor, you will assist students with data collection for the research question they will have designed. Methods for data collection will vary based on student questions but will most likely include things like quadrat and transect sampling, soil chemistry testing, water quality measurements, and other simple techniques students will be able to practice in their short time in the field. The pay rate for these field days is \$175/day. We work in the Bay Area, Sacramento, Truckee/Tahoe, and Reno.*

*If you are interested in work, please contact our Program Manager Bryn at [bryn@headwatersscienceinstitute.org](mailto:bryn@headwatersscienceinstitute.org) for more information.*

[See all listing here](#)

## Abraham Lincoln High School (San Francisco)

Our Chemistry program at Abraham Lincoln High School (ALHS) is growing and we are hiring another 1.0 FTE **Chemistry Teacher**. This person will be responsible for teaching 5 sections of NGSS Chemistry. Please see the [job description](#) (#16923) and [application process](#). Curriculum information: [SFUSD NGSS Chemistry Curriculum](#)

We're also hiring for a **Biology** position. Please see the [job description](#) (#17412) and [application process](#). SFUSD Scope and Sequence: [Biology](#)

Additional information:

- [SFUSD NGSS Chemistry Curriculum](#)
- [UESF Certificated Salary Schedule](#)
- [ALHS Website](#), [Counseling Website](#)
- [Where is ALHS?](#)

## Science and Environmental Education Organizations

These organizations offer science or environmental education opportunities and/or **volunteer** or **citizen/community science** opportunities.

If I know of **volunteer** or **citizen/community science opportunities**, I've indicated that, but some may have opportunities about which I don't know.

Check their web sites for more information.

### American Cetacean Society

**Description:** As the name implies, the ACS works to protect cetaceans (whales, dolphins, porpoises), and also supports research.

**Web site:** The San Francisco Bay chapter's website is: <https://www.acs-sfbay.org/>

### Aquarium of the Bay:

Aquarium of the Bay has returned to onsite programming for the 2022-2023 school year. K-12 schools can book either Aquarium-Teacher lead classroom programs (fee-based) or Self-Guided Tours (free).

**Available Programs:**

**Kinder** – Between the Tides: Learn about the animals that live in the tidepool and the adaptations they have in order to survive their ever-changing world.

**1-3<sup>rd</sup>** – Salmon!: Follow the salmon lifecycle from egg to the end and discover how human impacts affect its life journey.  
**3-5<sup>th</sup>** -Sensational Sea Lions: Come learn about and observe the World-Famous Pier 39 sea lions. How did they get here, why they stay here, and above all, what makes them such amazing animals  
**6-8<sup>th</sup>** – Kraken Lab: Come and participate in a squid dissection and learn the ins and outs of this unique animal  
**9-12<sup>th</sup>** – 3D Printing Lab: This brief introduction to 3D printing will enable your students to learn not only some of the history behind it, but also help print plates that will be used to aid the non-visual community.  
**K-12<sup>th</sup>** – VIP School Group Tour: This special tour of the building is held before the Aquarium opens and enables students to see the work that is often not seen by the public. This tour is limited to 25 participants and is not bookable on the website. Please email us for more information  
**K-12<sup>th</sup>** – Self-Guided Tour: While this tour is booked on 20-minute intervals, the tour length is 1 hour. Your class will be able to go as fast or as slow as you would like which makes it perfect if you only have a limited amount of time.

Email [education@bay.org](mailto:education@bay.org) for more information on any of these programs

Visit <https://www.aquariumofthebay.org/> and under the Education tab, you will be able to locate things like K-12 programs, teacher resources, eLearning modules, Plastic Free Campus, and Professional Learning Courses.

Aquarium Education Programs Webpage: [K-12 Programs – Aquarium of the Bay](#)

## Audubon Canyon Ranch

### Our Mission

*Connecting nature, people and science in a rapidly changing world*

### Our Vision

*Inspired and informed communities use scientific knowledge to build a resilient, sustainable society that respects the intrinsic value of our natural world.*

They have several sites:

- Bouverie Preserve, Glen Ellen
- Cypress Grove Preserve, Marshall
- Martin Griffin Preserve, Stinson Beach
- Modini Preserve, Healdsburg

**Volunteer Opportunities:** <http://www.egret.org>

## Audubon Society

(Madrone Audubon Society Chapter)

We promote public education, enjoyment, study and protection of the natural world, especially birds.

Check out the Madrone Audubon Society's schedule of walks and other events at: [www.madroneaudubon.org](http://www.madroneaudubon.org)

The *Madrone Leaves* newsletter has information about coming events and a variety of conservation issues.

### Citizen Science Opportunities

### Volunteer Opportunities

## Bay Area Teen Science

This site posts opportunities for teens to get involved in science in a variety of ways. Although many of the postings are now outdated, they can still provide ideas and sites for teens to check back with later.

<http://bayareateenscience.org/>

## Bay Nature

This locally produced (Berkeley) magazine has many interesting articles, great illustrations, and an event calendar. Check it out at: <https://baynature.org/>

## Bird Rescue Center of Sonoma County

The center usually has an open house the first Saturday of the month.

They have an education program...You can arrange a visit to the Bird Rescue Center, or they can come to your school. Request by their online program request form

**The Web site has added a “Virtual Resources” section. In it you can find links to many resources on birds, bird identification, and other interesting resources.**

### Volunteer Opportunities

Check out their web site at: <https://www.birdrescuecenter.org/>

## Bodega Marine Lab

~~The BML offers public drop in tours most Fridays from 2:00 — 4:00 for groups of less than 10 people. Group tours can be scheduled for a minimal fee. call 707-875-2211.~~

They are closed to the public for now, but I expect that they will reopen some time this summer.

They also have a **webcam** focused on Horseshoe Cove

Web site: <http://bml.ucdavis.edu/>

## Cal Academy NightLife lectures

The California Academy of Sciences is now open daily. They require times reservations.

Website: <https://www.calacademy.org>

## California Coastal Commission

### **Mission: Protecting & Enhancing California's Coast**

The Commission is committed to protecting and enhancing California's coast and ocean for present and future generations. It does so through careful planning and regulation of environmentally-sustainable development, rigorous use of science, strong public participation, education, and effective intergovernmental coordination.

## ***Check out these resources from the California Coastal Commission:***

### **Environmental Education Events Calendar**

The California Environmental Education Interagency Network maintains a calendar of events and opportunities relating to environmental education. Find an event or submit yours to the calendar.

### **California Coastal Voices**

A project-based learning guide and online toolkit for middle and high school teachers. Consisting of six units (or "projects") that introduce students to coastal conflicts, challenges, and scientific and policy issues, the emphasis is on problem solving and communication. This learning guide was designed to address California's Next Generation Science, Common Core, and History-Social Science standards. Download teacher resources and student activities and access slideshows, videos, articles, and much more.

Find Lots More **Educator Resources** online.

website: <https://www.coastal.ca.gov/publiced/pendx.html>

## **CA. Native Plant Society**

The Milo Baker Chapter of the California Native Plant Society (CNPS), named after the famous Santa Rosa Botanist, is located in Northern California's beautiful Sonoma County. CNPS is a statewide organization whose goals are to increase understanding and appreciation of California's native plants, and to preserve them and their natural habitats for future generations. Membership is open to all.

### **Citizen Science Opportunities**

### **Volunteer Opportunities**

For information go to: <https://milobaker.cnps.org/>

## **California Naturalist Program**

The UC California Naturalist Program is designed to introduce Californians to the wonders of our unique ecology and engage the public in study and stewardship of California's natural communities. The California Naturalist program uses a science curriculum, hands-on learning, problem-solving, [citizen science](#), and community service to instill a deep appreciation for the natural communities of the state and to inspire individuals to become stewards of their local resources.

The mission of the California Naturalist Program is to foster a diverse community of naturalists and promote stewardship of California's natural resources through education and service.

The California Naturalist Program promotes environmental literacy and **stewardship** through **discovery** and **action**. Many other states have similar naturalist programs, but this is the first statewide program in California. To [become a certified California Naturalist](#), participants need to enroll in a 40+ hour course with one of [our partner organizations](#).

We work with over 45 partner organizations that deliver the course and have certified a community of over 2800 Naturalists around the state who have, in turn, volunteered over 175,000 hours in service to nature in the areas of education and interpretation, stewardship, citizen science, and environmental program support. Courses combine classroom and field experience in science, problem-solving, communication training and community service. Students are taught by an instructor and team of experts who are affiliated with a local nature-based center or natural resource focused agency. Upon completing certification requirements, participants are eligible for four academic credits through [UC Davis Extension](#) for an additional nominal fee.

Some CalNat programs are offering online or hybrid programs. See below.

### **Citizen Science Opportunities**

Visit the Web site at: <http://calnat.ucanr.edu>

## **Center for Climate Protection**

has a high school program called eco2school. Check it out at: <http://www.eco2school.org>

## **Children’s Museum of Sonoma County**

<http://www.cmosc.org/>

### **Mission**

The Children’s Museum of Sonoma County inspires curiosity and creativity through joyful, transformative experiences.

### **About Us**

The Children’s Museum of Sonoma County (CMOSC) was founded in 2005. Rooted in current early childhood research, CMOSC engages children in joyful discovery experiences that develop foundational skills, create lasting memories, and spark a lifelong love of learning.

Designed for children and their caregivers, the Children’s Museum’s experiential exhibits emphasize hands-on engagement and learning through play with a focus on art, nature, and science.

The Children’s Museum proudly supports the work of parents, caregivers, and educators in raising happy, healthy, and strong children. Since opening its doors in 2014, it has become a valuable cultural resource and destination for Sonoma County.

website: <https://www.cmosc.org/>

## **Clean River Alliance**

The mission of the Clean River Alliance is to remove trash from the Russian River watershed and to educate citizens about the problem of trash in our waters by creating more public clean-up events.

### **Volunteer Opportunities**

<https://russianriver.com/business-directory/clean-river-alliance/#:~:text=The%20mission%20of%20the%20Clean,more%20public%20clean%20Dup%20events.>

## **The Climate Center**

The Climate Center's work is guided by 3 core principles. All of our climate-safe policies and programs must be based on the latest science, help secure a [Just Transition](#) for fossil fuel workers, and prioritize [Climate Justice](#) for frontline communities. These principles inform our [Climate-Safe California campaign](#).

[www.theclimatecenter.org](http://www.theclimatecenter.org)

## **Coastside Land Trust**

THE COASTSIDE LAND TRUST IS DEDICATED TO THE PRESERVATION, PROTECTION AND ENHANCEMENT OF THE OPEN SPACE ENVIRONMENT, INCLUDING THE NATURAL, SCENIC, RECREATIONAL, CULTURAL, HISTORICAL, AND AGRICULTURAL RESOURCES OF HALF MOON BAY AND THE SAN MATEO COUNTY COAST FOR PRESENT AND FUTURE GENERATIONS

The Coastside Land Trust, in Halfmoon Bay, sponsors webinars that may be of interest to you.

Their Web site is [www.coastsidelandtrust.org](http://www.coastsidelandtrust.org)

## **Coastwalk California**

Mission

To ensure the right of all people to reach and responsibly enjoy the California coast. We are a California-wide non-profit volunteer driven organization that advocates for public access to our coast via the California Coastal Trail and offers educational & fun Coastal Trail guided hiking and camping adventures.

Vision

A well-stewarded California coast, highly prized as an irreplaceable commons, open for responsible use to all.

[www.coastwalk.org](http://www.coastwalk.org) phone: 707-829-6689

## **Community Resources for Science**

CRS helps teachers build on that enthusiasm and bring meaningful science learning experiences to life in their classrooms. Children have a natural curiosity and a craving to learn. CRS works to nurture that learning by connecting classroom teachers with scientists, museums, enrichment providers, and professional development programs in order to bring more science learning experiences to students. CRS also helps individuals and organizations involved in science education to work together and become stronger partners for teachers and schools.

We have compiled some resources for teachers that we thought might be useful as we face school closures and move to more online learning opportunities while we practice "social distancing" in the wake of the spread of COVID-19.

<https://www.crscience.org/>

## Community Soil Foundation

### Student-Grown Farm Stand

Community Soil Foundation's mission is to cultivate the wellness of Sonoma County communities by offering land-based education, creating access to organic produce, and regenerating habitat and natural resources. We invite you to come to the Larkfield Community Garden & Learning Center every Wednesday afternoon for your weekly supply of nutritious, organic produce. All fruits, veggies, and flowers are grown by Mark West students and community volunteers using biodynamic and sustainable methods, with proceeds helping fund the garden. All sales are by donation. Look for our Farm Stand at 450 Noonan Ranch Lane and check out other happenings at [www.communitysoil.org](http://www.communitysoil.org).

### Volunteer Opportunities

## CREEC

**The California Regional Environmental Education Community (CREEC) Network** is a program of the California Department of Education. The CREEC Network fosters regional partnerships throughout the state of California to promote environmental education and environmental literacy by providing teachers with access to high quality professional learning opportunities and education resources.

Along with statewide sponsors and partners, each of the 11 California CREEC Regions provides professional learning opportunities and resources to educators as well as foster communications among schools and organizations interested in supporting the environmental literacy of California's teachers and students. More information on the CDE's CREEC Network program is posted on the [CDE website](#).

**Different areas of the state have different CREEC Regions. For information about events in your region, go to: [www.creec.org](http://www.creec.org), and select "regions" at the top**

## Daily Acts

### Who We Are

We are a holistic education nonprofit that takes a heart-centered approach to inspiring transformative actions that create connected, equitable, and climate resilient communities. We believe in the power of our daily actions to reconnect people to self, community, and place, which helps to heal our society and planet.

**Our Mission** is to inspire transformative action that creates connected, equitable climate resilient communities.

**Our Vision** is to create healthy, just and sustainable communities built upon the daily actions of many people.

### Volunteer Opportunities

<https://dailyacts.org/>



## East Bay Regional Park District

The East Bay Regional Park District is a system of beautiful parklands and trails in Alameda and Contra Costa counties to the east of San Francisco. The system comprises nearly 125,000 acres in 73 parks, including over 1,250 miles of trails and 55 miles of shoreline. We acquire, manage, and preserve natural and cultural resources for all to enjoy now and into the future. Our parks are ideal for healthful recreation and environmental education. We invite you to enjoy hiking, biking, picnicking, horseback riding, camping, fishing, boating, golfing, and nature study in our parks. General Brochure [PDF]

<https://www.ebparks.org/>

## Education and the Environment Initiative

### Who We Are

The California Education and the Environment Initiative is a program of CalRecycle's Office of Education and the Environment (OEE). Our mission is to foster environmental literacy among all California students as part of a high-quality K-12 education. Environmental literacy builds critical thinking and analytic skills that prepare students to make informed decisions about issues affecting our world, and readies them for college and career success.

Our key environmental literacy implementation partners include the California Department of Education's California Regional Environmental Education Community Network and Ten Strands, a nonprofit organization that supports environment-based learning

<https://www.californiaeei.org/>

## Environmental Forum of Marin

At Environmental Forum of Marin (EFM), we're all about education for action. Our founders started by protecting Marin's natural beauty and wild shorelines.

Web Site: <https://marinefm.org/>

## Exploratorium

The Exploratorium isn't just a museum; it's an ongoing exploration of science, art, and human perception. Explore our vast collection of online experiences to feed your curiosity and education resources supporting online teaching and learning. Subscribe to our weekly newsletter and get fresh learning resources and virtual programming delivered to your inbox.

<https://www.exploratorium.edu/>

## Forestry Challenge

The Forestry Challenge is an academic event for high school students in technical forestry and current forestry topics. Since its inception in 2003, the program has grown from one event to five, a complete buildout of the program in California.

Participants spend four days in the forest learning about the ecology and management of the forested landscapes that provide communities with water, recreational opportunities, wood products, and wildlife habitat. Youth benefit by better understanding the relationship of the forested environment to their community, by exposure to natural resource management as a potential career option, and by undertaking a rigorous critical thinking exercise which is timely and addresses current forestry topics such as wildfire, insects, and forest health.

Watch a one-minute [introductory video!](#)

<http://forestrychallenge.org>

## Friends of Five Creeks

All-volunteer Friends of Five Creeks works hands-on for clean water, healthy watersheds, and natural areas that welcome both wildlife and people, from Berkeley to Richmond on the urbanized east side of San Francisco Bay.

### Volunteer Opportunities

<http://www.fivecreeks.org/>

## Friends of the Petaluma River

### WHO WE ARE

In 2005 Friends of the Petaluma River was formed to connect our community with the wonders of the Petaluma Watershed. While much of our work is focused on conservation and education surrounding this sensitive habitat, we also believe that celebration plays a large role in our mission. Through events at the River Heritage Center, family programming around the Watershed and access opportunities for the public we bring our Watershed to life.

### Our Mission

Our mission is to celebrate the Petaluma Watershed through education and stewardship; because every great River needs a true Friend.

Our Goals: Access, Education, and Conservation

- To pursue outreach and educational activities that will nurture enthusiasm and commitment in the watershed for long term sustainable stewardship.

- To monitor conditions and engage in activities that will reduce or prevent pollution and lessen other harmful impacts on the River and its wetlands.
- To foster a River Heritage Center as a community resource. A place to archive information, host events, administer programs, and coordinate river related activities.
- To promote access to the Petaluma River and Marsh for all community members to experience the beauty of this resource for themselves

*Are you incorporating environmental education into your classroom?  
Or would you like help developing and implementing a project about the Petaluma Watershed?  
Let the Watershed Classroom support you!*

## Volunteer Opportunities

For more information visit us at [www.watershedclassroom.org](http://www.watershedclassroom.org)

For information about Watershed Classroom or Friends of the Petaluma River, go to: <http://friendsofthepetalumariver.org/>

## Green Schoolyards America

Green Schoolyards America seeks to transform asphalt-covered school grounds into park-like green spaces that improve children’s well-being, learning, and play while contributing to the ecological health and resilience of our cities. We are working to change the norm for school ground design, use, and management so that all children will have access to the natural world in the places they already visit on a daily basis.

Our programs support the living school ground movement, build relationships that help it succeed, and work to embed this perspective in our existing institutions and policy and regulatory frameworks.

<http://www.greenschoolyards.org/>

## Headwaters Science Institute

The Headwaters Science Institute provides science and environmental education through student-driven research. It is headquartered in Soda Springs. They offer some high school programs for which they charge, butr also provide some free online learning opportunities.

<https://headwatersscienceinstitute.org/>

## IGNITE (Inspiring Girls Now In Technology Education)

IGNITE is an organization focusing on achieving gender equity in STEM fields.

[www.igniteworldwide.org](http://www.igniteworldwide.org)

## **iNaturalist :**

iNaturalist is a citizen science project and online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe.

No matter where in the world you are, **iNaturalist** brings people together. Whether you have a PhD or just love the outdoors, **iNaturalist** will bring you closer to nature and many fellow naturalists.

<https://www.inaturalist.org/>

## **Laguna De Santa Rosa Foundation**

Founded in 1989, the Laguna Foundation is a place-based organization focused on the Laguna de Santa Rosa and the surrounding wetland communities. **We are a 501(c)3 non-profit with the mission to restore and conserve the Laguna de Santa Rosa, and to inspire public appreciation of this Wetland of International Importance.**

For details on Laguna Environmental Center events, go to their Web site and check out the Public Education section.

!

**Volunteer Opportunities**

<http://www.lagunadesantarosa.org>

## **LandPaths Outings and Events**

LandPath's mission is to foster a love of the land in Sonoma County by creating ways for people to experience the beauty, understand the value, and assist in healing the land in their local communities.

**Volunteer Opportunities**

## **Lawrence (Hall of Science) at Home:**

Welcome to The Lawrence at Home! On this site we will be sharing fun things for you to do at home or outdoors. Kids and families can look forward to exploring, investigating, discovering and inventing through DIY projects, meeting animal friends, science demonstrations and shows, astronomy and nature walks - PLUS, ways for parents to connect with each other and us.

(Includes live streaming programs (schedule posted), videos, science apps and activities, and a section on the science of COVID-19.)

<https://www.lawrencehallofscience.org/lawrence-at-home>

## **Marin County Parks Department**

The Marin County Parks Department offers a variety of opportunities, including volunteer days and naturalist outings. They often partner with the nonprofit One Tam.

### **Volunteer Opportunities**

Check them out at: <http://www.marincountyparks.org/depts/pk/calendar>.

## **Marin Municipal Water District**

The Marin Municipal Water District sometimes has volunteer and citizen science opportunities.

### **Citizen Science Opportunities**

### **Volunteer Opportunities**

[volunteerprogram@marinwater.org](mailto:volunteerprogram@marinwater.org).

## **Marin Treks**

Marin Treks Natural History Museum offers after school science classes, field trips, and classroom visits to elementary schools and preschools, as well as full and half-day camps during school vacation periods.

<http://www.marintreks.com/index.html>

## **Marine Mammal Center (Marin County)**

The Marine Mammal Center is a wonderful field trip destination for schools and organized community groups such as scouts, camps, and after-school programs. They have a variety of classes available in their lab, have a “Sea to School” program with programs for all grade levels available to come to your school or site, an “Ocean Ambassadors” program for middle schoolers, information on marine mammals, and a variety of other resources.

Join them on the 2nd and 4th Sundays of each month for Marine Science Sunday - a FREE engaging ocean-inspired classroom series from our education experts. These interactive classroom programs are great for all!

### **Volunteer Opportunities**

Go to <http://www.marinemammalcenter.org/> or phone 415-289-7325

## **NAAEE**

## **(North American Association for Environmental Education):**

**NAAEE** works to accelerate environmental literacy and civic engagement through the power of education.

<https://naaee.org/our-work/programs/covid-19-resources-tips-and-support>

## **EE News:**

The NAAEE's monthly EE News includes articles or links to articles on environmental education topics. It also includes listings of Professional Development opportunities, Grants and Contests, and Resources for Students and Educators

[https://webmail.sonic.net/?\\_task=mail&\\_caps=pdf%3D1%2Cflash%3D0%2Ctiff%3D0%2Cwebp%3D1&\\_uid=23501&\\_mbox=INBOX&\\_safe=1&\\_action=show](https://webmail.sonic.net/?_task=mail&_caps=pdf%3D1%2Cflash%3D0%2Ctiff%3D0%2Cwebp%3D1&_uid=23501&_mbox=INBOX&_safe=1&_action=show)

## **NOAA**

### **What can NOAA do for you? NOAA Needs Your Input!**

NOAA wants to know what type of STEM multimedia and distance learning educators would like to use with students, and for their own professional development.

### **National Marine Sanctuaries Webinar Series**

The National Marine Sanctuary Webinar Series provides educators with educational and scientific expertise, resources and training to support ocean and climate literacy in the classroom. This series targets formal and informal educators that are engaging students (elementary through college) in formal classroom settings, as well as members of the community in informal educational venues (e.g. after school programs, science centers, aquariums, etc.).

Past Webinars are archived and can be accessed from the site.

<https://sanctuaries.noaa.gov/education/teachers/webinar-series.html>

## **Novato Space Station Museum**

Prior to COVID-19, the museum was open most Thursdays-Sundays, and often offered "telescope nights" and daytime solar telescope viewing.

### **Volunteer Opportunities**

Go to <http://www.thespacestationca.org/> to find out about the Novato Space Station Museum and the events that they offer, including:

## **Occidental Arts and Ecology Center**

Sometimes offers courses and events, especially in gardening and permaculture

Go to <https://oaec.org/events/>

## OneTam

One Tam is a group that works to protect and enhance the Mount Tamalpias area. See also [Marin County Parks Department](#).

**Citizen Science Opportunities**

**Volunteer Opportunities**

For more information, go to: <http://www.onetam.org/>

## The Petaluma Wetlands Alliance

### OUR MISSION

In addition to preserving habitats, with particular emphasis on birds and overall biodiversity, the Petaluma Wetlands Alliance also works with the schools, governments, environmental organizations, and our community. We educate the public about the ecology, wildlife, and the value of wetlands. The PWA is dedicated to the stewardship, restoration, and expansion of publicly accessible wetlands and associated wildlife habitats. We are active in Shollenberger Park, Alman Marsh, and the Ellis Creek Wetlands.

**Citizen Science Opportunities**

**Volunteer Opportunities**

Find out more about PWA at <https://petalumawetlands.org/>

## Pepperwood Preserve

Pepperwood's mission is to inspire conservation through science.

Pepperwood's 3,200 acre preserve serves as a refuge for over 900 species of plants and animals. We are leaders in ecosystem-climate research, producing critical science to help guide our region's natural resource management and conservation planning. Pepperwood also offers environmental education opportunities for all ages to cultivate an ethic of conservation in our North Bay region.

**Citizen Science Opportunities**

**Volunteer Opportunities**

<https://www.pepperwoodpreserve.org/>

## Planet Bee Foundation

Planet Bee Foundation is a 501(c)(3) environmental education nonprofit currently offering [virtual E-STEM lessons](#) centered around bees at **NO OR VERY LOW COST** in response to the pandemic. We have virtual live lessons with certified teachers or interactive asynchronous video lessons. We served over **20,000 students** around the country in 2020. [Watch our trailer on YouTube.](#)

Our comprehensive distance-learning program can be tailored to the needs of your classroom curriculum with differentiated activities that align with the **NGSS and the Common Core**.

99% of our virtual lessons have been provided at no cost in our dedication to social justice. Our pricing (if any) and sliding scale are listed [here](#).

### Volunteer Opportunities

Please feel free to reach out with questions to [programs@planetbee.org](mailto:programs@planetbee.org).

## Point Reyes National Seashore

Point Reyes National Seashore Association's *Science at the Seashore* field trip program for school groups.

Join Us for Hands-On Discovery in Point Reyes!

Students have the opportunity to experience the excitement of discovery in natural habitat, improve science skills, increase awareness and inspire stewardship of our environment. Field trips are held in the restored Giacomini Wetlands, surrounding watershed creeks, or Point Reyes bays and beaches. Study equipment and waterproof footwear are provided; Minimum group size is 10 students; Some activities are season, tide, and group-size dependent; A fee is requested, but scholarships are available!

Hands-on activities include: Aquatic macroinvertebrate sampling, Wildlife tracking, Terrestrial invertebrate sampling, Water quality testing, Fish sampling, Bird surveys, Wetland plant studies, Soil and sediment studies, Habitat restoration, Creek profiling and hydrology, Sandy Beach Mole Crab Monitoring (LiMPETS), Marine debris surveys, Drakes Estero paleo geology and biology.

For information: [www.ptreyes.org](http://www.ptreyes.org)

## Project Learning Tree

Project Learning Tree has developed some new curriculum resources that are available online.

Check out the Winter Newsletter at: [http://ucanr.edu/sites/PLT\\_UCCE/](http://ucanr.edu/sites/PLT_UCCE/)

**The Branch** is Project Learning Tree's e-newsletter. The March issue includes an article on "10 hands-on Science Projects to Teach About Pollution." Check it out at:

[https://www.plt.org/educator-tips/science-projects-pollution/?utm\\_medium=email&utm\\_source=sharpspring&sslid=MzU2MbE0NrK0MLM0BAA&sseid=M7QwNbUwNzc0MgYA&jobid=d392442b-e64c-44f0-bdc5-cd1ea040889c](https://www.plt.org/educator-tips/science-projects-pollution/?utm_medium=email&utm_source=sharpspring&sslid=MzU2MbE0NrK0MLM0BAA&sseid=M7QwNbUwNzc0MgYA&jobid=d392442b-e64c-44f0-bdc5-cd1ea040889c)



## Project WET

(Water Education for Teachers)

The Winter California Project WET Gazette is 'live' on the [Water Education Foundation website](#). Go to:

<https://www.watereducation.org/california-project-wet-gazette>

## Redwood Region Ornithological Society

Redwood Region Ornithological Society was organized in 1962 to encourage the study and conservation of birds, other wildlife, and their natural habitat.

<http://www.rros.org/>

## (Russian) Riverkeepers

**Our Mission:** to Inspire the Community to Protect the Russian River Forever.

Russian Riverkeeper has been fighting since 1993 to ensure a thriving river system and your rights to fishable, swimmable and drinkable waters.

Unfortunately, clean water is under new attacks from a rapidly warming climate, big agriculture and our government. Now, more than ever, your river needs vigilant enforcement of environmental laws and the care and commitment of people like you.

### Volunteer Opportunities

<https://russianriverkeeper.org/>

## Russian River Watershed Association

The Russian River Watershed Association (RRWA) is a coalition of eleven cities, counties and special districts in the Russian River watershed that have come together to coordinate regional programs for clean water, habitat restoration, and watershed enhancement. RRWA was formed in 2003 to create opportunities for our member agencies to expand their stewardship role in the watershed.

Download an [RRWA Brochure](#)

### Volunteer Opportunities

Please visit [www.rrwatershed.org](http://www.rrwatershed.org) to stay up-to-date on any upcoming environmentally friendly events and workshops around the watershed during the year.

## San Francisco Bay Model Events:

For information on opportunities available at the Bay Model in Sausalito, including an events calendar, go to:

<http://www.spn.usace.army.mil/Missions/Recreation/BayModelVisitorCenter/StudentExploration.aspx>

## City of Santa Rosa

The Park-A-Month Volunteer Program gives people the opportunity to help improve and clean parks in Santa Rosa.

### Volunteer Opportunities

<https://srcity.org/1028/Park-A-Month-Program>

## Science Buzz Café

The Science Buzz Café is dedicated to the night science tradition. It is for professional scientists who do it for the money and for the amateurs who do it for love. for info: <http://www.sciencebuzzcafe.org/>

***BRINGING SCIENCE & CURIOSITY BACK INTO CULTURE ...***

[www.sciencebuzzcafe.org](http://www.sciencebuzzcafe.org) (707) 292-5281 [daniel@sciencebuzzcafe.org](mailto:daniel@sciencebuzzcafe.org)

## School Garden Network

### MISSION

School Garden Network grows healthy students, families, schools, and communities through garden-based education.

<https://www.schoolgardens.org>

## Shape of Life

Shape of Life offers classroom media and resources depicting the evolution of the animal kingdom on planet earth. Explore animal adaptation, animations, and behaviors along with the amazing scientists who bring their stories to life. Discover a rich selection of NGSS materials including lesson plans, readings, illustrations and activities that inspire a deeper dive into animal phyla. Shape of Life content is FREE to students and educators all over the world.

<https://www.shapeoflife.org/>

## Sierra Club

The Sonoma Group of the Sierra Club meets Monday evenings at the Environmental Center, 55A Ridgway, Santa Rosa. The Conservation Committee meets at 5:30; the Executive Committee meets at 6:30. The public is welcome to attend. The chapter is also looking for volunteers, including outings leaders to lead hikes on a regular basis around the area. We are looking for volunteers throughout the chapter, including outings leaders.

<http://www.sierraclub.org/redwood/get-involved>

### Volunteer Opportunities

Also see the Sierra Club's Green Life:

<https://www.sierraclub.org/sierra/green-life>

## Slide Ranch (Marin County)

The mission of Slide Ranch (on the Marin Coast in Muir Beach) is to connect children to nature. We cultivate healthy bodies and minds and foster future generations of environmental stewards. By farming, cooking, caring for animals and exploring wilderness and the coast, we teach people of all ages to see the connection between their own health, a healthy food system and a healthy environment.

Go to: <http://slideranch.org/>

## Sonoma Birding

**Mission Statement** – Sonoma Birding ∞ Sonoma Nature was founded in 2004 in Sonoma Valley, CA. as a volunteer “citizen science” based conservation organization that establishes sustainable bird and nature related festivals, activities, and programs for all ages, through a variety of partnerships in Northern California and throughout the United States and Canada.

### Citizen Science Opportunities

### Volunteer Opportunities

For information, go to [www.sonomabirding.com](http://www.sonomabirding.com)

## Sonoma Co. Agriculture & Open Space Preservation District

The District partners with several environmental and outdoor education organizations. For more information, go to the District Web site ( <https://www.sonomaopenspace.org/> ) and select Education and Outreach in the Get Involved tab.

**Some of the programs are:**

- FARMS Leadership (with Sonoma Resource Conservation District)
- Learning Laguna (with the Laguna Foundation)
- In Our Own Back Yard (with LandPaths)
- Teaching Environmental and Agricultural Memories (with Gold Ridge Resource Conservatin District)
- Wildlife Defenders (with Sonoma Ecology Center)

## Sonoma County Astronomical Society

The Sonoma County Astronomical Society is an amateur astronomy club. They have telescope viewing programs and a variety of public outreach programs.

<https://www.go-astronomy.com/astronomy-club.php?ID=479>

## Sonoma County Library

The Sonoma County Library often has programs that are science related. Select the Events tab at:

<https://sonomalibrary.org/>

Under that tab they have a “calendar” and a “list” choice. I find the list easier to use.

Note that you can also search by **location** or by the *title* of the program.

Upcoming events include such things as the following, most of which occur at different branches throughout the month.

- presentations by Sonoma County Master Gardeners
- Lego Club
- Hour of Code (Maker Studio)
- Build Club
- gardening for kids

## Sonoma County Office of Education Science Ed. Offerings

SCOE occasionally science-related classes for teachers on their Web site ([www.scoe.org](http://www.scoe.org)):

## Sonoma County Regional Parks

The Sonoma County Regional Parks offer a wide variety of activities, many of which are science or nature-related. Go to: <http://parks.sonomacounty.ca.gov> and scroll down to “Upcoming Events”.

Some activities are purely recreational, some provide opportunities for community service, and all are educational!

Environmental Discovery Center Drop-in: Every Wednesday-Sunday

## Volunteer Opportunities

### Sonoma County Water Agency

They have a redesigned Web site and increased resource listings. go to:

<https://www.sonomawater.org/education>

### Sonoma Ecology Center and Sugarloaf Ridge State Park's Team Sugarloaf

Sonoma Ecology Center works to address challenges related to water supply and quality, open space, rural character, biodiversity, energy, climate change, and a better quality of life for all residents. Since 1990, we've worked to increase appreciation and stewardship of Sonoma Valley's natural heritage and create measurable benefits in areas of land, water, climate change and biodiversity.

#### **Vision**

We envision a future where people, land, water, and wildlife thrive.

#### **Mission**

Our mission is to work with our community to identify and lead actions that achieve and sustain ecological health in Sonoma Valley.

#### **Robert Ferguson Observatory:**

Robert Ferguson Observatory is continually looking for new docents and volunteers of all ages to help bring the universe to the public. The Observatory is run by the Valley of the Moon Observatory Association, a 501(3)(c) non-profit, and has offered outreach-based astronomy and science programs to the public for almost 25 years. RFO is almost all-volunteer run and typically serves about 9,000 visitors annually. The observatory is located in Sugarloaf Ridge State Park and houses a 40-inch reflector telescope, the largest telescope in Northern California that is accessible to the public; a robotic 20-inch research-grade, "CCD" telescope; and an 8", two-meter long refractor telescope. Prior experience or knowledge in astronomy is not necessary. Please go to [rfo.org](http://rfo.org), click on "Volunteer" and fill out the volunteer application form online to get on the list for our next docent orientation and training! Questions? Contact Stephanie Derammelaere at 707-333-1331 or at [sd@rfo.org](mailto:sd@rfo.org).

## Volunteer Opportunities

### Sonoma Land Trust

The Sonoma Land Trust offers a variety of educational outings and volunteer opportunities for the public on protected lands. Check them out at: <https://sonomalandtrust.org> (select the "Explore" tab for the calendar)

## Volunteer Opportunities

## Citizen Science Opportunities

## Sonoma/Petaluma State Historic Parks

While the Sonoma/Petaluma area state Parks primarily focus on history, they do have some science/environmental events and offerings such as twilight nature hikes.

For info, go to [www.sonomaparks.org](http://www.sonomaparks.org)

## Sonoma State University:

**The Sonoma State University School of Science and Technology** has a periodic online newsletter that gives news about the school and includes a link to the various department public speakers and events.

The link for the **speakers/colloquia** is: <http://www.sonoma.edu/scitech/pls/>.

## SSU Center for Environmental Inquiry:

The Center's mission is to create an engaged and environmentally ready society, one where everyone has the skills to find solutions to the challenges facing the earth.

With the complex issues before us, such as climate change, overuse of resources, and declining biodiversity, we need to be awake, prepared and engaged. We need to know how to work across sectors and find innovative ways forward.

There is good evidence that we are not ready. Intuitive understanding of ecosystem processes is at an all-time low, and many professionals entering the workforce are not prepared to problem-solve or aware of the impact of ecosystems on economy and culture.

### Citizen Science Opportunities

### Volunteer Opportunities

<https://cei.sonoma.edu/>

- Full calendar of events: [cei.sonoma.edu/calendar](http://cei.sonoma.edu/calendar)
- Recordings of past events: [cei.sonoma.edu/calendar/past](http://cei.sonoma.edu/calendar/past)

## ***Stewards of the Coast and Redwoods*** **Docent and Community Education Program**

The Stewards of the Coast and Redwoods is the “Cooperating Association” that provides interpretive services for Armstrong Redwoods State Reserve and the Sonoma Coast State Park. Check their website for more information about these great opportunities for you and your students, **or call 707-869-9177**

### **Citizen Science Opportunities**

### **Volunteer Opportunities**

### **General Volunteers in Parks Orientation: August 28**

[www.stewardscr.org](http://www.stewardscr.org)

## **Teen Tech San Francisco**

Our mission is to inspire and empower the next generation of tech innovators. TeenTechSF is an interactive tech community for teens to innovate, collaborate, and create. Run by and for teens, all our events are free.

Since launching, TeenTechSF has connected 1,600+ teens on five continents with more than 100 tech leaders from Apple to Zynga offering presentations and workshops on design thinking, coding, app creation, robotics, 3-D printing, entrepreneurship, professional networking, tech careers, and global tech trends.

Like the [TeenTechSF Facebook page](#) for the latest news & events.

See the [TeenTechSF@MarchFor Science video](#) and [TeenTechSF March For Science Facebook recap/photos](#).

website: <https://teentechsf.org/#teentechsf>

## **Water Education Foundation** <https://www.watereducation.org/>

## **Wildcare**

Wildcare is a (primarily) Marin County organization dedicated to the care and protection of wildlife. They have a variety of programs for teachers and volunteers.

### **Volunteer Opportunities**

Check out Wildcare at: [www.discoverwildcare.org](http://www.discoverwildcare.org)

## **Wildlands Conservancy/Jenner Headlands Preserve Events**

Relatively few people know about the Jenner Headlands Reserve on the Sonoma Coast. It is a beautiful place, and they provide some great opportunities.

### **Volunteer Opportunities**

[http://www.wildlandsconservancy.org/preserve\\_jenner.html](http://www.wildlandsconservancy.org/preserve_jenner.html)

## **RESOURCES:**

### **Bay Area Teen Science**

this site posts opportunities for teens to get involved in science in a variety of ways. Although many of the postings are now outdated, they can still provide ideas and sites for teens to check back with later.

<http://bayareateenscience.org/>

### **Bay Model Visitor Center**

The San Francisco Bay Model, in Sausalito, is a scale model of the San Francisco Bay. It is used for scientific research and modeling, and is also available for school tours. They also offer a variety of events and programs. Go to:

<http://www.spn.usace.army.mil/Missions/Recreation/BayModelVisitorCenter.aspx>

### **Brain Pop**

Subscription based lessons on a wide variety of topics. <https://www.brainpop.com/>

### **California Academy of Sciences**

The CalAcademy has a variety of programs that would be of interest to youth who are interested in science. They include

- Teen Science Night                      Digital Learning Tech Teens
- Careers in Science Intern Program
- Teen Advocates for Science Communication (volunteer program)
- Teen Think Tank                          Science Action Club

Find out more at: <https://www.calacademy.org/youth-programs>

## **CA Department of Fish and Wildlife Hatchery Education Program**



The Hatchery Education Program offered by California Department of Fish and Wildlife's has opened their Fall enrollment period. Apply now for a free one hour session of multimedia learning about fish, watersheds & more! Dynamic activities illustrate key concepts and encourage critical thinking with subject matter aligned with learning standards specific to grade level. The application for Fish Academy, a guided activity based learning day at Don Clausen Fish Hatchery at Warm Springs Dam in early 2017, is also available now. Contact Sastra McGinley at [sastra.mcginley@wildlife.ca.gov](mailto:sastra.mcginley@wildlife.ca.gov) or (707) 280-3084 or visit [www.wildlife.ca.gov/Regions/3/HEP](http://www.wildlife.ca.gov/Regions/3/HEP)

## CA. Department of Parks and Recreation

The California Department of Parks and Recreation has several “Guides for Educators” available that may be of interest to *Grapevine* subscribers. These include resources for teaching about both historic parks and natural parks. Some are available for downloading, including some that I (Mike Roa) wrote. I can provide workshops/staff development on those that I wrote. You might be interested in taking a look at:

[The Conifer Connection: A Resource for Learning and Teaching about Coniferous Forests and Watersheds](#)

[A Guide to the Side of the Sea: A Teacher's Guide for Field Trips to Rocky Intertidal Areas](#)

[Redwood Ed: A Guide to the Coast Redwoods for Teachers and Learners](#)

[A Teacher's Guide to Sonoma State Historic Park](#)

[Allensworth: A Piece of the World, A Teacher's Guide with Student Lessons and Resources](#)

[California State Capitol Museum School Packet \(Teacher Version\) \(Student Version\)](#)

[Governor's Mansion State Historic Park Teacher's Guide](#)

[Indian Grinding Rock State Historic Park and Chaw'se Regional Indian Museum School Tour Information](#)

[Tijuana Estuary High School Teacher's Guide](#)

} I wrote these three.

**Check them out at:** [https://www.parks.ca.gov/?page\\_id=25535](https://www.parks.ca.gov/?page_id=25535)

## Climate Change Educational Materials from the U.S. E.P.A.

Find [climate education teaching tools](http://go.usa.gov/3AVx9) (<http://go.usa.gov/3AVx9>) and introduce your class to a [A Student's Guide to Climate Change.](http://go.usa.gov/3AV3G) (<http://go.usa.gov/3AV3G>)

## *Environmental Protection Agency Resources*

The U.S. E.P.A. has a variety of resources that you may find useful. Check them out at: [usaepa@service.govdelivery.com](mailto:usaepa@service.govdelivery.com)

## U.S. E.P.A.

### Activity Book for Elementary Age Students

How do you describe to students what the EPA does?

Use our newest activity book for elementary age students to help introduce them to EPA. Kids can learn about the different ways the EPA works to protect our environment and our health. It's a simple, straightforward guide suitable for children of all ages.

[Download the PDF.](https://go.usa.gov/xn946) (<https://go.usa.gov/xn946>)

Find more downloadable and hardcopy resources at the [National Service Center for Environmental Publications.](https://www.epa.gov/nscep) (<https://www.epa.gov/nscep>)

### Evolution Videos

Shape of Life offers FREE classroom videos depicting the evolution of the animal kingdom on planet earth. Students and educators from all over the world explore animal adaptation, animations, and behaviors along with the amazing scientists who bring their stories to life. We also offer a rich selection of NGSS materials including lesson plans, readings, illustrations and activities that inspire a deeper dive into the phyla that explain so much of our existence.

<http://www.shapeoflife.org/>

### Geothermal Education Resources

The Geothermal Education Office, in Tiburon, has a wealth of teacher resources on geothermal energy, including slide shows, videos, classroom materials, maps, lists of web sites, and more. go to: <http://geothermaleducation.org/> or contact them at: [24hrcleanpower@gmail.com](mailto:24hrcleanpower@gmail.com)

### Headlands Institute/Naturebridge...Sausalito

A variety of environmental science opportunities for grades K-12 are available at the Headlands Institute.

They also have professional development workshops for teachers (formal and non-formal), and a variety of classroom resources. Go to: <http://www.naturebridge.org/golden-gate>

### iNaturalist

iNaturalist is a Web site that allows **citizen scientists (like you and your students!)** to post pictures and information about plants, animals, and other science that they see in their yards and travels. It is a GREAT site for your students to not only explore but to contribute to. Go to: [www.iNaturalist.org](http://www.iNaturalist.org)

An example of the use of iNaturalist at the Jenner Wildlands Preserve can be seen at:

[http://www.inaturalist.org/projects/jenner-headlands-preserve-inaturalist-notebook?utm\\_source=Jenner+Headlands+Community+Meeting+2015&utm\\_campaign=JHP+Analytics&utm\\_medium=email](http://www.inaturalist.org/projects/jenner-headlands-preserve-inaturalist-notebook?utm_source=Jenner+Headlands+Community+Meeting+2015&utm_campaign=JHP+Analytics&utm_medium=email)

and another example can be found at: [www.protecthabitat.com](http://www.protecthabitat.com)

## **Resources from the Marin Co U.C. Cooperative Extension Service**

The Marin County U.C. Cooperative Extension Service has teaching materials on a variety of topics, including sudden oak death, trees/forestry, stewardship, agriculture, and more.. Go to:

[http://cemarlin.ucanr.edu/Programs/Custom\\_Program816/Environmental\\_education\\_resources/](http://cemarlin.ucanr.edu/Programs/Custom_Program816/Environmental_education_resources/)

## **Marin Co. Resource Links:**

The County of Marin has compiled a list of environmental education resource links for adults and for kids. Go to:

<http://www.marincounty.org/depts/pw/divisions/mcstoppp/archive/resources-for-schools>

## **Marin Master Gardeners**

### **Dig It. Grow it. Eat it. A workshop**

A one-day workshop on edible plants and nutrition for third and fourth graders, led by UC Marin Master Gardeners and held at the Marin Art and Garden Center. Students will learn to identify edible plant parts and about how plants grow, including the science of pollination and propagation.

- **Station 1 - Edible Plant Parts**
- **Station 2 - How Plants Grow**
- **Station 3 - Plant Seed Science**
- **Station 4 - Plant Propagation**
- **Station 5 - Get in the Dirt**
- **Station 6 - Plant Pollination**

If you are interested in this program, please contact UC Marin Master Gardeners Help Desk.

Email: [HelpDesk@MarinMG.org](mailto:HelpDesk@MarinMG.org), or call: (415) 473 – 4204

## **Marin – Sonoma Mosquito Abatement District**

### **Free Science Presentations**

The Marin/Sonoma Mosquito & Vector Control District offers free presentations about vectors (mosquitoes, yellowjackets and ticks) to any school in Marin and Sonoma Counties. The presentations focus on the biology of vectors and how students can protect themselves from these critters. Visit <http://bitly.com/educationdept> for more information, or contact Eric Engh at [erice@msmosquito.com](mailto:erice@msmosquito.com) to be added to our scheduling list.

## **Mystery Science (a.k.a. Mystery Doug)**

Lessons based on searching for answers to questions on a variety of topics.

Schools or teachers can try out some of these lessons for free. Fee for unlimited access.

[www.mysteryscience.com](http://www.mysteryscience.com)

## **Ocean Currents Radio Program**

The first Monday of every month Cordell Bank National Marine Sanctuary produces a live radio program on Community Radio for West Marin called Ocean Currents. Hear from ocean experts as you learn about the importance of a healthy ocean.

Broadcast live in the West Marin listening radius and live online at [www.kwmer.org](http://www.kwmer.org), 1-2 pm. The shows are all archived on the Cordell Bank sanctuary [website here](#), or you can subscribe to the podcast.

### **Looking for a good resource online to get ocean wildlife photos for educational use?**

Check out the [National Marine Sanctuaries online media library](#)

Download photos and video footage for free for educational use and check out the marine sanctuaries online encyclopedia. There are 4 National Marine Sanctuaries in CA. Do you know which ones are closest to you?

## **NOAA Resources for you**

The folks at the Cordell Bank National Marine Sanctuary and the National Oceanographic and Atmospheric Administration (NOAA) have a variety of resources and opportunities available. Check the opportunities out at <http://cordellbank.noaa.gov>

## **Planet Bee Foundation**

[Planet Bee Foundation](#) is a Bay Area nonprofit dedicated to creating a green-minded generation through environmental stewardship, using the lens of the struggling honey bee to teach the power of individual action. We have expanded our offering of hands-on educational programs, each of which can be individually tailored to fit a school's needs, wants, and location. Every lesson is in line with Next Generation Science Standards and grounded in the philosophy of E-STEM learning. We are now taking sign-ups for the 2018-19 school year! Our calendar fills up quickly, so check out our website at [planetbee.org](http://planetbee.org) and sign up now!

Planet Bee now offers one-day and year-long programs. The [school program overview page](#) on our website lays out each program offering, their alignment with E-STEM and NGSS, and our updated pricing structure. Need-based discounts and sponsorships are available.

All of our programs are developmentally appropriate and designed to address all learning styles. Most programs involve observation of (contained) live bees, games, hands-on activities, and plenty of room for inquiry, creativity, exploration, and discussion. We focus on conservation techniques and environmentalism in every program.

One-day workshops include: [Humble Honey Bee](#), [Bee-ometry](#), [Native Bees of California](#), [Wanna-Bee an Engineer?](#), [Hive Dive Live](#)

Year-long programs include: [ZomBee Watch](#), [Adopt-A-Hive](#), [Wanna-Bee an Engineer?](#), [Honey Bee Series](#), [Native Bee Series](#), [All Bees Series](#)

We have also added a new format for [High School Programs](#)!

Please email our Program Director, Sarah Thorson, at [programs@planetbee.org](mailto:programs@planetbee.org) if you have any questions, or sign up for programs via the online registration forms on our website, [www.planetbee.org](http://www.planetbee.org). Together we can change the world - one bee and one student at a time!

## **Point Blue (Point Reyes Bird Observatory)**

At Point Blue, our mission is to advance the conservation of birds, other wildlife, and ecosystems through science, partnerships, and outreach. Our 140 scientists work to reduce the impacts of habitat loss, climate change, and other environmental threats while promoting nature-based solutions for wildlife and people, on land and at sea.

In addition to the scientific work done by the folks at Point Blue, they have a variety of educational programs. Go to: <http://www.pointblue.org/>

## **Sonoma County Wildlife Rescue**

### **Presentations**

We love to give educational presentations to groups of all ages! We make each presentation to match your group's unique needs. We can talk on a variety of subjects, including ecology, wildlife rehabilitation, and cohabiting peacefully with wildlife. Presentations may include Powerpoint, skits, games, or specimens.

### **Tours**

Each presentation at SCWR includes a tour of our Educational Wildlife Community. Our community is comprised of non-releasable wildlife in natural enclosures. Animals include mountain lions, coyotes, raccoons, and many more!

If you would like to sign up for one of our presentations, please call (707) 992-0274 or email us at [education@scwildliferescue.org](mailto:education@scwildliferescue.org).

Web site: <http://www.scwildliferescue.org/presentation-at-scw.html>

For information, contact Linnaea Furling at: [education@scwildliferescue.org](mailto:education@scwildliferescue.org) or 707-992-0274

## **Sonoma Resource Conservation District:**

### **Education**

LandSmart Education® creates connections and inspires conservation through a series of engaging educational opportunities for community members of all ages. Youth programs offer innovative hands on learning experiences at local farms. A distinctive public outings series highlights local protected agricultural properties and the importance of conservation as a tool in working landscapes in partnership with local landowners. Our annual workshops are designed to deliver cutting edge information and resources about land management techniques available through RCD and partner programs with topics including water management and conservation, fish and wildlife habitat enhancement, erosion control, soil health, and carbon sequestration.

Education programming includes:

- FARMS Leadership Program- high school youth
- TEAM Program field trips- elementary school students
- Agricultural Heritage Series- for members of the public
- LandSmart Workshops- designed for landowners and managers

The California Academy of Sciences, the Exploratorium, and other organizations periodically offer free “Teen Science Night” events. Partners include Space and Science Museum, de Young Museum, Oakland Zoo, San Francisco Zoo, Marine Mammal Center, NASA and others. Do (or have your students do) an Internet search for “Teen Science Night” for upcoming events.

## **Teen Tech San Francisco**

Our mission is to inspire and empower the next generation of tech innovators.

TeenTechSF is an interactive tech community for teens to innovate, collaborate, and create. Run by and for teens, all our events are free.

Since launching, TeenTechSF has connected 1,600+ teens on five continents with more than 100 tech leaders from Apple to Zynga offering presentations and workshops on design thinking, coding, app creation, robotics, 3-D printing, entrepreneurship, professional networking, tech careers, and global tech trends.

Like the [TeenTechSF Facebook page](#) for the latest news & events.

See the [TeenTechSF@MarchFor Science video](#) and [TeenTechSF March For Science Facebook recap/photos](#).

## **This Week in California History...**

is a new site for learning about California history, including California's science and environmental history. ThisWeekinCaliforniaHistory.com is a digital playground for California history and geography. It posts what happened in California over 500 years a week at a time; from natural history to LGBT milestones and including science events like 19th century patents by women in California. The site is free, non-commercial and full of interesting content.

## **U.S. Forest Service:**

You may now order FREE sets of scientist cards from our web site! The cards feature Forest Service scientists and are a great way to introduce students to different science careers. To view the variety of cards we have, please visit <http://www.naturalinquirer.org/scientists-v-92.html>. We also have 2 lesson plans to accompany the cards. These lesson plans are available as pdf files on the web page listed above and the direct links are: <http://www.naturalinquirer.org/UserFiles/File/FinalScientistsCardSeriesLessonPlan.pdf> and [http://www.naturalinquirer.org/UserFiles/File/CardLessonPlans\\_StealingBundles\(1\).pdf](http://www.naturalinquirer.org/UserFiles/File/CardLessonPlans_StealingBundles(1).pdf).

To order your free sets of cards today, please visit <http://www.naturalinquirer.org/Scientist-Card-Ordering-Page-v-155.html>.

## **Wet Gazette**

The Water Education Foundation and California Project WET have changed the format for their Web site for water education resources. This excellent source for water education resources includes:

- Trending: What's Happening Now in California Water
- Water Topics: News, Events, and Information by Topic
- Aquaforia: What News You Need to Know
- Aquapedia: An Online Water Encyclopedia
- A Quicklink section giving upcoming events, and resources for purchase

For the spring issue of the Project WET Gazette, go to:

[http://www.watereducation.org/publication/spring-2018-california-project-wet-gazette?utm\\_campaign=Welcome%20to%20Spring%2C%20California%20Project%20WET%20Alumni%21&utm\\_medium=email&utm\\_source=bundle\\_and\\_blast](http://www.watereducation.org/publication/spring-2018-california-project-wet-gazette?utm_campaign=Welcome%20to%20Spring%2C%20California%20Project%20WET%20Alumni%21&utm_medium=email&utm_source=bundle_and_blast)

For everyone seeking workshops, we have a variety for you to choose from this summer and a few already posted for the fall at the Foundation's website at [workshops](#) and [Special Workshops and Events](#). We also have lots of non-school related 'Events' for those who just want to get away!

## Wildcare/Terwilliger Nature Education Programs

The Wildcare's Terwilliger Nature Education Programs offer a wide range of environmental education opportunities for K-12 classrooms, including:

**-Live Wildlife Ambassador Program:** Three wildlife ambassadors will visit your classroom for an unforgettable presentation. Possible wildlife visitors include a Northern Spotted Owl, Virginia Opossum, California Desert Tortoise, Red Tailed Hawk, Gopher Snake and many more!

**-Nature Hikes: Guided discovery hikes are offered at four locations (Spring Lake, Miwok Meadows, Ring Mountain, Muir Woods)**

**-Nature Van:** Students will explore touchable taxidermy, bones and biofacts in this interactive presentation at your site. Choose from a variety of topics including California Wildlife, Birds of a Feather, Marvelous Mammals, Redwood Giants, Wild Wetlands, Ocean Adventures and Going Green.

**-Center Tours:** Meet our non-releasable rescued wildlife ambassadors in a guided tour around our outdoor courtyard and museum. Each tour includes a special animal encounter with one of our wildlife ambassadors.

**Each classroom automatically qualifies for a scholarship that matches the percentage of the student body enrolled in the Free and Reduced Meal Program.**

For more information or for additional teacher resources, visit <http://www.wildcarebayarea.org/education> or email [tory@wildcarebayarea.org](mailto:tory@wildcarebayarea.org)

## WATER WEBSITES OF INTEREST

### [Visit the USA](#)

Here you will find lots of great information and tips on visiting and traveling in the USA. No two trips are alike, so you will find information in this section for a variety of trip types. Whether you prefer staying in a resort or camping under the stars, the site includes details travelers need to be safe and happy a trip. Being prepared early and knowing what to expect will help reduce traveler stress and be more able to enjoy the unexpected events of travel. This website has done a lot of the 'Wet Vacation' research on states for students – and each state description often includes links to state travel sites that highlight regions within the state, such as the California travel website below.

### [Visit California](#)

If you know which part of California is of interest but you still need some guidance, click on "Map," and then explore one of the 12 geographical regions of the state. We've organized our content—including videos, a printed visitor's guide and even [travel tips](#)—with an eye toward helping find what you want quickly and easily. Searching this site is simple: If you already know what you're looking for, type the keywords into our search bar at the top of the page. The "hamburger" menu in the top right corner of the page is another great resource—it has links to articles and other content organized around interests.

### **National Park Service: [Plan Your Visit](#)**

Are you ready? Whether you want to explore local places or plan a vacation, you'll [find a park](#) to suit your interests! The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. This is a wonderful website to pair with or expand on 'Discover the Waters of Our National Parks' (p: 495) or [the California version of the activity!](#)

U.S.G.S. – [The National Map](#)

As one of the cornerstones of the [U.S. Geological Survey's National Geospatial Program](#), The National Map is a collaborative effort among the USGS and other Federal, State, and local partners to improve and deliver topographic information for the Nation. It has uses ranging from recreation to scientific analysis to emergency response. The National Map Viewer is the one-stop destination for downloading map data and products. It uses easy to navigate foundational base maps and makes it simple to download products such as the US Topo.

### **[U.S. Climate Data](#)**

The purpose of the U.S. Climate Data is to inform people about the climate in the United States. This website was developed by Your Weather Service. The website includes monthly and daily data for temperature, precipitation, snowfall and sunshine for multiple locations in every state. The monthly data also includes a climograph of the average precipitation, maximum and minimum temperature by month for each location that can be opened separately in its own page to copy. Each location also includes Google map link to see where it is located and a link to the current weather forecast at that location. The page also links to [climate.eu](#) where one can find monthly data for countries in Europe and Africa.

### **[NOAA: U.S. Climate Atlas](#)**

These maps use daily observations of temperature and precipitation from over 10,000 stations in the U.S. based on new methodologies to quality control the daily data, summarize the daily data into monthly values and the creation of maps to visualize the information. There are maps for minimum temperature, maximum temperature, and precipitation. There are two types of data that can be displayed; maps for a particular month and year from 1895 to present, or climatology maps. The climatology maps represent average values from 1981 to 2010. These are also known as the "1981-2010 Normals".

### **[NOAA: Defining Climate Normals](#)**

You're looking forward to taking a much-deserved vacation in four months, and you want to visit a U.S. city you've never been to before. So, how do you decide where to go? Perhaps you'll consider places where you can expect your ideal temperatures. But, at four months out, your trusted weather forecast probably won't be much help in finding locations that meet your temperature criteria. Fortunately, our scientists have calculated the "normal" temperatures you can expect to see each month at locations across the United States. We call them [Climate Normals](#), and we compute a new installment every decade.

### **[ESRI: Severe Weather Public Information Map](#)**

Manage your severe weather response with live feeds and sensor data. This map features live feed layers for Severe Weather across the United States and Canada and displays the predicted ice accumulation for the next 72 hours across the Continental United States. Data are updated hourly from the National Digital Forecast Database produced by the National Weather Service.

### **[NOAA: Climate Data Primer](#)**

Heading out for a walk on a chilly spring morning, you notice misty clouds on the hills in the distance. You're feeling eager for summer to arrive, but the hillsides are just beginning to green up after the end of winter. You wonder, "Is it cooler than usual this spring? I think I'm usually wearing shorts by this time of year." Thinking about the weather, you recognize what you're really concerned about is if it will rain on your barbecue this weekend.

### **[NOAA: Historical Climate Summaries – New Version](#)**

The Regional Climate Centers (RCC) deliver climate services at national, regional and state levels working with NOAA partners. The Regional Climate Center data interface is being updated, but you can already start using the new version. Click 'OK' on the note about the page not loading Google Maps correctly, then choose one of the two ways to use the map as described below the map. Click on any data point that appears to get more data than you probably want! This website includes the '30-year normals' used in the U.S. Climate Data locations, the maps in the U.S. Climate Atlas – AND you can get all the raw data available for the life of each gauge on the RCC map!

### **[NOAA: Comparative Climatic Data](#)**

The Comparative Climatic Data tables of meteorological elements outline the climate conditions at major U.S. weather observing stations, Puerto Rico, and the Pacific Islands. The stations list is alphabetically by state. The table arrangement is so a single table of the same element allows the user to compare the values for different locations. Some elements will not be in the table for weather stations that do not regularly report that element. This site also allows users to [view data and graphs of temperature and precipitation Climate Normals](#) for over 9,800 stations across the United States.

### **[US EPA: Climate Change Indicators: Weather and Climate](#)**

Rising global average temperature is associated with widespread changes in weather patterns. Scientific studies indicate that extreme weather events such as heat waves and large storms are likely to become more frequent or more intense with human-induced climate change. This chapter focuses on observed changes in temperature, precipitation, storms, floods, and droughts.

### **[Real World Learning Objects: Using Excel to Create a Climograph](#)**

A climograph is a chart commonly used to graphically display both annual temperature (highs, lows, and averages) and precipitation information for a city or region. Meteorologists and climatologists use climatograms to understand the general



climate of a region. They are also frequently included in travel books and tourism brochures so interested visitors can select the “best” time of year to visit a certain location. This website walks one through [how to use a spreadsheet program to create a climograph](#), and then use and analyze the graph to make a recommend times of the year to visit their area of study.

**GardenZeus: [California Climate Zones](#)**

The same weather and climate factors that may affect vacation plans also come into play when planning what to plant in your garden. GardenZeus California Climate Zones where developed by taking into account many factors including seasonal climate, temperature averages, elevation, frequency of frosts and precipitation. The website includes a wonderful synopsis of the prevailing weather and climate in each of their California climate zones, which upon clicking on shows a list of garden plants recommended for the region.

**Desert research Institute: [Stories in the Snow](#)**

DRI is pioneering an exciting and unique approach to the science of snow. The Stories in the Snow project engages community members as citizen scientists in real data collection and research throughout the Sierra Nevada. Every snowflake is unique, and the shape of freshly-fallen crystals can tell us about real-time atmospheric conditions. Using smartphone technology, you can help track the path a snowflake has taken through the atmosphere!

**[California Project WET Supplemental Materials Page](#)**

Remember to check this Water Education Foundation web page to find California specific supplements and other materials for use with Project WET activities, including other activities tied to weather and climate such as the California version of *‘Discover the Waters of Our National Parks,’ ‘Snow and Tell’ or ‘Back to the Future.’*