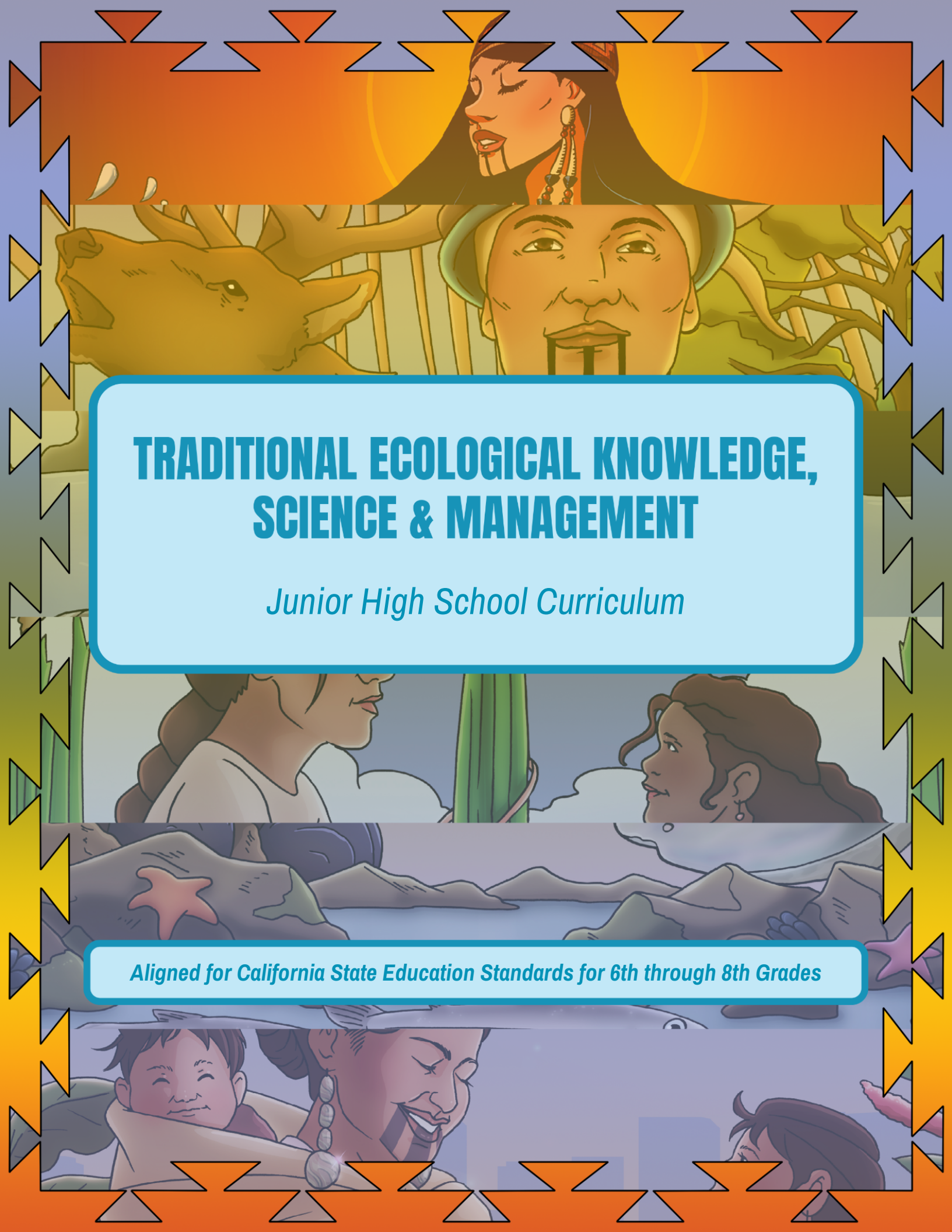

TRADITIONAL ECOLOGICAL KNOWLEDGE, SCIENCE & MANAGEMENT

Junior High School Curriculum

Aligned for California State Education Standards for 6th through 8th Grades

LETTER TO EDUCATORS

Dear Educator,

Thank you for engaging with us on this exciting journey of learning, reconciliation and healing! Enclosed is a junior high school Traditional Ecological Knowledge (TEK) and environmental science-based curriculum aligned to California Common Core Standards suitable for grades 6-8. The curriculum emerged from Save California Salmon's Spring 202ics central to Traditional Ecological Knowledge in various types of ecosystems throughout northern California, including: Salmon in California's Rivers, community and environmental history, food sovereignty, connections between health and the environment, climate justice and ongoing community and youth activism.

The Series centers the voices and experiences of Indigenous scholars, leaders, and activists from across Native California, and also features presentations by community leaders, cultural practitioners and scientists. The webinars were attended by hundreds of participants from across California and throughout the United States. It is our hope that the Education Series and this associated curriculum will provide an important resource within the landscape of online and in-person learning.

This curriculum contains sessions that can be used in isolation, or together as a series; they can be utilized as a distance learning experience or in face-to-face classrooms. The curriculum is designed to recognize the Native Science, Technology, Engineering, Art, and Math (STEAM) inherent to TEK and utilized today. Students interested in the STEAM fields as well as Social Sciences, Government/Law, Media, Communications, Journalism, History, and Environmental Sciences will find this an exciting opportunity to participate in the contemporary partnership developing between Native STEAM, Western Science, and Environmental Advocacy. For additional resources related to Water protection, California Native histories, policy, advocacy, and law, please reference our companion curriculum, **Advocacy & Water Protection in Native California**.

Throughout this curriculum and its additional resources you will notice words that may appear to be incorrectly capitalized, such as Water, Air, Forest, Fire, Land, Salmon, etc. This is not a mistake. It is the intent of the Save California Salmon team to recognize the four elements and other living beings as they are - our relatives. In order to demonstrate their supreme importance and in an attempt to dismantle settler colonial ways of instruction, we have intentionally capitalized these words.

By engaging with this curriculum students of all backgrounds will have the important opportunity to learn about histories and issues that directly affect them by centering California Native historical/ contemporary knowledge and ways of understanding and relating to the world. By providing educational opportunities to students, we hope that students and families throughout the educational spectrum will be inspired to learn more and advocate for California's Water and aquatic life, Land, Tribal Nations, and the Healing & Reconciliation movement.

California is currently home to 110 federally recognized Tribes, while 55 Tribes remain 'unrecognized.' This differentiation of the two are harsh reminders of forcibly removing and relocating Tribal communities away from their aboriginal territories. There are multiple other categorizations of Tribes as well, making it challenging for Tribes to receive the resources, access, funding, and recognition across California that they rightfully deserve. The failure to recognize Tribes perpetuates unfair policies while also resulting in harmful social and economic consequences for these Tribes and their members. It is important to note that Tribal existence does not depend on federal recognition nor does it create Tribes. Many Tribes decide not to petition to become federally recognized, and there are many valid reasons for that. We encourage you to learn more about the Tribe(s) in your community or region, and what their histories are in order to honor them in the most appropriate way.

It is important to acknowledge the difference between western and Indigenous worldviews, particularly how they refer to and engage with Land and natural resources. Settler colonialism has attempted to separate humans from their environment by trying to convince us that we are somehow better or more sophisticated than plants, animals, rivers, or other natural resources. We have therefore been taught that it is our *right* to manage the Land as we see fit, and to harness its benefits for our own use, while neglecting the needs of entire ecosystems. Alternatively, Indigenous Peoples believe it is their *responsibility* to care for the Lands and Waters, and to maintain balance and reciprocity in order to ensure the health of the world as a whole. This may seem like a small difference, though it gets at the source of the destruction of our environment in every way.

The history of settler colonialism is messy; demonstrating the utmost worst versions of human behavior. Because of this, there are some videos and other resources that have sensitive topics that are discussed rather bluntly, such as physical, mental, and sexual violence towards women and children. We have included trigger warnings where we think it is necessary, however, we highly recommend that you review all lesson material prior to using it in the classroom and determine the best course of action for your own students. When there is sensitive material being shared, you can either skip past it or inform the students that there are triggering conversations and allow them to decide for themselves if they would like to leave the classroom for that portion of the lesson. We understand that there are many nuances to each classroom, and therefore leave it to each educator to make that decision.

As educators, we must ensure a safe space for students to learn from this material, as well as each other's experiences. We hope that the content found in this curriculum will broaden the worldviews of our youth and enable respectful, mature, and caring conversations through learning. We extend our gratitude to the educators, students, families, communities and organizations who join us by using this curriculum to teach and support the next generation of leaders. The journey towards reconciliation and healing is important not just for the people, but for its Earth as well. The path is not straight or clearly visible, though we must be brave and work together to ensure we find our way.

Sincerely,
Save California Salmon Education Team

EDUCATION AND ENVIRONMENTAL IMPACT

CREATING COMMUNITY IN AND OUT OF THE CLASSROOM

Our aim is to support educators in creating community in and out of the classroom by providing a diverse collection of speakers discussing topics concerning Traditional Ecological Knowledge (TEK) as it pertains to California Tribes. This curriculum offers learning from Indigenous scholars, leaders, scientists and TEK knowledge holders from across Native California. We hope that you can take this content and grow your own connections with your students and community!

ADVOCACY AND SPEAKING

This curriculum provides opportunities for advocacy and public speaking. Teachers and students will have the opportunity to learn to advocate and speak about threats to ecosystems and species throughout California. Students will learn how TEK plays a significant role in environmental health and overall human wellness, and will also understand how art, culture, food sovereignty, and connections between health and the environment are important for reimagining a better future for us all.

STUDENTS WILL:

- ➔ Develop knowledge of TEK as it pertains to Forests and Fire, Rivers and fish, Estuaries and the Bay-Delta, the Ocean, as well as what California is doing to counter climate change in the CA 30x30 Plan.
- ➔ Develop skills and knowledge in areas important to nonprofits, government, academia, science, law, resource management, and community advocacy.

KEY IMPLICATIONS:

Traditional Ecological Knowledge
Culturally-Relevant Curriculum
Environmental Justice

LOOKING AHEAD

It is our hope that the knowledge shared and skills practiced through this curriculum program will be of use in both students and teachers personal and professional lives. By engaging in these critically important topics, we see a world free of toxins in our water, protected salmon, no more catastrophic wildfires, overall healthier ecosystems, and environmental knowledge shared by all future generations.

OPTIONS FOR PARTICIPATION

There are various options for students to demonstrate what they are learning. We have crafted assignments that incorporate artwork, digital design, social media, mapping, personal reflections, and group learning, in addition to more traditional writing and question-and-answer assignments. This is intended to provide options for both educators and students.

Many of these activities, including the video reflections, could be answered several ways. We have provided suggestions, but we encourage educators to adapt assignments to the needs of their classrooms.

OPTIONS FOR PARTICIPATION COULD INCLUDE:

- Writing responses
- Drawing diagrams
- Video submissions
- Infomercials
- Posters and Flyers
- Classroom discussions
- Digital graphics
- PowerPoints and presentations
- Writing letters to officials or media
- Artwork
- Pair-shares or small group discussions
- Talking to or interviewing a friend or family member
- Class debates embodying different perspectives

ADAPTING THE LIVING CURRICULUM

The life journey of salmon is the inspiration for our living curriculum. We recognize that things change and that no learning document should remain unchanged – especially ones focused on community education. We are living and working together through all the changes in life. Water policy, state and federal laws, and ecological conditions are all subject to flux. We will amend and add to this document over time. We welcome suggestions from Indigenous peoples, Tribes, educators, and community members across California. If you want to contribute an activity or resource, please email info@californiasalmon.org.

This curriculum is designed to be adaptable to specific classrooms, subjects, grade levels, and regions. It is our hope it will serve as a model for future curriculum development projects centered on Indigenous knowledge and local/regional ecosystems. It can be edited to incorporate Indigenous Knowledge, local environments, traditional practices, and histories from across the West Coast. We encourage educators, school districts, and nonprofits to work with local Tribes and leaders in your area to adapt this curriculum to better represent Tribal histories, current Indigenous-led advocacy campaigns, issues, and environments specific to your region. We also encourage hands-on and in-field applications of lessons.

INTRODUCTORY CLASS DISCUSSION

BUILDING COMMUNITY

Before using activities and presentations in the curriculum, we suggest that educators hold an introductory class discussion to provide a space for students to build community within the classroom. Students are themselves knowledge-holders. Students bring diverse life experiences to the classroom. Ask students what they already know about water and environmental advocacy in California -- perhaps some of them have already participated in public meetings, rallies, or online events, or maybe they practice gardening, fishing or other types of food sourcing with family members. Through this curriculum, we hope to empower youth to recognize that what they already know and experience is important and relevant to political and environmental advocacy.

REFLECTION: FOSTERING PERSONAL CONNECTIONS

Reflect on how our backgrounds and where we live influences the types of Water, environmental, and social issues we are exposed to -- for example, students in Northern California will have different experiences to those in Central California; students on the coast will have different experiences to those inland. Discuss how California Water and climate policy and management has impacted our daily lives. Do you have access to clean Water? Have you experienced droughts or flooding? Are there any canals or dams near where you live? Has extreme heat and smoke become an issue? Questions such as this help students engage in a discussion with other classmates about their personal story, thereby creating a bond and understanding of who they are.

CLASS AGREEMENT

We also suggest creating a communal, community class standards agreement -- this outlines best practices that students will adhere to in the classroom (e.g., we will not interrupt when one of our classmates is speaking; we will show respect for our classmates' ideas). Ask students what they would like to include in the community standards and remind students of the agreement at the beginning of discussion periods throughout the curriculum. It is our hope that this emphasis on community-building will follow students out of the classroom and help to generate a considerate and inclusive space for learning.

MODULES AND LESSONS

The series is divided into six modules. Every module has four lessons, each with short video sessions and/or presentations, in addition to activities and labs. Each module includes an introductory video and presentation by an expert in the field. Here are the modules and their topics:

MODULE 1: What is TEK?
MODULE 2: Fires & Forests
MODULE 3: Rivers & Fish
MODULE 4: Estuaries & the Delta
MODULE 5: Oceans
MODULE 6: Climate: California's 30x30 and LandBack

Modules can be used in isolation as a complement to pre-planned lessons or together as a series. Lessons do not necessarily have to be utilized in a particular order, however each module is set up linearly. Educators can review session descriptions, state standards, and activities to discern which lessons might fit best with their classrooms. Since the curriculum is interdisciplinary, we encourage educators to consider cross-curricula co-teaching with their colleagues. This would help to broaden the depth of Indigenous knowledge-holders and local/regional ecologies and histories that students are exposed to. We also recommend that lessons include outdoor, hands-on, field opportunities with a local Traditional practitioner or scientist. Educators are encouraged to seek out their local Office of Indian Education (there is one in each county), or to contact a local Tribe or Tribally-run organization to learn directly from Native peoples who are familiar with the region you are located in.

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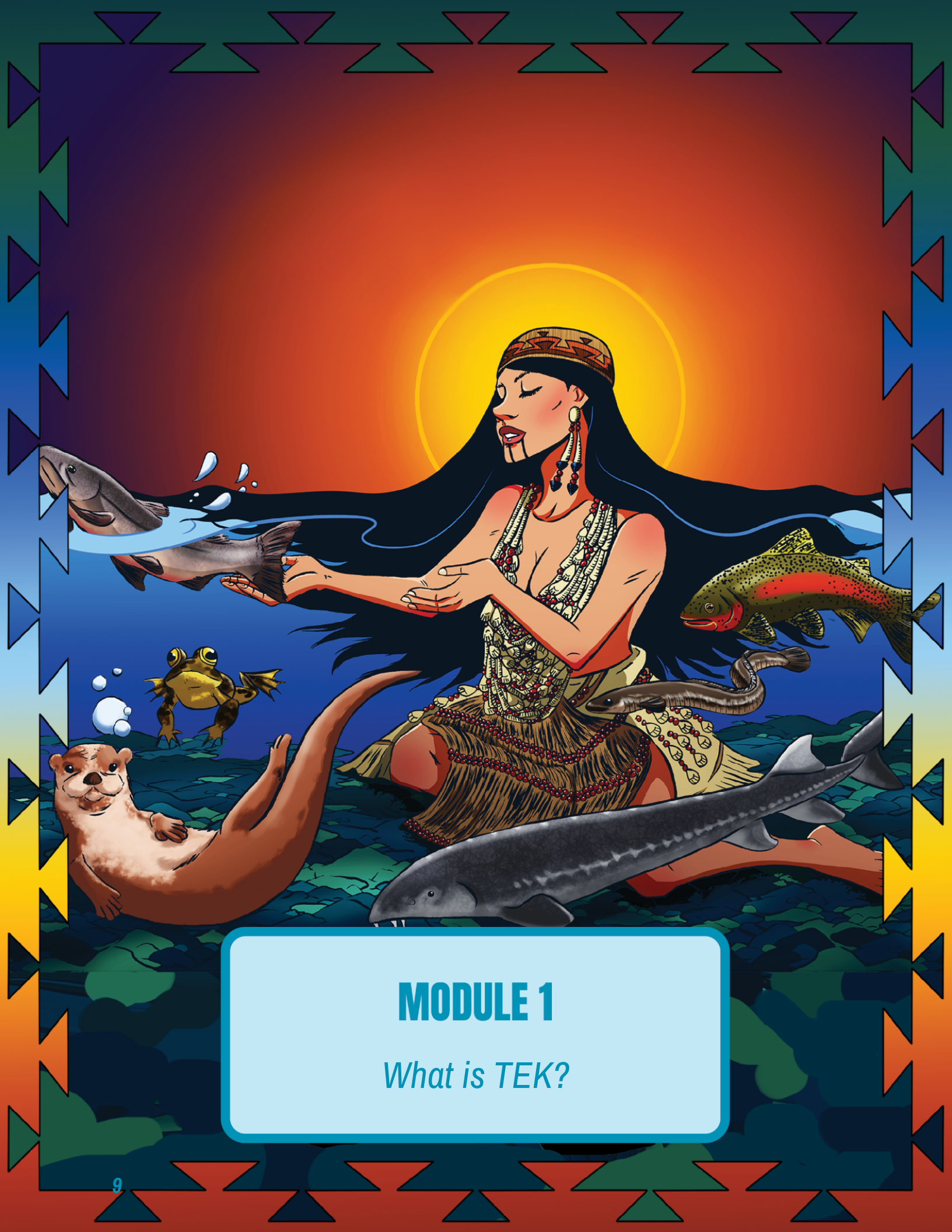


MODULE 1

What is TEK?

MODULE 1:

What is Traditional Ecological Knowledge?

Lesson 1: What is TEK & Native STEAM?

Lesson 2: Indigenous History, Hope, and Healing in California

Lesson 3: Traditions Depend on Cultural Resources

Lesson 4: TEK: Student Project

LESSON 1:

What is Indigenous Traditional Ecological Knowledge & Native STEAM?

GOALS

Students will be able to:

1. Learn about Indigenous TEK, as systems of knowledge that include science, technology, engineering, creativity/art/story/song, and math.
2. Understand TEK's relevance to ecological health.
3. Get to know some California Native TEK practices.

TEACHER NARRATIVE:

(PROVIDE THIS DESCRIPTION OF THE MODULE TO STUDENTS)

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **TEK & Observation**.

TEK has been described as a sophisticated and sustainable natural resource management system. Also known as Indigenous Local Knowledge, Indigenous Knowledge, Tribal Science, or Indigenous Science, TEK is also recognized by Western scientific and educational institutions as having been overlooked and suppressed by racist policies. Today, Indigenous TEK is beginning to be globally regarded with respect and admiration, providing leadership, informing current practices, and developing policies.

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and Tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the Environment. Indigenous Peoples' relationship with the Environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

**There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.*

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) Tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other Nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the Environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

NATIVE S.T.E.A.M.

Indigenous peoples from around the world are the first scientists and mathematicians. Prior to colonization, Tribal communities developed advanced technologies and shared ideas and knowledge in arts and sciences. These knowledges still exist today. Currently, Western science/scientists are recognizing the racist history of Western science and are learning from Native practitioners.

TIME IMMEMORIAL

Time beyond memory.

MANIFEST DESTINY

In the first years of the United States, there was an idea that colonizing the entire continent was necessary to succeed in creating a nation. To excuse the genocide of Indigenous peoples that came with this goal, they needed a justification: a claim that the Land was rightfully theirs. Colonizers claimed that it was their destiny, assigned by God, to take control of the Land in his name and to bring Christianity to all Indian Nations.

ENVIRONMENTAL RACISM

Racial discrimination in environmental policy-making and enforcement of regulations and laws, the deliberate targeting of communities of color for natural resources (water, food, shelter).

RESTORATION

The act of returning a place to an original condition.

VIDEO

Show Brittani Orona's presentation TEK, Science & Management video, **What is Traditional Ecological Knowledge?** from 00:00 - 14:25. Pass out the **Concept Map** to the students to complete while watching the video.

PRESENTATION

Educators will review the slideshow **What is TEK & Native STEAM** with the students while they complete the **Concept Map** graphic organizer.

GUIDING QUESTIONS:

Please use the remainder of the class time to allow the students to reflect on the material they have just learned. You may use these Guiding Questions to help engage them in a conversation:

1. What have we learned about TEK and local knowledge?

2. Based on your understanding of TEK, how does it make you feel about your own relationship with your home/place in the world?

3. Who are the local people that can teach about traditional knowledge and Indigneous sciences in your Watershed?

LESSON 2:

Indigenous History, Hope & Healing in California

GOALS

Students will be able to:

1. Gain a basic understanding of settler colonialism.
2. Describe how the California Gold Rush/Spanish Mission system impacted Native Nations.
3. Discuss how settler colonialism disrupted Indigenous TEK, and Californian ecosystems.

TEACHER NARRATIVE:

Humans have a huge capacity for positive and a huge capacity for negative. There's a good probability everyone in this has ancestors who have faced genocide. Today, we get to participate in a Healing & Reconciliation movement spearheaded by Native peoples all over the world.

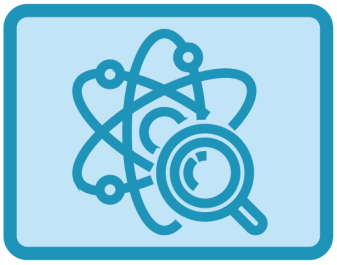
Settler-colonialism was not an event, and it is not over, as many like to say. Today it plays out in the continued erasure of Indigenous presence. American schools do not teach about Native Americans, past or present; when they do, information is often wrong or incomplete. Students are rarely taught about contemporary Native peoples who have survived the settler-colonial process and continue to thrive, create, practice TEK, participate in their traditions, and live modern lives.

In parts of these lessons there can be content that may trigger or upset you. Please feel free to take a break and step outside or to the bathroom if you feel the need to.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.



MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the **Meet the Scientists** slideshow.
**This section can be modified to fit scientists/experts in your own region!*

Brittani Orona, Ph.D,
Hupa/Save California Salmon/U.C. Davis
Ron Reed, Karuk
Dr. Sibyl Diver, Ph.D

VIDEO

Show the class Ron Reed & Dr. Sibyl Diver's presentations in the TEK, Science, & Management video **What is Traditional Ecological Knowledge?** from 14:26 - 30:41. Pass out the **Concept Map** to the students to complete while watching the video.

PRE-LAB:

Show the class "History of Native CA" and if there is time, the "Elder Shares Victory" video. Then select one of the Pre-Lab options below.

**The content of these videos contains triggering material. You may skip portions of the video, or encourage students to step outside the classroom if they do not wish to witness the content.*

History of Native California
Elder Shares Victory

OPTION 1

Break the class into small groups and assign a section of the **NW Indigenous Gold Rush History Booklet** to each group. After reading the Booklet, complete the **NW Indigenous Gold Rush Interview** Have someone from each group present what they learned to the class. Engage in a class discussion about what they noticed about each interview.

OPTION 2

Print and pass out or show the class the **Pre-Contact CA Map** and the **Post-Contact CA Map**, and use the **Pre-Post Questions** (Appendix A) to engage in a discussion regarding what the class notices about the maps.

OPTION 3

Review the Karuk Tribe's **TEK - Western Science Timeline** with the class. Engage the students in a conversation about what they notice from the map. What aspects are the students familiar with? What questions do they have about the Timeline?

LESSON 3:

Traditions Depend on Cultural Resources

GOALS

Students will be able to:

1. Demonstrate understanding of three important cultural resources/practices of a Tribal Nation connected to your community.
2. Apply understanding of environmental racism in the form of the challenges Tribal communities face in maintaining TEK traditions.
3. Understand the importance of gathering and basketry to TEK and Native cultures.

TEACHER NARRATIVE:

Mainstream media outlets rarely feature stories about Indigenous peoples, and exceptions are usually during a crisis (see #UnDamTheKlamath). The government diminishes and destroys Indigenous Nations by denying their sovereignty or stealing Land for private corporations to use for drilling, mining, fracking, and more. To Indigenous peoples, destroying a natural resource is the same as destroying a relative or someone you love. Learning to build a relationship with the world around you is vital to healing ourselves and our planet.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of the processes and purposes of gathering and basket weaving.

OPTION 1

Review the **Traditional Gathering** pamphlet as a class. Engage the class in a discussion, about how or why it was developed, what it covers, and how this relates to TEK. Have the students answer the following questions:

1. What is the Traditional Gathering Policy of the U.S. Forest Service?
2. Does this policy respect and recognize Tribal sovereignty? Thumbs up for yes,

Thumbs down for no, and Thumbs to the side if it kind of does or you don't know.

OPTION 2

Review the **TEK Gathering Ethics** article as a class, and have the students work on the comprehension questions worksheet in small groups.

OPTION 3

Arrange a speaker who is affiliated with a local natural resource - preferably a local Native person (please visit **www.californiaindianeducation.org** for information on how to locate a presenter near you). Let the students engage in conversation with the presenter by having them prepare 1-2 questions each. Let them experience the space using all five senses. Have them write up 2-3 paragraphs about what they learned on their field trip..

PROJECT INTRODUCTION:

Introduce the following project options for students to work on in small groups during Module 1 Lesson 4. Students can select 1-2 of the format options below. Projects will be based on any of the content from this Module. Students may design their project using Partner Share for notes and the **Student Project - Partner Share Graphic Organizer**. Students can work on this outside the classroom with a partner as well!

OPTION 1: Visual Art/Digital Art

OPTION 2: Essay/Letter to the Editor

OPTION 3: Poster/Powerpoint/Poem

OPTION 4: Flipgrid/Video/Tik Tok

Additional Resource:* **Rubric for Social Media Assignments

LESSON 4:

Student Project Workshop

GOALS

Students will:

1. Complete Student Project.
2. Present Student Project.

OVERVIEW:

Review the Student Project Workshop guidelines with the class. Part of the class time will be dedicated to students finishing up their projects, and the rest of the time will be offered for groups to present what they created. Some students will be ready to share out during this lesson and others will need more class time and resources for completion. Students will need guidance and support picking a topic and project style. Circulate the room checking in and providing support. Students who finish first can help others or read/draw until project sharing.

Standards				
Grade	**Social Studies**	**Language Arts**	**Art**	**Science**
6	HSS-6.1	**Middle School** CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CSS.ELA-LITERACY.W.6-8	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	**Middle School** MS-ESS2 MS-ESS3-3
7	HSS-7.7 HSS.7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
8	*HSS-8.2.3* *HSS-8.8* *HSS-8.8.1* *HSS-8.8.2* *HSS-8.8.3* *HSS-8.8.4* *HSS-8.8.5* *HSS-8.12* *HSS-8.12.1*		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	

MODULE 2

Fires & Forests

MODULE 2: *Fires & Forests*

Lesson 1: Overview of TEK/Native STEAM
Lesson 2: BringingFireBack to the Land
Lesson 3: Lab
Lesson 4: TEK Species Series: My Sisters: Weaving Plants and Stories

LESSON 1:

Traditions Depend on Cultural Resources

GOALS

Students will be able to:

1. Describe the effects of cultural Fire to its surroundings; e.g. plants, waters, animals, etc.
2. Identify Fire dependent ecosystems; plants that are used for weaving or food that benefit from Fire.
3. Generate a sense of appreciation for the hard work that Fire does, despite its negative perception over the last 100 years.

TEACHER NARRATIVE:

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **KWTREX**.

The Californian landscape has long been adapted to regular Fire regimens that play an essential role in the ecology of the Land. Indigenous Peoples have used Fire as a form of technology to shape, maintain, and renew the Lands they have lived on since time immemorial. Traditional Ecological Knowledge (TEK) of Fire comes from thousands of generations of observation, research, and experimentation. Despite Fire being natural, the use of cultural burns/prescribed Fires today protect rural communities from catastrophic wildfires.Without Fire on the landscape our environment becomes vulnerable and also suppresses an important traditional management tool.

Indigenous Peoples have a responsibility to keep the Land healthy. Frequent burning of the Forest understory maintains oak tree health, acorns and huckleberries for food, hazel and bear grass for weaving, and pepperwood and wormwood for medicine. Fire clears and maintains prairie landscapes as habitat for elk and deer, and visibility through the dense woods for hunting them. Fire also promotes better spring flow and drought tolerance. The smoke from the burns in turn reflects sunlight and helps cool the river Water, benefiting the Salmon and other river dependent species.
The colonization of California brought a halt to regular seasonal burns that are vital to the Land and to thriving ecosystems. Indigenous Fire management confused early settlers because they did not understand the complexity of Indigenous land management practices. Fire suppression over hundreds of years has led to overgrown unhealthy Forests that are now prone to devastating wildfires that are only worsened by drought and climate change. Traditional Indigenous Knowledge and uses of Fire is ultimately our best tool to fight against devastating wildfires, and Native Californians are the most adept to be the ones to maintain their Lands.

This module features Margo Robbins and Ali Meders-Knight in a discussion about Indignous worldviews of Fire as central to culture and a vital tool in Forest management.

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the environment. Indigenous Peoples' relationship with the environment is

inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

**There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.*

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

ECOLOGY

The aspect of biology that deals with the relations of organisms to one another and to their physical surroundings.

FIRE-DEPENDENT ECOSYSTEMS

Ecosystems where fire is essential and the species have evolved adaptations to respond positively to fire and to facilitate fire's spread, i.e. the vegetation is fire-prone and flammable. They are often called fire-adapted ecosystems.

KEYWORDS *continued* :

CULTURAL FIRE

An Indigenous ancestral practice which maintains the reciprocal relationship between Fire, people, and their ecosystems. It stimulates fire dependent flora and fauna, produces higher quality resources, and provides for species abundance and diversity. Today, cultural fire is used to prevent catastrophic wildfires.

PRESCRIBED BURNS

Dependent on Western modes of scientific understanding. It is guided by certain principles like fuel conditions, humidity levels, and temperature: Prescribed Fire is implemented based on a 'prescription' derived from models to determine conditions for burning

VIDEO

Show the class Ali Meders-Knight's presentation in the TEK, Science, & Management video, ***Fires & Forests***, from 21:14 - 37:14. Pass out the **Concept Map** to the students to complete while watching the video.

PRESENTATION

Review the slideshow **What is TEK/Native STEAM?** with the class while students write down big ideas and concepts using the **Concept Map** graphic organizer.

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of the importance of Fire and the impacts of cultural burning.

OPTION 1

Students can work on **Bringing Fire Back to the Land** vocabulary worksheet to learn more about Fire concepts.

Additional Resource:* **Teacher Answer Key

OPTION 2

Pass out the **CA Basket Design Symmetry Activity**. Have students try to draw the same CA basket design on its point of symmetry.

LESSON 2:

Bringing Cultural Fire Back to the Land

GOALS

Students will be able to:

1. Identify a person who has been working to rebuild Cultural Fire in the Northern California region.
2. Describe the projects that Ms. Robbins engages with, and why the work she does is important.
3. Compare and contrast Indigenous/Western worldviews regarding Fire.

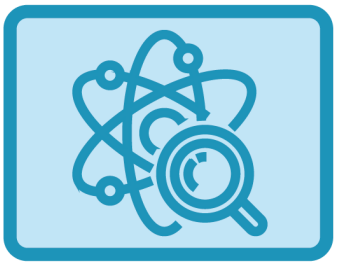
CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

VIDEO

Show the class Margo Robbins's presentation in the TEK, Science, & Management video ***Fires & Forests***, from 4:02 - 21:14. Pass out the **Concept Map** to the students to complete while watching the video.



MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the **MEET THE SCIENTISTS** slideshow. **This section can be modified to fit scientists/experts in your own region!*

Ali Meders-Knight, Mechoopda, Master Traditional Ecological Knowledge Practitioner
Margo Robbins, Yurok, Co-Founder & Executive Director of the Cultural Fire Management Council (CFMC)

PRE-LAB:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of the importance of returning Fire to the Land.

OPTION 1

Read through the **Bringing Fire Back to the Land** packet as a class or in small groups. In small groups, have students respond to the **Bringing Fire Back to the Land Comprehension Questions**.

OPTION 2

Review the **Fires & Forests** slides. Students can write down 3 big ideas on sticky notes or index cards and share out at the end of the presentation for a class/group discussion.

LESSON 3:

LAB

GOALS

Students will be able to:

1. Understand how Fire works in different Forest ecosystems.
2. Describe the way in which a Fire is burning and define its features.
3. Summarize the current challenges and victories in practicing cultural burns today and since time immemorial.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

LAB:

Educators can provide all or 1-2 of the following lab options for students to complete their lab session for this module.

OPTION 1

Show the following short video to the class: **Restoring Our Relationship to Fire**. Give each student 3 sticky notes to write down interesting and/or important Big Ideas from the video. Break into small groups to do a quick write overview of their big idea. Students can report on their observations by adding their sticky notes on a class poster, white board, or to any spot in the classroom where they can refer back to them.

OPTION 2

Read ***Acorn Maidens*** as a class. Choose a Fire dependent species of acorn or other culturally important plant to make a hands-on class project; e.g. cracking acorns and discussing sudden oak death as related to suppression of cultural burns.

**See Appendix A for additional acorn art pages.*

OPTION 3

Break the classroom up into small groups. Assign one experiment from the **Matchstick Forest Activity** to each group. Have students report back their findings to the class.

**This lab involves fire and requires adequate adult supervision.*

LESSON 4:

TEK Species Series: My Sisters: Weaving Plants and Stories

GOALS

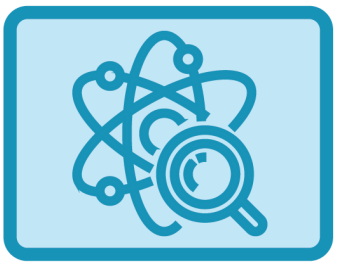
Students will be able to:

1. Identify local cultural experts and practitioners;
2. Learn which plants have cultural importance for many Northern California basket weavers in the ancestral Lands where the school is located and create a google doc/poster
3. Learn how to build connections with their local natural resources.
4. Discuss how art, games, and comics can be used to talk and learn about culture and Nature.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.



MEET THE SCIENTISTS

Danielle Frank, (Hupa) Youth Coordinator,
Save California Salmon
Alice Lincoln-Cook, (Karuk)
Weshoyot Alvitre, (Tongva)

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of the benefits and uses of local plants and other natural resources.

OPTION 1

Students research the Tribal Nation(s) in the ancestral Lands where the school is located and identify culturally important plants, create a Google doc including images of Tribal baskets, plant names, latin names, uses, and a Big Idea that is important for gathering plants and making baskets.

OPTION 2

Arrange a speaker who is affiliated with a local natural resource - preferably a local Native person (please visit **www.californiaindianeducation.org** for information on how to locate a presenter near you). Let the students engage in conversation with the presenter by having them prepare 1-2 questions each. Let them experience the space using all five senses. Have them write up 2-3 paragraphs about what they learned on their field trip.

OPTION 3

Students will read *My Sisters* by Chag Lowry & Weshoyot Alvitre. Ask the students the following questions:

1. What plants have you built a connection with in their own homes, backyards, or local parks?
2. What kinds of practices do you have with these plants?

ACTIVITY *continued* :

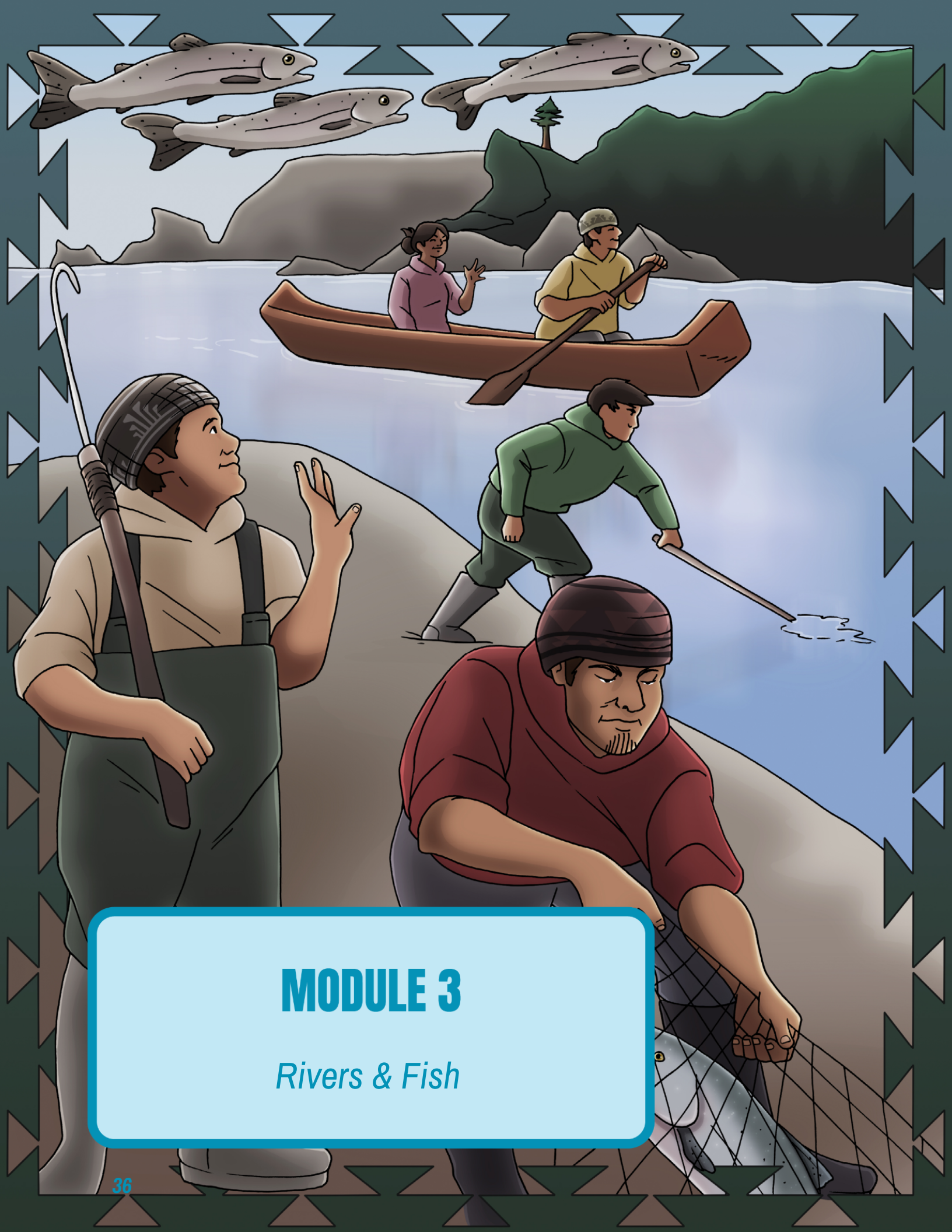
Then review the **My Sisters Curriculum Activity**. Choose the activity that meets your classroom content standards.

**You must either purchase or otherwise gain access to* My Sisters *prior to implementing this lesson. Contact Save California Salmon for information on how to get this book. The curriculum activity can be built out into multiple classroom sessions OR be used as a stand alone activity.*

OPTION 4

Students can create their own art, comics, games, or stories about baskets, basket plants, Fire, a Fire practitioner, or a Fire dependent plant. Have each student share their creation with the class!

Grade	Social Studies	Language Arts	Art	Science
6	HSS-6.1 HHS-6.2.1	**Middle School** CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CSS.ELA-LITERACY.W.6-8	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	**Middle School** MS-ESS2 MS-ESSs3-3
7	HSS-7.7 HSS-7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
8	*HSS-8.2.3* *HSS-8.8* *HSS-8.8.1* *HSS-8.8.2* *HSS-8.8.3* *HSS-8.8.4* *HSS-8.8.5* *HSS-8.12* *HSS-8.12.1*		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	



MODULE 3

Rivers & Fish

MODULE 3: *Rivers & Fish*

Lesson 1: Indigenous TEK/Native STEAM: Water Protectors

Lesson 2: Traditional Indian Law in TEK: Past, Present, & the Future

Lesson 3: Indigenous TEK/Native STEAM: Fishing Technology & Engineering in NW CA

Lesson 4: TEK Species Mini-Series: Salmon Species with Jamie Holt

LESSON 1:

Indigenous TEK/Native STEAM - Water Protectors

GOALS

Students will be able to:

1. Understand the importance of food sovereignty as it relates to healthy Rivers and fish.
2. Interpret the interconnection between anadromous River species with Forests and how they rely on and affect one another.
3. Identify two Yurok words and why they're important to Pacific Lamprey.

TEACHER NARRATIVE:

(PROVIDE THIS DESCRIPTION OF THE MODULE TO STUDENTS)

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **Water is Life**.

Rivers are the veins of California's vast and diverse ecosystems and habitats conveying sediment and nutrients inland to the Ocean. By transporting Water and sediment, Rivers shape their environments carving vast canyons and valleys through erosion and sedimentation defining the landscapes and ecosystems they are in. Like Rivers define ecosystems, they are also the foundation of many Indigenous worldviews and cultures. Rivers, their watersheds, and other bodies of Water are often reflecting the territorial boundaries of Tribes and Nations.

Rivers are so central to Indigenous worldviews that they traditionally are how people oriented themselves on the Land. There were no concepts of north or south, but up-river or down-River. Water is sacred to Indigenous Peoples and Rivers are beings and the center of all aspects of life.

Rivers also provide habitat for anadromous fish that are the main component of many traditional and modern Native California diets. Healthy Californian rivers supported massive populations of anadromous fish such as salmon and sturgeon vital for Indigenous modern/traditional diets and healthy ecosystems. As rivers convey nutrients inland to the ocean, anadromous fish bring nutrients from the ocean inland that support healthy Forests, animals, and people. Northern Californian Native Peoples call themselves "Salmon People" illustrating the importance of Salmon to Indigenous ways of life.

The health of California's Rivers is directly linked to the health of Native Californians as they are so dependent on the Rivers for cultural, subsistence, and commercial uses. As the conditions of Rivers in California deteriorate with drought, climate change, and gross mismanagement, Native Peoples who depend on the Rivers suffer.

This module features Keith Parker and Charley Reed explaining the relation and perspective of rivers and fish to Northern Californian Native Peoples, Tribes, and Nations.

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the environment. Indigenous Peoples' relationship with the environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

*There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

ALEVIN

A newly hatched salmon is called an Alevin and it can be identified by its small yolk sac that contains sufficient nutrition for their early development.

JUVENILE

A young or juvenile adult salmon that is ready to spawn.

DAM REMOVAL

The process of removing a dam and returning waterflow to a river.

KEYWORDS *continued* :

INVERTEBRATES
Animals without a backbone or bony skeleton

ICH DISEASE
A parasitic disease that affects a variety of freshwater fish species. A Mass salmon die off can be directly correlated to dams due to lack of flow and quality of water.

VIDEO
Show the class Keith Parker's presentation in the TEK, Science, & Management video, ***Rivers & Fish***
from 00:37 - 23:39

PRESENTATION
Educators will review the slideshow **What is TEK & Native STEAM** with the students while they complete the **Concept Map** graphic organizer.

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of the reciprocal relationship between Indigenous Peoples and rivers, as well as the impacts of diminishing that relationship.

OPTION 1
Pass out the **Think/Pair/Share** Worksheet (Appendix A), then show **The Lost Salmon**

ACTIVITY *continued* :

video to the class. Engage the class in a discussion on what they wrote on their worksheet. Have students make a concept web on the white board or on a poster reflecting what they learned from the video. Let the students be creative with how they want to represent this information.

OPTION 2

As a class, read the ***Endangered Cultures, Endangered Species, & the Law*** article *(Appendix A)*. Give each student 3 sticky notes to write down interesting and/or important "big ideas" from the video. Break into small groups to do a quick write overview of their big idea. Students can report on their observations by adding their sticky notes on a class poster, white board, or to any spot in the classroom where they can refer back to them.

OPTION 3

Pass out the **Yurok Fishing Geography** crossword puzzle. Students can work in pairs or small groups to complete the worksheet.

ADDITIONAL RESOURCES: *Yurok Fishing Geography Answer Key*

LESSON 2:

TEK: Past, Present, & the Future

GOALS

Students will be able to:

1. Identify scientists and experts from their region.
2. Demonstrate an understanding of keywords and concepts from the video and how they relate to TEK.
3. Identify local tribally led efforts to restore and preserve rivers and their local fish species.

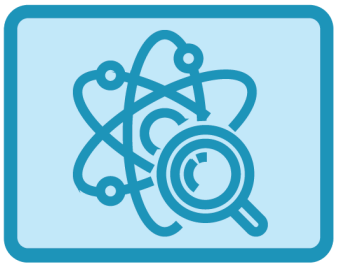
CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

VIDEO

Show the class Charley Reed's presentation in the TEK, Science, & Management video, ***Rivers and Fish*** from 23:39 - end. Pass out the **Concept Map** to the students to complete while watching the video.



MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the MEET THE SCIENTISTS slideshow

**This section can be modified to fit scientists/experts in your own region!*

Cutcha Risling Baldy, Hupa, Cal Poly Humboldt Native American Studies Department Chair
Charley Reed, Hupa, Cal Poly Humboldt Native American Studies
Keith Parker, Yurok, Yurok Fisheries Department Molecular Biologist

PRE-LAB:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of traditional fishing tools and the impacts of clean and unhealthy water on salmon.

OPTION 1

Show the **Native STEAM/TEK Fishing Technology/Engineering** presentation to the class. Discuss options for building or designing a model dip net, surf fish net, fish dam/weir, eel basket, or whatever fishing technology/engineering used in the Native Nation(s) where the school is located. This aligns with Lab Option 1.

**Additional net images in Appendix A*

OPTION 2

Visit **mywaterquality.ca.gov** and read through the resources prior to your field trip for Lab Option 2. Learn about what factors can be used as indicators of river and stream health. Discuss the variety of factors that can demonstrate the health of a stream, creek or river in class. Include the importance of waterway management and how mismanaged systems have led to poor conditions made worse by drought and climate change.

OPTION 3

Group Read the article, **Tribal Water Rights**, identifying important points with a highlighter. Point out the significance of Tribal senior Water rights and the racism inherent in the actions of the United States' water policies and practices.

OPTION 4

Pass out the **Think/Pair/Share** worksheet for students to take notes. Watch the interview with Charley Reed in the **Native Perspective Flipgrid** regarding dams and the effects they have on the salmon and the river. Engage the class in a discussion about what they learned from the video.

LESSON 3: *Indigenous TEK/Native STEAM: Fishing Technology & Engineering in Northwestern California*

GOALS

Students will be able to:

1. Get to know various California River species.
2. Describe the importance of Indigenous-led Rivers and fisheries management, and how TEK relates to modern management practices.
3. Demonstrate traditional and modern techniques of TEK as it relates to Rivers and Fish.

LAB:

Educators can provide all or 1-2 of the following lab options for students to complete their lab session for this module.

OPTION 1

Research and make/write/draw a model dip net, surf fish net, fish dam/weir, eel basket, or whatever fishing technology/engineering used in the Native nation(s) where the school is located.

- Ex: **Model Eel Basket**

**See Appendix A for a drawing of a man using a A frame net to harvest surf fish at the beach*

OPTION 2

After reviewing **mywaterquality.ca.gov** and the class discussion, visit a local stream, creek, or river and determine if it is healthy based on the factors learned in class, and make in-person observations.

OPTION 3

Watch this YouTube tutorial on how to **Build Your Own Watershed** using items you would have in your classroom to demonstrate how Water flows through watersheds and how sediment and pollution can affect them.

OPTION 4

Introduce different kinds of maps to the class using **Still Living Our Culture** by Lyn Risling, **CA Tribal Ancestral Lands Map**, and **CA Post- Settler Invasion Map** as references (Appendix A). As a group, make a Watershed Systems Metaphysical Map (includes culturally important sites such as Tribal ancestral territories, Native Language(s), Tribal villages, culturally important flora/fauna, important geographic features, etc.). Contact your local Indian Education Office for ideas and supporting materials.

Additional Resource:* **Pre-Post CA Map Worksheet Questions

LESSON 4:

TEK Species Mini-Series: Salmon Species with Jamie Holt

GOALS

Students will be able to:

1. Demonstrate the impact of dams and dam removal for salmon.
2. Describe the differences in salmon at different life stages.
3. Determine different food sources for salmon and their life stages.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

MEET THE SCIENTISTS

Jamie Holt, Yurok, Yurok Tribe's Lead Fisheries Technician

VIDEO

Watch Jamie Holt's presentation in the **TEK Species Mini-Series: Salmon Species & Fisheries** from 00:00-28:33.

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of various river dependent species, and the salmon life cycle.

OPTION 1

Pass out the **Northern California Cultural Keynote Species** worksheet to the students. Then, making a linear or circular timeline on a board or poster, have the students draw or cut out the species from the worksheet and attach them to the place on the timeline that aligns with their return to the river. Then use the following guiding questions to engage the class in a discussion:

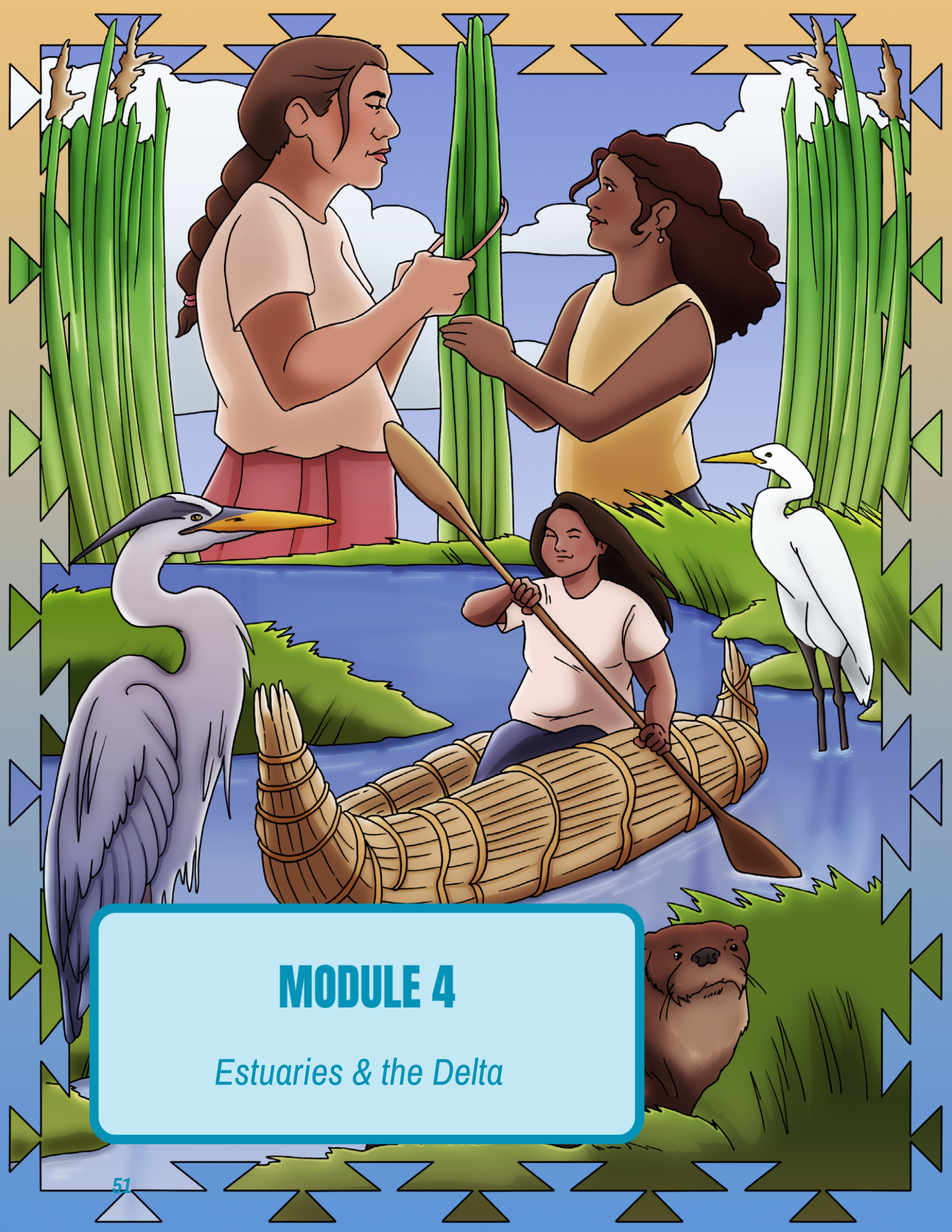
1. What is the cultural importance of each of these species?
2. What have you learned about different runs of anadromous fish species?

Additional Resource:* ***Yurok Traditional Aquatic Harvesting Calendar*

OPTION 2

Review the presentation in advance to gather the appropriate materials for the **Salmon Life Cycle** activity. This can be a whole classroom project, or done individually over the course of multiple classroom periods.

Grade	Social Studies	Language Arts	Art	Science
6	HSS-6.1 HHS-6.2.1	**Middle School** CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CSS.ELA-LITERACY.W.6-8	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	**Middle School** MS-ESS2 MS-ESS3-3
7	HSS-7.7 HSS-7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
8	*HSS-8.2.3* *HSS-8.8* *HSS-8.8.1* *HSS-8.8.2* *HSS-8.8.3* *HSS-8.8.4* *HSS-8.8.5* *HSS-8.12* *HSS-8.12.1*		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	



MODULE 4

Estuaries & the Delta

MODULE 4: *Estuaries and the Delta*

Lesson 1: What is Indigenous TEK/Native STEAM & Topic Overview
Lesson 2: Estuaries and The Delta & Pre-Lab
Lesson 3: LAB
Lesson 4: TEK Mini-Species Series: Tules

LESSON 1:

What is Indigenous TEK/Native STEAM

GOALS

Students will be able to:

1. Define Traditional Ecological Knowledge
2. Describe the importance of Deltas and Estuaries
3. Learn about the threats of Estuaries and the Delta

TEACHER NARRATIVE:

(PROVIDE THIS DESCRIPTION OF THE MODULE TO STUDENTS)

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **Gathering Tules**.

California's two largest Rivers – the north-flowing San Joaquin and the south-flowing Sacramento – come together in an inverted Delta in the Central Valley east of San Francisco. Freshwater from these Rivers and their tributaries mixes with salt. Water in an Estuary that connects to the San Francisco Bay, eventually flowing out to the Pacific Ocean through the Golden Gate. This Bay-Delta region is the largest Estuary on the Pacific Coast.

We must recognize that on average, 20% of the freshwater from the Sacramento & San Joaquin watersheds that flows into the Bay Delta is extracted for Water contracts. The state's largest Water user - irrigated agriculture - uses 80% of this Water and 20% is diverted to Southern California Reservoirs.

This module features Cody Henrikson, Malissa Tayaba, and Krystal Moreno in a discussion of how California's Estuaries and Deltas play an important part in having a healthy ecosystem, as well as the many threats that Estuaries and Deltas face.

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and Tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the Environment. Indigenous Peoples' relationship with the Environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

*There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) Tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other Nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the Environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

ESTUARIES AND DELTA

an estuary is an area where *Seawater* mixes with *Freshwater*. Whereas a delta is a *Wetland* area that forms as River Waters empty into a larger body of Water. Deltas and estuaries filter sediments, pollutants and are culturally significant to Indigenous people across the world.

CULTURAL KEYSTONE SPECIES

Species of exceptional significance to a culture or a people. A keystone species can be an organism including animals, plants, bacteria, and fungi, and is the glue that holds a habitat together. They can be identified by their prevalence in language, cultural practices, ceremonies, traditions, diets, medicines, material items, and histories of a community.

KEYWORDS *continued* :

DIVERSIONS
NaturalWaterflow is changed to an unnatural waterflow and directed to specific locations.

LAND GRANTS
Indigenous territory acquired through lopsided treaties and outright seizures was funneled through the Morrill Act of 1862 for agriculture and universities.

HARMFUL ALGAL BLOOMS (HABS)
Occurs when algae plants grow out of control and produce toxic or harmful effects on people, the Environment, and animals.

RUNOFF
Water from the surface area of Land that is not absorbed and the excessWaterflows across the surface of Land and into nearby bodies of Water like Creeks, rivers, Lakes, etc.

PRESENTATION
What is Indigenous TEK/Native STEAM
The educator will provide an overview of TEK with the students while they complete the **Concept Map** graphic organizer.

VIDEO
Show the class Cody Henrikson's presentation in the TEK, Science, & Management video, **Estuaries and The Delta** from 2:30-12:00. Pass out the **Estuaries and Delta Write Along** graphic organizer for students to complete.

LESSON 2:

Meet the Scientists

GOALS

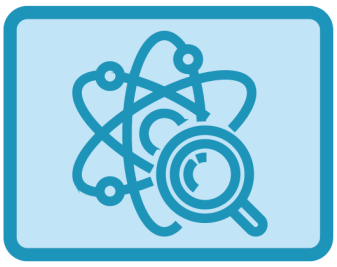
Students will be able to:

1. Learn about Indigenous territory and historical impacts of the Delta.
2. Identify how to protect Estuaries and the Delta.
3. Connect Shingle Springs Band of Miwok Indians' (SSBMI) story to the Delta.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.



MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the MEET THE SCIENTISTS slideshow

**This section can be modified to fit scientists/experts in your own region!*

Cody Henrikson, Dena'ina/Sugpiaq, Ninilchik Village
Malissa Tayaba, Shingle Springs Band of Miwok Indians, Vice-Chairperson of the Shingle Springs Band of Miwok Indians & Director of Traditional Ecological Knowledge.

VIDEO

Play Malissa Tayaba and Krystal Moreno's presentations in the TEK, Science, & Management video, ***Estuaries and The Delta*** from 14:15-31:35. Pass out the **Shingle Springs Band of Miwok Indians & The Delta** graphic organizer for students to write down key concepts from the video.

PRE-LAB:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of a healthy Estuary system and the impacts of the Bay Delta Project.

OPTION 1

Visit the **What is an Estuary** website with the class. Either as a class or in small groups have the students fill out the **Estuaries** graphic organizer.

OPTION 2

Show this example of a Vlog **A Mini Water Cycle** to the class. Students can complete their own Vlog in Lab Option 2.

OPTION 3

Visit the **The Run4Salmon's Bay Delta** page with the class. Either as a class or in small groups have the students fill out the **The Bay Delta** graphic organizer, and discuss what students learned collectively.

LESSON 3:

LAB

GOALS

Students will be able to:

1. Demonstrate how bodies of Water are interconnected.
2. Demonstrate the vastness and complexity of Estuaries and Deltas.
3. Demonstrate what happens to Water as it moves downstream.

LAB:

Educators can provide all or 1-2 of the following lab options for students to complete their lab session for this module.

OPTION 1

What is an Estuary? Create a mini Estuary (drawing, paint, illustration, picture collage board, using items from nature, etc.). Make sure to include the following:

1. What can you find here (aquatic animals, plants, keystone species, etc.)?
2. How do Indigenous people connect culture and traditions with the Estuary of this area?
3. What is the importance of Estuaries?
4. What are some threats to the Estuary?
5. How can we protect this Estuary?

OPTION 2

Create a Reflection Vlog. Students will create an iMovie, Windows Moviemaker video, or use their phone to create a video blog. Students can choose to upload their videos to YouTube or provide the file to the teacher. With this medium of reflection and using the guiding questions, students can: speak freely while using visual aids, interview someone, or use images/graphics in the video while doing a voiceover. Guiding questions:

1. How is the Bay Delta connected to various bodies of Water?
2. What kinds of projects or activities impact/threat the Bay Delta?
3. How can we protect the Bay Delta?
4. What is the relationship between Indigenous Peoples in this area and the Bay Delta?

Additional Resource:* **Rubric for Social Media Assignments

OPTION 3

Write a personal essay about the Bay Delta. Make sure to include the following:

1. Explain how the Bay Delta is connected to various bodies of Water.
2. What kinds of projects or activities impact/threat the Bay Delta?
3. How can we protect the Bay Delta?
4. The relationship between Indigenous Peoples in this area and the Bay Delta.
5. How does the Bay Delta affect you personally?

ADDITIONAL RESOURCES:

For information on your watershed:

California EPA - My Waterway

LESSON 4:

TEK Mini-Species Series: Tules

GOALS

Students will be able to:

1. Learn about Tules.
2. Describe the Delta Tunnel Project.
3. Identify the impacts of Water diversions.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

VIDEO

Learn about Tule, or Bulrush, by watching the **All About Tule** video and learn how the Indigenous people of the East Bay utilized this versatile wetland plant.

Learn about the Delta Tunnel Project by watching Save California Salmon's **Advocacy & Water Protection in Native California - Trump Water Plan, The Shasta Dam Raise, The Fight for Sacramento River Bay Delta Salmon**, or the Sierra Club's **The Delta Conveyance Project Overview** video (2:15 - 15:25 & 31:30 - 55:00).

**Educators should consider breaking up this lesson into two or more class sessions.*

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of Tules and the impacts of the Delta Tunnel Project.

OPTION 1

Participate in an action by creating a public comment against the Delta Tunnel Project or advocating to protect the Tule species.

Public comments can be done in various ways: by speaking in front of board members, a letter, or email. Educators can let the student choose their method of submitting a public comment for their activity.
Learn how to create a public comment by watching the **Youth Advocacy Series: Public Comment** video.

ACTIVITY *continued* :

OPTION 2

Create a visual representation of the Tule ecosystem. Students can gather information of where and the type of environment Tules like to live, and the importance of Tules to the ecosystem and water quality by watching the **All About Tule** video, **How to Harvest Tule** video, and reading **Common Tule**.

**If the educator has the resources to harvest Tule, a harvesting activity should be considered.*

OPTION 3

Start an action related to the harmful algal blooms in the Delta Estuary.

Students will have the opportunity to create their own action in a small group setting to answer the question, "What can we do to reduce harmful algal blooms that are causing hazardous conditions for the Environment, the community, and wildlife?" Students can watch **Harmful Algal Blooms in the SF Bay-Delta Estuary** to learn more about algal blooms and get ideas on how to start an action.

Students can learn more about youth advocacy for their activity by watching the following youth advocacy videos:
Youth Advocacy Series: Why You Should Get Involved in Advocacy and Activism
Youth Advocacy Series: How to Get Involved in Advocacy

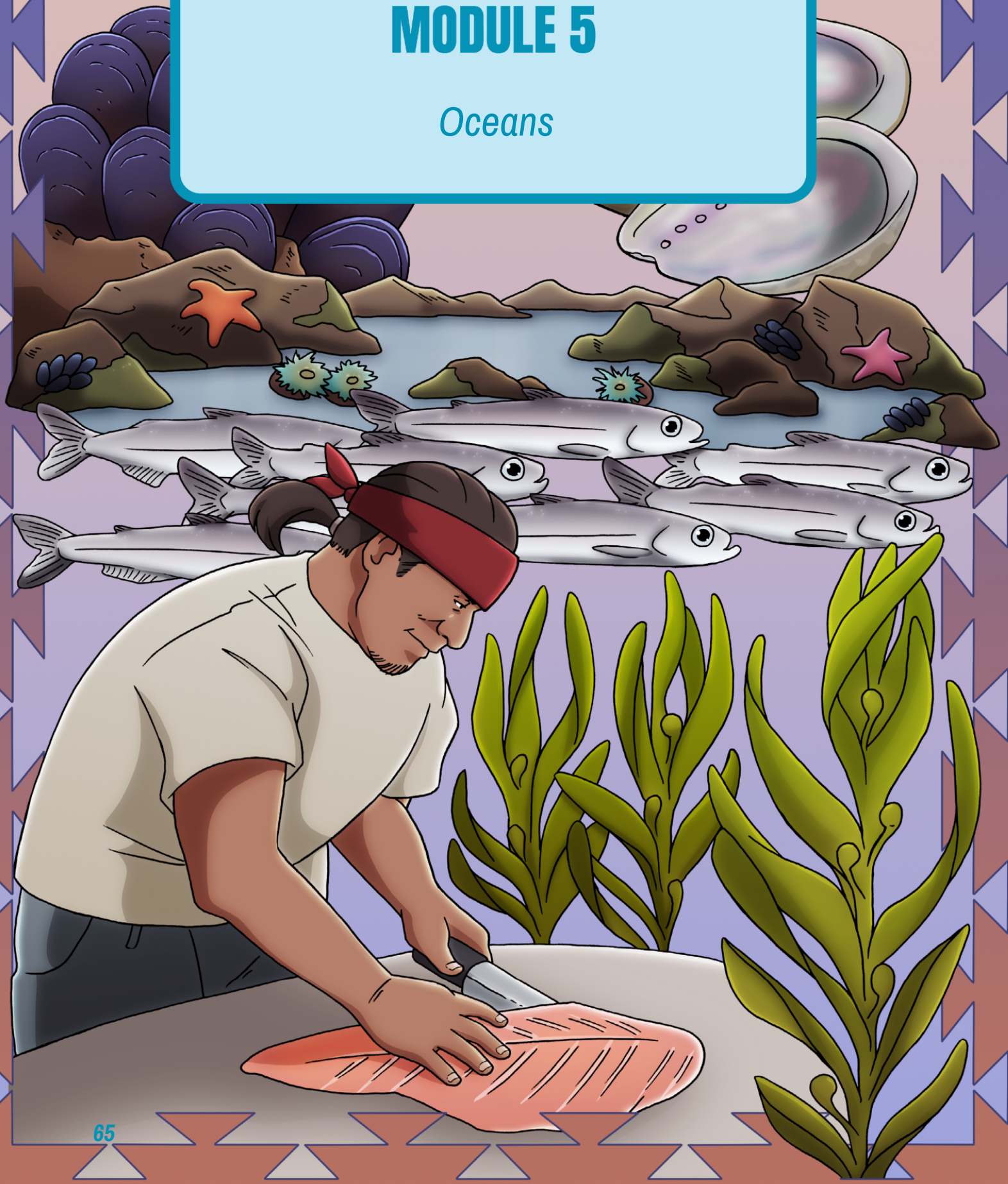
OPTION 4

Use the lesson and experiments from **Ecosystem Services of Wetlands, Wetlands Curriculum** - Confederated Tribes of Siletz Indians.

Standards				
Grade	**Social Studies**	**Language Arts**	**Art**	**Science**
6	HSS-6.1 HHS-6.2.1	**Middle School** CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CSS.ELA-LITERACY.W.6-8	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	**Middle School** MS-ESS2 MS-ESS3-3
7	HSS-7.7 HSS-7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
8	*HSS-8.2.3*		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	

MODULE 5

Oceans



MODULE 5: *Oceans*

Lesson 1: Overview of TEK/Native STEAM & Topic Overview

Lesson 2: Meet the Scientist & Experts/Prelab

Lesson 3: LAB

Lesson 4: TEK Mini-Species Series (Abalone History & Ecology in Native CA)

LESSON 1:

Overview of TEK/Native STEAM & Topic Overview

GOALS

Students will be able to:

1. Define nearshore marine environments and their connection to Indigenous Californians coastal and inland.
2. Explain how traditional foods from the nearshore marine environments connect TEK to tribal sovereignty for Indigenous Californians.
3. Critically think about how current threats to marine nearshore environments affect Indigenous peoples and how advocacy is an important part of protecting them.

TEACHER NARRATIVE:

(PROVIDE THIS DESCRIPTION OF THE MODULE TO STUDENTS)

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **Kelp Forest Ecology**.

Marine environments and resources are an integral part of life in California and an iconic representation of life on the West Coast. For Indigenous Californians, nearshore marine environments

provided necessary food, medicine, materials, and other resources that are essential components of culture, ceremony, and economy since time immemorial and continue to do so today. Pre-invasion nearshore marine Environments supported California Tribal lifeways on the Coast and inland in a multitude of ways, including the development of sophisticated management practices and extensive trade networks throughout the continent.

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and Tribes. It is the way Indigenous Peoples interact with their Lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the Environment. Indigenous Peoples' relationship with the Environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

*There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) Tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other Nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the Environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

INTERCONNECTEDNESS
The state of being connected with each other.

ANTHROPOGENIC
Of, relating to, or resulting from the influence of human beings on Nature

ADVOCACY
To publicly support or suggest an idea, development, or way of doing something

HERITAGE PRESERVATION
Historic preservation, heritage preservation or heritage conservation, is an endeavor that seeks to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historical significance.

FOOD SOVEREIGNTY
The right/responsibility of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems

FOOD WEB OR CONSUMER RESOURCE INTERACTION
A food web is the natural interconnection of food chains and a graphical representation of what-eats-what in an ecological community.

VIDEO

Show the class Hillary Renick's presentation in the TEK, Science, & Management video, **Oceans** from 3:24 to 16:29. Pass out the **Concept Map** to the students to complete while watching the video.

PRESENTATION

Educators will review the slideshow **What is TEK & Native STEAM** with the students while they complete the **Concept Map** graphic organizer.

GUIDING QUESTIONS:

Please use the remainder of the class time to allow the students to reflect on the material they have just learned. You may use these Guiding Questions to help engage them in a conversation:

1. Discuss and understand the importance of nearshore environments to Indigneous Californian Peoples for culture, ceremony, economy, and gathering.

2. Discuss and understand modern efforts of Californian Tribes with federal and state agencies to manage and protect nearshore marine Environments such as Marine Protected Area (MPAs).

LESSON 2:

Meet the Scientists

GOALS

Students will be able to:

1. Identify scientists and experts from their region.
2. Demonstrate an understanding of keywords and concepts from the video and how they relate to TEK.
3. Identify Tribal led efforts to restore, and preserve marine nearshore Environments.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the MEET THE SCIENTISTS Oceans slideshow

**This section can be modified to fit scientists/experts in your own region!*

Hillary Renick (Sherwood Valley Band of Pomo Indians) is a descendant of the Hopland Shanel, Noyo River Indian and Ft. McDermitt Paiute-Shoshone communities, BOEM Tribal Liaison Coordinator.

Marva Sii~xuutesna Jones (Tolowa Dee-ni') is a descendent of Yurok|Karuk|Wintu, SCS Board member, traditional food producer, ancestral worldview activist.

VIDEO

Show the class Marva Sii~xuutesna Jones's presentations in the TEK, Science, & Management video, **Oceans** from 16:32 - end. Pass out the **Concept Map** to the students to complete while watching the video.

PRE-LAB:

Watch **How the Tolowa Dee-ni' Study Ocean Toxicity | Tending Nature | KCET** with the students while they complete the **Concept Map** graphic organizer. Discuss the differences between Indigenous and Western relationships with marine ecosystems. How did Marine Protected Areas (MPAs) change Tribes' ability to have a relationship with those ecosystems?

LESSON 3:

LAB

GOALS

Students will be able to:

1. Demonstrate understanding of nearshore environments through an Indigeneous worldview.
2. Partake in citizen science through observations of nearshore environments.
3. Students will be able to identify keystone species that are important to local ecosystems and Tribes.

LAB:

Educators can provide all or 1-2 of the following lab options for students to complete their lab session for this module.

OPTION 1

Cultural keystone species mapping using citizen science (iNaturalist, and Seek)

1. Download and create and account for **iNaturalist** and **Seek** and familiarize yourself with the apps and the teachers guide.
2. Using iNaturalist and Seek, students can map out species of cultural significance to Indigenous Californians like those discussed in the video in their local area and the data can be used by scientists for study.

3. If possible, students can take a trip to a local beach or tidepools to make in person observations using iNaturalist and seek.
4. An alternative to using digital apps is using marine guidebooks, and an alternative to taking photos could be drawing in-field observations in a sketchbook.

OPTION 2

Beachcombing and identifying shells

Go to a local beach and have students look for seashells and other washed up items on the beach.

1. In a group, spend time identifying sea shells and other materials.
2. Discuss the importance of gathering principals when beachcombing.

OPTION 3

Review a Kelp Forest Food Web with the class (example can be found **here**). Discuss in groups of 2-5 people:

1. What is the human impact on this ecosystem?
2. What would happen if one of the species' population increases or decreases?
3. What would happen if one of the species' goes extinct in this ecosystem?

ADDITIONAL RESOURCES: *iNaturalist Teachers Guide* | *Seek User Guide*

LESSON 4:

TEK Mini-Species Series Abalone History & Ecology in Native CA

GOALS

Students will be able to:

1. Understand the history of abalone in California through an Indigenous perspective.
2. Identify basic anatomy of California abalone species and differences between them, including ecology and current and historical threats to their populations.
3. Discuss the cultural importance of abalone species to Indigenous peoples.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

VIDEO

Hand out the **Abalone Worksheet** to students and watch Shoshoni Gensaw-Hostler & Cody Henrikson's presentations in the TEK Mini-Species Series ***Abalone History & Ecology in Native CA*** (00:00 - 46:10). This may be broken up a bit to fit a traditional class period

**This video contains sensitive material during the last 14 minutes, pertaining to domestic abuse that may be unsuitable for the students in the classroom. Please watch the video and determine what you feel is appropriate to show prior to showing it in class. Students should be given the option to opt out of this portion of the class as well.*

MEET THE SCIENTISTS

Cody Henrikson, Dena'ina|Sugpiaq enrolled Ninilchik Village Tribe, Save California Salmon
Shoshone Gensaw-Hostler, Yurok, Yurok Tribe Health and Human Services, Suicide Program Manager

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of abalone anatomy.

OPTION 1

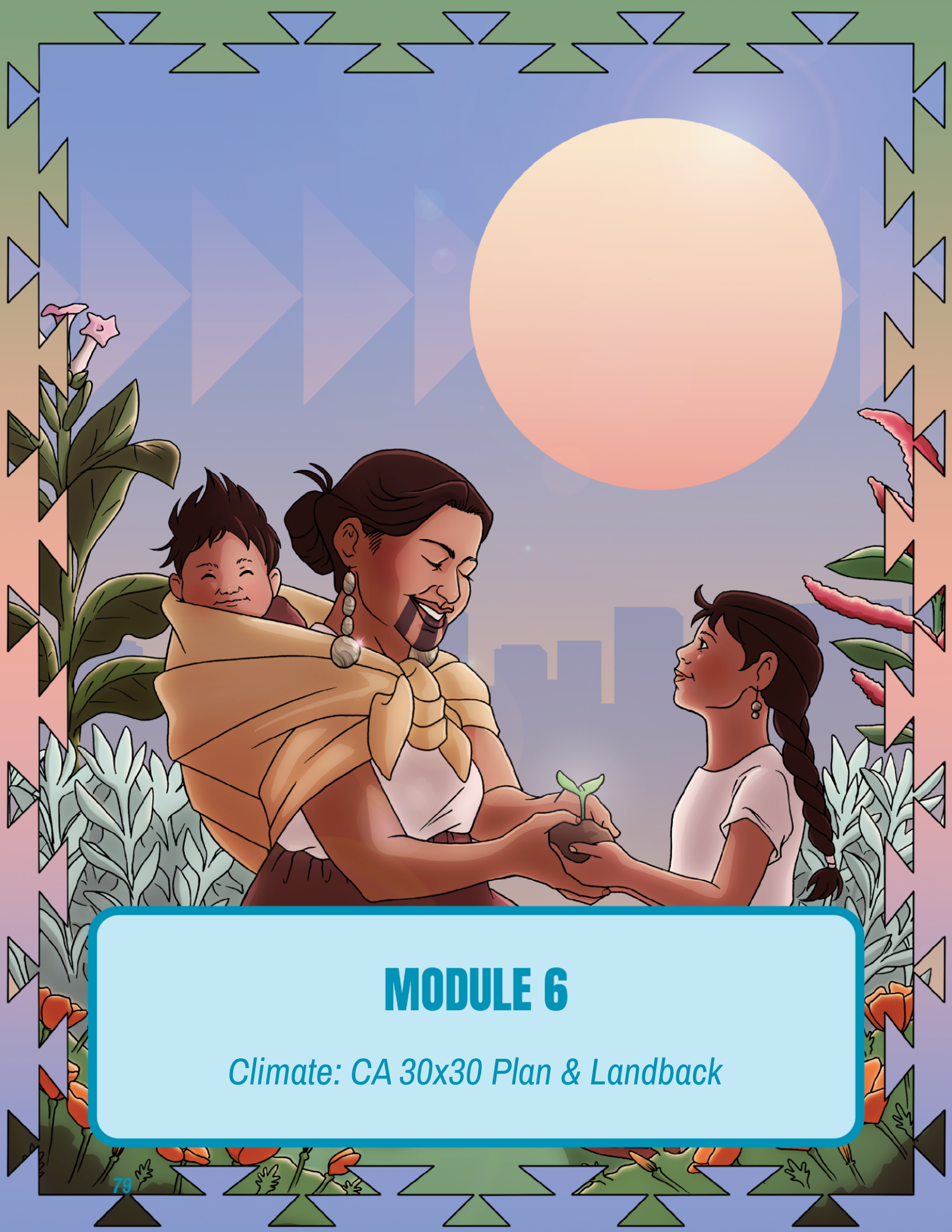
Review the **Abalone Anatomy Summary** with students and then have students create their own art representation of an Abalone.

ACTIVITY *continued* :

OPTION 2

Review the **Abalone Anatomy Summary** and then have students interact with and observe real Abalone in the classroom (*this will require the educator to have the Abalone resources to do this option). Have students make connections to what they learned about Abalone anatomy and see how much they remember.

Standards				
Grade	**Social Studies**	**Language Arts**	**Art**	**Science**
6	HSS-6.1 HHS-6.2.1	**Middle School** CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CSS.ELA-LITERACY.W.6-8	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	**Middle School** MS-ESS3-3 MS-ESS3-4 MS-ESS3-5 MS-LS1-4 MS-LS1-5 MS-LS1-6 MS-LS1-7 MS-LS2 MS-LS3 MS-LS4
7	HSS-7.7 HSS-7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
8	*HSS-8.2.3* *HSS-8.8* *HSS-8.8.1* *HSS-8.8.2* *HSS-8.8.3* *HSS-8.8.4* *HSS-8.8.5* *HSS-8.12* *HSS-8.12.1*		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	



MODULE 6

Climate: CA 30x30 Plan & Landback

MODULE 6:

Climate: CA 30x30 Plan & LandBack

Lesson 1: Overview of TEK/Native STEAM & Climate: CA 30x30 Plan & LandBack

Lesson 2: Meet the Scientists & Pre-Lab

Lesson 3: Lab Options

Lesson 4: TEK Mini-Species Series: Condor's Return to Yurok Country

LESSON 1:

What is TEK?

GOALS

Students will be able to:

1. Demonstrate an understanding of CA's 30x30 Plan, as well as executive order N-82-20 taken by Governor Newsom.
2. Demonstrate an understanding of "decolonization," and how LandBack plays a part in decolonization.
3. Learn the disparities in private Land ownership in the US.

TEACHER NARRATIVE:

(PROVIDE THIS DESCRIPTION OF THE MODULE TO STUDENTS)

TEACHER HOOK:

Play the following TikTok for the class before leading them into this lesson **Climate Change Hope**.

In October 2020, Governor Newsom signed the Nature Based Solutions **Executive Order N-82-20**, stating the importance of natural and working Lands in the fight against climate change and advancing biodiversity conservation as an administration priority. As part of this Executive Order, the governor committed to California conserving 30 percent of our Lands and coastal Waters by 2030.

On Earth Day 2022, the first step towards achieving this goal was released. **Pathways to 30x30** is a comprehensive document that outlines the steps California plans to take in order to reach its conservation goals. The document was compiled by stakeholders, like yourself, who submitted their comments and concerns to California's Natural Resources Agency.

This module features Dr. Cutcha Risling Baldy, Bill Tripp, and Adam Canter in a discussion of California's 30x30 Plan and how it relates to LandBack, as well as projects that the Karuk and Wiyot Tribes are engaged with that aim to mitigate climate change.

Indigenous Peoples experience climate change differently than other populations. Climate science organizations show that Indigenous populations are amongst those who, on average, will suffer the most than any other communities from the changing climate conditions. This is not due to Indigenous lifeways but because of technology advanced societies who have built their modern day lifestyles on carbon energy and fossil fuel dependence. (**source**)

CORE CONCEPTS:

TRADITIONAL ECOLOGICAL KNOWLEDGE

The knowledge which is passed down between generation to generation within Indigenous communities, families and Tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the Environment. Indigenous Peoples' relationship with the Environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

*There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.

INDIGENOUS PERSON

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) Tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

TRIBAL SOVEREIGNTY

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form

alliances with other Nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

LAND STEWARDSHIP

A responsibility to take care of the Environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

SETTLER COLONIALISM

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS:

CLIMATE CHANGE

Natural or human-influenced long-term shifts in temperatures and weather patterns. Human activities have been the main driver of climate change during the last 150 years, primarily due to the burning of fossil fuels (like coal, oil, and gas) which produces heat-trapping gasses.

CLIMATE ADAPTATION

The process of adjusting to current or expected effects of climate change.

BIODIVERSITY HOTSPOT

A biogeographic region with significant levels of biodiversity that is also threatened by human habitation.

ENDEMIC

Native and restricted to a certain place/found nowhere else on Earth.

SELF DETERMINATION

The process of a Tribal Nation determining its own sovereignty and forms its own allegiances and government. (i.e practicing culture, knowledge and traditions on ancestral Lands).

VIDEO

Show the class Dr. Cutcha Risling Baldy's presentation in the TEK, Science & Management video, **Climate: CA 30x30 Plan & LandBack** from 00:00 - 19:10. Pass out the **Concept Map** to the students to complete while watching the video.

PRESENTATION

Educators will review the slideshow **What is TEK & Native STEAM** with the students while they complete the **Concept Map** graphic organizer.

GUIDING QUESTIONS:

Please use the remainder of the class time to allow the students to reflect on the material they have just learned. You may use these Guiding Questions to help engage them in a conversation:

1. Where do your ancestors come from? What is your heritage? How many generations of your family have lived in the US?

2. Do you know whose ancestral Tribal Territory(ies) you live on? What do you know about that Tribe(s)?

3. How is the CA 30x30 Plan helping fight climate change? Is the Plan doing enough to remediate climate change?

LESSON 2:

Meet the Scientists

GOALS

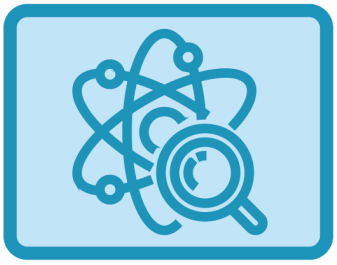
Students will be able to:

1. Identify local scientists and experts
2. Learn how to identify whose Land you are on
3. Discuss how climate change is affecting local ecosystems and the planet, and what LandBack can do to counter the effects.

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.



MEET THE SCIENTISTS

Students will be able to learn more about the scientists in their area by reviewing the MEET THE SCIENTISTS slideshow.

**This section can be modified to fit scientists/experts in your own region!*

Dr. Cutcha Risling Baldy, (Hupa) Department Chair Native American Studies at Cal Poly Humboldt, President of the Board of Directors at Save California Salmon, and Native Women's Collective

Bill Tripp, (Karuk) Karuk Tribe's Director of Natural Resources & Environmental Policy

Adam Canter, Director of Wiyot Tribe's Natural Resources Department

VIDEO

Show the class Bill Tripp and Adam Canter's presentations in the TEK, Science & Management video, **Climate: CA 30x30 Plan & LandBack** from 19:33 - 36:36. Pass out the **Concept Map** to the students to complete while watching the video.

PRE-LAB:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of California's 30x30 and the impacts of climate change and Land Return.

OPTION 1

Visit the website to learn more about Land acknowledgements & how to create one: **Create a Land Acknowledgement.** Feel free to use Redbud Resource Group's fill-in **Land Acknowledgement page**, found in the appendix. Be sure to include:

1. The name(s) of the Tribe(s) whose Land you are on, or where you reside.
2. Some information about the Tribe(s) whose Land you are on.
3. An action that you will take as a responsible community member residing on this Land.
4. An action for others to take by being on the Land of said Tribe(s)

*Additional Resource: **What Good is a LandAcknowledgement***

OPTION 2

Visit the following website to learn more about climate change, and do the activity that follows: **Climate Change Reading** & **Test Your Knowledge on Climate Change Kahoot Game** - National Geographic/Kahoot.

1. Go to the National Geographic webpage and read the material on Climate Change
2. Follow the directions for the Test Your Knowledge on Climate Change Kahoot Game webpage
3. Form groups of 2-3 to complete the game

**Educators should decide on how to best facilitate this activity based on their class beforehand.*

OPTION 3

Visit the following website and review the lesson: **Where Do I Live** - California Indian Museum and Cultural Center Lesson to prepare for Lab Option 3.

OPTION 4

Fill out the following worksheet and engage in a discussion with students regarding their responses. **Native Land Mapping Project** (Appendix A)

LESSON 3:

LAB

GOALS

Students will be able to:

1. Demonstrate their understanding of the effects of climate change and/or what it means to be on Native land.
2. Show their knowledge of local Tribes/important natural resources.
3. Build a connection with their local natural resources and the world.

LAB:

Educators can provide all or 1-2 of the following options for students to work on.

OPTION 1

Visit the website and complete the activity. **Melting Polar Ice Caps Project**. Have the class respond to the following questions:

1. How do the melting polar ice caps affect California's coastal regions?
2. Are ecosystems impacted by the melting of polar ice caps? If yes, provide a brief explanation?
3. How does climate change impact Tribes in your area?

Additional Resource: ***Inuit Knowledge and Climate Change***

OPTION 2

Get in touch with your local Tribe, Tribally-run nonprofit, or Land conservancy to learn about a local climate change issue (see prior modules for ideas!). Offer several options in order for the class to decide what topic to cover. As a class or in large groups, write a letter, a short newspaper letter to the editor, or create a short testimonial of support/dissent for the project, and submit it to a local Tribe, or city or county supervisor.

OPTION 3

After reviewing the **Where Do I Live** - California Indian Museum and Cultural Center Lesson: Have students form small groups and fill out the following worksheet (See Appendix A - **Where Do I Live - Activity Response Questions**)

OPTION 4

Get to Know Our Natural Resources - This project will get students out to a local natural resource; a River, Stream, Forest, Ocean, Dunes, Desert, Mountain, Marsh, Estuary, etc.

Take a field trip to the natural resource of your choice. Arrange a speaker who is affiliated with a local natural resource - preferably a local Native person (please visit **www.californiaindianeducation.org** for information on how to locate a presenter near you). Let the students engage in conversation with the presenter by having them prepare 1-2 questions each. Let them experience the space using all five senses. Have them write up 2-3 paragraphs about what they learned on their field trip.

ADDITIONAL RESOURCES:

Karuk Climate Adaptation Plan

Test Your Knowledge on Climate Change
- National Geographic/Kahoot

LESSON 4:

TEK Species Series: Condor's Return to Yurok Country

GOALS

Students will be able to:

1. Learn the importance of Condor to the Yurok Tribe and the environment
2. Describe recent community-based collaborative efforts to restore Condor populations in California.
3. Understand Condor biology and conservation efforts

CORE CONCEPTS & KEYWORDS:

NOTE TO EDUCATOR

Be sure to review keywords and concepts from Lesson 1 of this module with students. Additional keywords can be found in the glossary.

MEET THE SCIENTISTS

Tiana Williams-Claussen, Yurok Tribe, Executive Director of the Yurok Tribe Wildlife Department

VIDEO

Watch Tiana Williams-Claussen's presentation in ***Condor's Return to Yurok Country*** (00:05 - 33:10) and review Tiana's **Kue Prey-go-neesh Kee Ke-mey'** slides.

ACTIVITY:

Educators have the option to choose one or more of the following activities for students to work on. These activities will add to the student's understanding of Condor and its significance to California Native Peoples.

OPTION 1

Show the students the image: ***Achviivkaam tu'ípak*** *(Condor Returns), by Lyn Risling, Yurok/Karuk/Hupa,* and review the following questions:

1. What caught your eye when you first saw this picture?
2. What story do you think the artist is trying to tell?
3. How did this image make you feel about Condors?

**Achviivkaam tu'ípak in Appendix A*

OPTION 2

Review the Lost Coast Outpost's article, ***BETTER KNOW A PREY-GO-NEESH***. Discuss the various Condors and imagine what they are doing now that they are released. Then discuss the following questions:

1. What could they be experiencing in the wild?
2. How do they get along with one another?
3. How can you tell them apart from one another?

ACTIVITY *continued* :

OPTION 3

Visit the following **website** for details on the dimensions of California Condor. Provide students with the wingspan and body size of a condor. With large sheets of paper or cardboard, have the students draw a lifesize California Condor, cut it out, and decorate it!

Standards			
Social Studies	Language Arts	Visual Arts	Science
HSS-6.1 HHS-\6.2.1	CCSS.ELA-LITERACY.RI.6-8.4 CCSS.ELA-LITERACY.RI.6-8.7 CCSS.ELA-LITERACY.W.6 (all) CCSS.ELA-LITERACY.W.7 (all) CCSS.ELA-LITERACY.W.8 (all)	6.VA:Cr1 6.VA:Cr2 6.VA:Cr3 6.VA:Re7.1 6.VA:Cn10 6.VA:Cn11	MS-ESS3-3
HSS-7.7 HSS-7.9.4 HSS-7.11		7.VA:Cr1 7.VA:Cr2 7.VA:Cr3 7.VA:Re7.1 7.VA:Cn10 7.VA:Cn11	
HSS-8.2.3 HSS-8.8 HSS-8.8.1 HSS-8.8.2 HSS-8.8.3 HSS-8.8.4 HSS-8.8.5 HSS-8.12 HSS-8.12.1		8.VA:Cr1 8.VA:Cr2 8.VA:Cr3 8.VA:Re7.1 8.VA:Cn10 8.VA:Cn11	

APPENDIX A

Worksheets & Classroom Exercise Materials

MODULE 1:

Concept Map
NW Indigenous Gold Rush History Booklet
NW Indigenous Gold Rush Interview
Pre-Contact CA Map
Post-Contact CA Map
Pre-Post Questions
TEK - Western Science Timeline
A Time of Resistance - Resource Folder
Rubric for Social Media Assignments

MODULE 2:

ConceptMap
VocabularyWorksheet /TeacherAnswer Key
Bringing Fire Back to the Land
Bringing Fire Back to the Land Comprehension Questions
CA Basket Design Symmetry Activity
MatchstickForest Activity
Acorn Maidens Story
Acorn Maidens Drawing by Lyn Risling
My Sisters Curriculum Activity

MODULE 3:

Think/Pair/Share
Endangered Cultures, Endangered Species, and the Law
Yurok Fishing Geography
Yurok Fishing Geography Answer Key
Tribal Water Rights
Resistance to Settler-Colonial Law
Dip Net Drawing
Surf Fish Net Drawing
Model Eel Basket
Still Living Our Culture CA

Tribal Ancestral Lands Map CA
Post-Settler Invasion Map
CA Map Worksheet
Steelhead Life Cycle Diorama

MODULE 4:

Concept Map
Estuaries and Delta Write Along Graphic Organizer
Shingle Springs Band of Miwok Indians & The Delta
Estuaries
The Bay Delta
Rubric for Social Media Assignments

MODULE 5:

ConceptMap
Abalone Anatomy Worksheet
Abalone Anatomy Summary
Abalone Woman & Panther and His Wives Art/Stories, art by Lyn Risling

MODULE 6:

Concept Map
Land Acknowledgement Example
Native Land Mapping Project
Where Do I Live - Activity Response Questions
Achviivkaam tu'ípak (Condor Returns), art by Lyn Risling

APPENDIX B

Standards Definitions & Connections

SOCIAL SCIENCE

HSS 6.1: Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution.

1. Describe the hunter-gatherer societies, including the development of tools and the use of fire.

Teacher Narrative - Identify the political myth about the linear evolution from hunter/gatherers to agricultural practices in Settler-colonial history. Discuss what they have learned about TEK that proves that wrong. Utilize Module - Fires & Forests.

2. Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments.

Summarize the content of what the class has learned about the TEK for the tribal nation(s) whose ancestral land(s) where the school is located. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

3. Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.

Expand on the content of what the class has learned about the TEK for the tribal nation(s) whose ancestral land(s) where the school is located. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

HSS 6.2: Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush.

1. Locate and describe the major river systems and discuss the physical settings that supported permanent settlement and early civilizations.

Compare and Contrast the relationship of civilizations with their watershed with the Indigenous nation(s)' relationship with the watershed where the school is located.Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

HSS 7.4: Students analyze the geographic, political, economic, religious, and social structures of the sub-Saharan civilizations of Ghana and Mali in Medieval Africa.

Connect how the settler colonial religious and racist background influenced the atrocities, genocide, Indigenous religion, and repression of Traditional Ecological Knowledge. Research and share resistance narratives and ally relationships in Indigenous history. Research and share resistance narratives and ally relationships in Indigenous history with students. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

HSS 7.7: Students compare and contrast the geographic, political, economic, religious, and social structures of the Meso-American and Andean civilizations.

Remind students that the present borders of the United States, between countries all over the Americas were very recently created and that Tribal nations' ancestral lands have existed for thousands and thousands of years. Some Tribal nations have citizens that live in two countries, and practice TEK. Ancient extensive trade networks existed from Chile to Mexico to the United States, to Canada. Many of those routes have become roads and highways.

HSS 7.9.4: Identify and locate the European regions that remained Catholic and those that became Protestant and explain how the division affected the distribution of religions in the New World.

Connect how the settler colonial religious and racist background influenced the atrocities, genocide, Indigenous religion, and repression of Traditional Ecological Knowledge. Connect how the settler colonial religious and racist background influenced the atrocities, genocide, Indigenous religion, and repression of Traditional Ecological Knowledge. Research and share resistance narratives and ally relationships in Indigenous history with students.

HSS 7.11: Students analyze political and economic change in the sixteenth, seventeenth, and eighteenth centuries (the Age of Exploration, the Enlightenment, and the Age of Reason).

Connect the relationship between colonizing nations such as England and Spain with Indigenous nations and the resulting economic prosperity from stealing natural resources, genocide, and Land invasion. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

HSS 8.2: Students analyze the political principles underlying the U.S. Constitution and compare the enumerated and implied powers of the federal government.

Connect racism and greed as political principles underlying the U.S. Constitution, inherent in Manifest Destiny and western expansion policies, resulting in genocide, natural resource/mineral/land acquisition, and poisoning/destroying the Earth.

HSS 8.2.3: Evaluate the major debates that occurred during the development of the Constitution and their ultimate resolutions in such areas as shared power among institutions, divided state-federal power, slavery, the rights of individuals and states (later addressed by the addition of the Bill of Rights), and the status of American Indian nations under the commerce clause.

Share that Indigenous people were kidnapped and sold as slaves in California past the Empancipation Proclamation and the end of the Civil War. The CA slave trade industry was protected by legislation using the term "protection" of Native people. Similar policies of incarceration of freed African-American slaves for "loitering" or lacking proof of current employment. Native American men, women, and children were stolen from their families and sold to be made to work without compensation and freedom of movement. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

Q// What does freedom of movement mean?"
Q// What does it mean to you?

HSS 8.8: Students analyze the divergent paths of the American people in the West from 1800 to the mid-1800s and the challenges they faced.

1. Discuss the election of Andrew Jackson as president in 1828, the importance of Jacksonian democracy, and his actions as president (e.g., the spoils system, veto of the National Bank, policy of Indian removal, opposition to the Supreme Court).

Define Indian removal and the Trail of Tears, using first person Indigenous historical sources. Find current digital resources of Tribal voices from the Tribes' disrupted by the Trail of Tears and Removal.

2. Describe the purpose, challenges, and economic incentives associated with westward expansion, including the concept of Manifest Destiny (e.g., the Lewis and Clark expedition, accounts of the removal of Indians, the Cherokees' "Trail of Tears," settlement of the Great Plains) and the territorial acquisitions that spanned numerous decades.

Define Manifest Destiny and how that principle informed federal Indian law associated with settler-colonial land grab. Define Landback, and strategies/victories in Tribal resistance. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

3. Describe the role of pioneer women and the new status that western women achieved (e.g., Laura Ingalls Wilder, Annie Bidwell; slave women gaining freedom in the West; Wyoming granting suffrage to women in 1869).

Refer to what students have learned about the California slave trade and what that meant for Indigenous women. Read Abalone Woman & Panther Man article, or find a current article(s) by Indigenous women in the location where your school is located. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

4. Examine the importance of the great rivers and the struggle over Water rights.

Group Read the article Tribes' Water Rights, highlighting the significance of Tribal senior water rights and the racism inherent in the actions of the United States' water policies and practices. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

5. Discuss Mexican settlements and their locations, cultural traditions, attitudes toward slavery, land-grant system, and economies.
A Time of Resistance - CA Missions Resources Folder
Q// How did the Spanish setter-colonial invasion disrupt the Indigenous/Tribal nations.

Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

HSS 8.12: Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

1. Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map.

Identify how climate change has affected students' daily life and local environment and TEK in the Tribal nation'(s)' ancestral land and water in the location where your school is located. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

2. Identify the reasons for the development of federal Indian policy and the wars with American Indians and their relationship to agricultural development and industrialization.

Discuss the violation of, or failure to ratify treaties. Refer to racism and greed as political principles underlying Federal Indian Policy , inherent in Manifest Destiny and western expansion policies, resulting in genocide, natural resource/mineral/land acquisition, and poisoning/destroying the Earth, that students have examined. Help students research what agricultural development and/or industry disrupted TEK practices in the tribe'(s)'ancestral lands where the school is located. Contact the Indian Education program in your school district for a list of available Native guest speakers. It is respectful protocol to give them a stipend.

LANGUAGE ARTS

CCSS.ELA-LITERACY.RI.6.4 Determine the meaning of words and phrases as they are used in text including figurative, connotative, and technical meanings.

CCSS.ELA-LITERACY.RI.7.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
CCSS.ELA-LITERACY.RI.8.4 Determine the meaning of words and phrases as they are use in a text including figurative, connotative, and technical meanings; analyzing the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

CCSS.ELA-LITERACY.RI.6.7 Integrate information presented in different media or formats(e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CCSS.ELA-LITERACY.7.7 Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject(e.g., how the delivery of a speech affects the impact of the words).

CCSS.ELA-LITERACY.8.7 Evaluate the advantages and disadvantages of using different mediums(e.g., print or digital text,video, multimedia) to present a particular topic or idea.

CCSS.ELA-LITERACY.W.6.1 Write arguments to support claims with clear reasons and relevant evidence.

- **Introduce claim(s) and organize the reasons and evidence clearly.**
- **Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.**
- **Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from the argument presented.**

CCSS.ELA-LITERACY.W.7.1 Write arguments to support claims with clear reasons and relevant evidence.

- **Introduce claim(s), acknowledge and address alternate or opposing claims, and organize the reasons and evidence logically. CA**
- **Support claim(s) or counter arguments with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. CA**
- **Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from and supports the argument presented.**

CCSS.ELA-LITERACY.W.8.1 Write arguments to support claims with clear reasons and relevant evidence.

- **Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.**
- **Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.**
- **Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from and supports the argument presented.**

CCSS.ELA-LITERACY.W.6.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- **Introduce a topic or thesis statement; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. CA**
- **Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.**
- **Use appropriate transitions to clarify the relationships among ideas and concepts.**
- **Use precise language and domain-specific vocabulary to inform about or explain the topic.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from the information or explanation presented.**

CCSS.ELA-LITERACY.W.7.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- **Introduce a topic or thesis statement clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. CA**
- **Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.**
- **Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.**
- **Use precise language and domain-specific vocabulary to inform about or explain the topic.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from and supports the information or explanation presented.**

CCSS.ELA-LITERACY.W.8.2 Write informative/explanatory texts, including career development documents (e.g., simple business letters and job applications), to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. CA

- **Introduce a topic or thesis statement clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. CA**
- **Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.**
- **Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.**
- **Use precise language and domain-specific vocabulary to inform about or explain the topic.**
- **Establish and maintain a formal style.**
- **Provide a concluding statement or section that follows from and supports the information or explanation presented.**

CCSS.ELA-LITERACY.W.6.3 Write narratives to develop real or imagined experiences or events using

effective technique, relevant descriptive details, and well-structured event sequences.

- **Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.**
- **Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.**
- **Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.**
- **Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.**
- **Provide a conclusion that follows from the narrated experiences or events.**

CCSS.ELA-LITERACY.W.7.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

- **Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.**
- **Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.**
- **Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.**
- **Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.**
- **Provide a conclusion that follows from and reflects on the narrated experiences or events.**

CCSS.ELA-LITERACY.W.8.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

- **Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.**
- **Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.**
- **Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.**
- **Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.**
- **Provide a conclusion that follows from and reflects on the narrated experiences or events.**

CCSS.ELA-LITERACY.W.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

CCSS.ELA-LITERACY.W.6.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 up to and

including grade 6.)

CCSS.ELA-LITERACY.W.7.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 7.)

CCSS.ELA-LITERACY.W.8.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 8.)

CCSS.ELA-LITERACY.W.6.6 Use technology, including the Internet, to produce and publish writing as well as to inter- act and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.

CCSS.ELA-LITERACY.W.7.6 Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

CCSS.ELA-LITERACY.W.8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.

CCSS.ELA-LITERACY.W.6.7 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

CCSS.ELA-LITERACY.W.7.7 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

CCSS.ELA-LITERACY.W.8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

CCSS.ELA-LITERACY.W.6.8 Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

CCSS.ELA-LITERACY.W.7.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

CCSS.ELA-LITERACY.W.8.8 Gather relevant information from multiple print and digital sources,

using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

CCSS.ELA-LITERACY.W.6.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

- **Apply *grade 6 Reading standards* to literature (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics").**
- **Apply *grade 6 Reading standards* to literary nonfiction (e.g., "Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").**

CCSS.ELA-LITERACY.W.7.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

- **Apply *grade 7 Reading standards* to literature (e.g., "Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history").**
- **Apply *grade 7 Reading standards* to literary nonfiction (e.g. "Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims").**

CCSS.ELA-LITERACY.W.8.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

- **Apply *grade 8 Reading standards* to literature (e.g., "Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new").**
- **Apply *grade 8 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced").**

CCSS.ELA-LITERACY.6-8.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

ART

6.VA:Cr1.1 Combine concepts collaboratively to generate innovative ideas for creating art.

7.VA:Cr1.1 Apply methods to overcome creative blocks.

8.VA:Cr1.1 Document early stages of the creative process visually and/or verbally in traditional or contemporary media.

6.VA:Cr2.1 Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design.

7.VA:Cr2.1 Demonstrate persistence in developing skills with various materials, methods, and approaches in creating works of art or design.

8.VA:Cr2.1 Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of artmaking or designing.

6.VA:Cr3 Reflect on whether personal artwork conveys the intended meaning and revise accordingly.

7.VA:Cr3 Reflect on and explain important information about personal artwork in an artist statement or in another format.

8.VA:Cr3 Apple relevant criteria to examine, reflect on, and plan revisions for a work of art or design in progress.

6.VA:Re7.1 Identify and interpret works of art or design that reveal how people live around the world and what they value.

7.VA:Re7.1 Explain how the method of display, the location and the experience of an artwork influence how it is perceived and valued.

8.VA:Re7.1 Explain how a person's aesthetic choices are influenced by culture, environment, and personal experiences that impacts the message it conveys to others.

6.VA:Cn10 Generate a collection of ideas reflecting current interests and concerns that could be investigated in artmaking.

7.VA:Cn10 Individually or collaboratively create visual documentation of places and times in which people gather to make and experience art or design in the community.

8.VA:Cn10 Make art collaboratively to reflect on and reinforce positive aspects of group identity.

6.VA:Cn11 Analyze how art reflects changing time, traditions, resources, and cultural uses.

7.VA:Cn11 Analyze how response to art is influenced by understanding the time and place in which it was created, the available resources and cultural uses.

8.VA:Cn11 Distinguish different ways of art is used to represent, establish, reinforce, and reflect group identity.

SCIENCE

MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. [Clarification Statement: Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials.][Assessment Boundary: Assessment does not include the identification and naming of minerals.]

MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. [Clarification Statement: Emphasis is on how processes change Earth's surface at time and spatial scales that can be large(such as slow plate motions or the uplift of large mountain ranges) or small(such as rapid landslides or microscopic

geochemical reactions), and how many geoscience processes(such as earthquakes, volcanoes, and meteor impacts) usually behave gradually but are punctuated by catastrophic events. Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.]

MS-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. [Clarification Statement: Examples of data include similarities of rock and fossil types on different continents(including continental shelves), and the locations of ocean structures(such as ridges, fracture zones, and trenches).][Assessment Boundary: Paleomagnetic Anomalies in oceanic and continental crust are not assessed.]

MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and force of gravity. [Clarification Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydraulic cycle. Examples of models can be conceptual of phyricals.][Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed.]

MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.[Clarification Statement: Emphasis is on how air masses flow from regions of high pressure to low pressure, causing weather(defined by temperature, pressure, humidity, precipitation, and wind) at a fixed locations to change over time, and how sudden changes in weather can result when different air masses collide. Emphasis is on how weather can be predicted within probabilistic ranges. Examples of data can be provided to students(such as weather maps, diagrams, and visualizations) or obtained through laboratory experiments(such as with condensation).][Assessment Boundary: Assessment does not include recalling the names of cloud types or weather symbols used on weather maps or the reported diagrams from weather stations.]

MS-ESS2-6 Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.[Clarification Statement: Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution. Emphasis of atmospheric circulation is on the sunlight-driven latitudinal banding, the Coriolis effect, and resulting prevailing winder; emphasis of ocean circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and outlines of continents. Examples of models can be diagrams, maps and globes, or digital representations.][Assessment Boundary: Assessment does not include the dynamics of the Coriolis effect.]

MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*[Clarification Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible,

and designing and evaluating solutions that could reduce that impact. Examples of human impacts can include water usage(such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage(such as urban development, agriculture, or the removal of wetlands), and pollution(such as of the air, water, or land).]

MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.[Clarification Statement: Examples of evidence include grade-appropriate databases on human populations and the rates of consumption of food and natural resources(such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.]

MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.[Clarification Statement: Examples of factors include human activities(such as fossil fuel combustion, cement production and agricultural activity) and natural processes(such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperature, atmospheric levels of gasses such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major roles that human activities play in causing global temperatures.]

MS-LS1-4 Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-LS1-7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or releasing energy as this matter moves through an organism.

MS-LS2-1 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.[Clarification Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.]

MS-LS2-3 Develop a model to describe the cycling of matter and flow of of energy among living and nonliving parts of an ecosystem.[Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of the system.][Assessment Boundary: Assessment does not include the use of chemical reactions to describe the process.]

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.[Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.]

MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*[Clarification Statement: Examples of ecosystem services could include water purification, nutrients recycling, and preventions of soil erosions. Examples of design solution constraints could include scientific, economix, and social consideration.]

MS-LS3-1 Develop and use a model to describe why structural changes to genes(mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.[Clarification Statement: Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins.][Assessment Boundary: ASSessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations.]

MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.[Clarification Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation.]

MS-LS4-1 Analyze and interpret data for patterns in fossil records that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumptions that natural laws operate today as in the past.[Clarification Statement: Emphasis is on finding patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearance in the rock layers.][Assessment Boundary: Assessment does not include the names of individual species or geological eras in the fossil record.]

MS-LS4-2 Apply scientific ideas to construct an explanation for anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.[Clarification Statement: Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity or differences of the gross appearance of

anatomical structures.]

MS-LS4-3 Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in fully formed anatomy.[Clarification Statement: Emphasis is on inferring general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.][Assessment Boundary: Assessment of comparisons is limited to gross appearance of anatomical structures in embryological development.]

MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.[Clarification Statement: Emphasis is on using simple probability statements and proportional reasoning to construct explanations.]

MS-LS4-5 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.[Clarification Statement: Emphasis is on synthesizing information from reliable sources about the influence of humans on genetic outcomes in artificial selection(such as genetic modification, animal husbandry, gene therapy); and, on the impacts these technologies have on society as well as the technologies leading to these scientific discoveries.]

MS-LS4-6 Use mathematical representations of how natural selection may lead to increases and decreases of specific traits in populations over time.[Clarification Statement: Emphasis is on using mathematical models, probability statements, and proportional reasoning to support explanation of trends in changes to populations over time.][Assessment Boundary: Assessment does not include Hardy Weinberg calculations.]

GLOSSARY

Keywords & Core Concepts

Traditional Ecological Knowledge

The knowledge which is passed down between generation to generation within Indigenous communities, families and Tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the Environment. Indigenous Peoples' relationship with the Environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

*There is not one true definition of Traditional Ecological Knowledge. The meanings will vary between Tribal communities.

Indigenous Person

Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) Tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

Tribal Sovereignty

Indigenous Nations which have the right to form their own government, determine membership, make and enforce laws, regulate trade within borders, determine stewardship practices and form alliances with other Nations. Tribal sovereignty includes legal, cultural, political, and ceremonial traditions that are a complex mix of both European and Indigenous approaches to governance.

Land Stewardship

A responsibility to take care of the Environment and/or natural resources, such as Rivers, Forests, Oceans, Estuaries, Prairies, and plant and animal species.

Settler Colonialism

Settler colonialism is a system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

KEYWORDS

Alevin
A newly hatched salmon. It can be identified by its small yolk sac which contains sufficient nutrition for their early development.

Anthropogenic
People's effect on the environment.

Advocacy
Public support for an idea, cause, development, or way of doing something.

Anatomy
A field in the biological sciences concerned with the identification and description of the body structures of living things.

Ancestral Territory
Also known as ancestral domain or ancestral Lands, refers to the Lands and natural resources of Indigenous Peoples.

Backing Fire
A Fire that is deliberately initiated in front of an active Fire front, usually a Forest Fire, Grass Fire, or some other type of wildfire. The backfire consumes some of the combustible material and creates a Fire belt that the wildfire has difficulty crossing.

Bioavailable
The rate in which a drug, trace element, etc. is absorbed and used by the body and is circulated to specific organs or tissues.

Biodiversity Hotspot
A biogeographic region with significant levels of Plant life which are found nowhere else on the Planet, that is also threatened by human development.

Broadcast Burn
A controlled Fire over wide areas with little or no Forest canopy present. Broadcast burning is used in Grasslands, Shrublands, and Oak Woodlands for habitat restoration and fuels reduction purposes.

Canopy
The upper layer or habitat zone, formed by tree crowns

CIBA (California Indian Basketweavers' Association)
CIBA's vision is to preserve, promote and perpetuate California Indian basket weaving traditions while providing a healthy physical, social, Spiritual and economic environment for basketweavers.

Climate Adaptation
The process of adjusting to current or expected effects of climate change.

Climate Change
Natural or human-influenced long-term shifts in ecosystems, temperatures, and weather patterns. Human activities have been the main driver of climate change, primarily due to the burning of fossil fuels (like coal, oil, and gas).

Consumer–Resource Interactions
An umbrella term for a variety of biological species interactions including: prey-predator, host-parasite, and plant-herbivore.

Crown Fire
A forest fire that spreads from treetop to treetop.

Cultural Burning
A purposeful use of fire by a cultural group...for a variety of purposes and outcomes, ranging from maintaining travel corridors, wildlife habitat, attracting wildlife to a place, water stewardship, pest control, stewardship of cultural plants, conservation/protection, and for spiritual reasons.

Cultural Keystone Species
Species of exceptional significance to a culture or a people. A keystone species can be an organism including animals, plants, bacteria, and fungi, and is the glue that holds a habitat together. They can be identified by their prevalence in language, cultural practices, ceremonies, traditions, diets, medicines, material items, and histories of a community.

Dam Removal
The process of removing a dam and returning water flow to a river.

DDT
Dichlorodiphenyltrichloroethane is an organochlorine, and is colorless, tasteless, and almost odorless crystalline chemical compound. Originally developed as an insecticide, it became infamous for its harmful environmental impacts.

Dependent Variable
A variable whose value depends on that of another.

Dimensions
An item's size; its height, length, or width.

Diversions
Natural water flow is changed to an unnatural water flow and directed to specific locations.

Ecology
The aspect of biology that deals with the relations of organisms to one another and to their physical surroundings.

Eco-colonialism
Ongoing degradation or taking advantage of the environment for money. For example, logging trees for profit or building water pipelines for profit.

Eco-genocide
Also known as ecological genocide; human impact on the environment causing mass destruction to the environment.

Ecosystem
A biological community that consists of organisms and the physical environment they interact with.

Endemic
Native and specific to a certain place, and found nowhere else on Earth.

Environmental Racism
Racial discrimination in environmental policy-making and enforcement of regulations and laws, the deliberate targeting of communities of color for natural resources (water, food, shelter).

Environmental Restoration
Recovering and renewing damaged or destroyed natural resources like Forests, Rivers, or Prairies.

Estuaries and Deltas
An area where *seawater* mixes with *freshwater*, whereas a delta is a *wetland* area that forms as river waters empty into a larger body of water. Deltas and estuaries filter sediments, pollutants and are culturally significant to Indigenous people across the world.

Exclusive Economic Zone (EEZ)
An area which either extends from the coast, or in federal systems from seaward boundaries of the constituent states

Extent
The amount of space or surface that something occupies or the distance which it extends.

Family Burns
Oftentimes families would/will burn the area around their village/homes to replenish the natural and cultural resources in their area.

Fire-Dependent Ecosystems
Ecosystems where fire is essential and the species have evolved adaptations to respond positively to fire and to facilitate fire's spread, i.e. the vegetation is fire-prone and flammable. They are often called fire-adapted ecosystems.

Fire-Dependent Species
Plants, trees, berries, etc that need fire to survive, reproduce and maintain health.

Fire Intensity
The amount of energy or heat given off by a forest fire at a specific point in time

Fire Fuel
Woody debris**,** dead grass, dead trees, and thick undergrowth; anything that can burn.

Food Source
A living plant, animal, bird or fish from which food is intended to be derived, whether by gathering, harvesting, hunting, fishing, or otherwise.

Forest Canopy
The upper layer or habitat zone in a forest, formed by tree crowns.

Food Web or Consumer Resource Interaction
The natural interconnection of food chains and a graphical representation of what-eats-what in an ecological community.

Fuel Continuity
Fuel continuity is the degree or extent of continuous or uninterrupted distribution of fuel particles in a fuel bed thus affecting a fire's ability to sustain combustion and spread.

Food Sovereignty
The right/responsibility of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems

Genocide
Acts committed with intent to destroy a national, ethnical, racial or religious group, as such:

1. Killing members of the group;
2. Imposing measures intended to prevent births within the group;
3. Forcibly transferring children of the group to another group.

Gullies
Long narrow valleys with steep sides

Harmful Algal Blooms (HABs)
Occurs when algae plants grow out of control and produce toxic or harmful effects on people, the environment, and animals.

Head Fire
The head is the fastest spreading part of a fire's perimeter. The head is usually the side toward which the wind is blowing, and will also often be the upslope side of a fire. The head of the fire is of primary interest.

Heirloom
Something valuable that has been handed down to a family for several generations.

Heritage Preservation
Historic preservation, heritage preservation or heritage conservation, is an endeavor that seeks to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historical significance.

Hydraulic Mining
The form of mining that uses high-pressure jets of water to dislodge rock material or move sediment. After effects include stripping of forest landscapes, changed courses of rivers, and released large amounts of mercury onto the landscape.

Ich Disease
A parasitic disease that affects a variety of freshwater fish species. A Mass salmon die off can be directly correlated to dams due to lack of flow and quality of water.

Ignition Pattern
Manner in which a prescribed fire is ignited. The distance between ignition lines or points and the sequence of igniting them is determined by weather, fuel, topography, firing technique, and other factors which influence fire behavior and fire effects.

Independent Variable
A variable (often denoted by x) whose variation does not depend on that of another.

Indigenous People
Someone whose ancestry is Native to a specific place. If someone self-identifies as Indigenous they understand themselves as belonging to a specific (or multiple) tribal communities. When possible, it is important to refer to a specific Tribe as opposed to saying "Indigenous Person."

Interconnectedness
The state of being connected with each other

Intergenerational
Relating to, involving, or affecting several generations.

Invertebrates
Animals without a backbone or bony skeleton

Isolated
Alone, far away from everyone and everything.

Juvenile
An aquatic species that has not reached sexual maturity

Ladder Fuels
Fuels like vines, and snags that connect from on-ground shrubbery to the crown of trees.

Land Grants
Indigenous territory acquired through lopsided treaties and outright seizures was funneled through the Morrill Act of 1862 for agriculture and universities.

Land Management v. Relationship
Non-Indigenous worldview vs. Indigenous worldview of how to tend to or care for land.

Manifest Destiny
In the first years of the US, there was an idea that colonizing the entire continent was necessary to succeed in creating a nation. To excuse the genocide of Indigenous peoples that came with this goal, they needed a justification: A claim that the land was rightfully theirs. This is where Manifest Destiny comes into play. Colonizers claimed that it was their destiny, assigned by God, to take control of the land in his name and to bring Christianity to all Indian Nations.

Marine Life Protection Act (MLPA)
The Marine Life Protection Act (MLPA) was passed in 1999 by the California Legislature, directing the CDFW to redesign California's existing system of marine protected areas (MPAs) to increase its coherence and effectiveness for protecting the state's marine life, habitats, and ecosystems.

Marine Protected Area (MPA)
The International Union for the Conservation of Nature (IUCN) defines a protected area as “a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.”

Migrating Species
A seasonal event where animals move from one preferred location to the next due to warming temperatures and changing ecological conditions of their habitat.

Monotonous
Lacking in variety and interest.

Morrill Act of 1862

Granted the U.S. to create land-grant colleges using the proceeds from sales of federally-owned land, often stolen from Indiegnous people.

Native Pest Management

Using fire to control pest infestations. (e.g. burning under a tan oak tree to control beetles).

Natural Habitat

An environmental area where an animal or plant normally lives.

Obligate Scavenger

A scavenger that relies entirely or near entirely on the decaying flesh of dead animals as a food resource.

Occur

Happen, or take place

Outlying

Places that are far away or remote from a center or middle of a place.

Prescribed Fire (Rx Burns)

Dependent on Western modes of scientific understanding. It is guided by certain principles like fuel conditions, humidity levels, and temperature: Prescribed fire is implemented based on a 'prescription' derived from models to determine conditions for burning

References

To mention or allude to something

Regalia

In Indigenous cultures refers to the traditional and often sacred clothing, accessories and artifacts worn or carried during various ceremonies

Relatively

Comparing two or more things.

Reservation

An area of land held in trust by the U.S federal government, and governed by a federally recognized Tribal Nation.

Restoration
The act of returning a place to an original condition.

Runoff
Water from the surface area of land that is not absorbed and the excess water flows across the surface of land and into nearby bodies of water like creeks, rivers, lakes, etc.

Self Determination
The process of a Tribal Nation determining its own sovereignty and forms its own allegiances and government. (i.e practicing culture, knowledge and traditions on ancestral lands).

Settler Colonialism
A system that upholds the elimination of Indigenous Peoples and their cultures with the intention to replace them with a non-Indigenous society.

Slope
A surface of which one end or side is at a higher level than another; a rising or falling surface; the gradient of a graph at any point.

Smelt
A small silvery fish which lives in both marine and freshwater.

Snares
A trap for catching birds or animals.

Stand Density
Stand volume is the total volume of individual tree stems within a forest ecosystem and stand density is the number of trees per unit area (e.g., hectare).

Standardized
To make something fit into a certain guideline or requirement.

Stranding
To force onto the shore

TEK & Native STEAM
Indigenous Peoples from around the world are the first scientists and mathematicians. Prior to colonization, Tribal communities developed advanced technologies and shared ideas and knowledge in arts and sciences. These knowledges still exist today. Currently, Western science/scientists are

recognizing the racist history of Western science and are learning from Native practitioners.

Testimonial Justice

Restorative justice is an approach to justice where one of the responses to a crime is to organize a meeting between the victim and the offender, sometimes with representatives of the wider community. The power of this healing process is in the testimony, the ability for a person to share their experience and be listened to with respect and caring.

Time Immemorial

A term for time beyond memory.

Traditional Ecological Knowledge

The knowledge which is passed down between generation to generation within Indigenous communities, families and tribes. It is the way Indigenous Peoples interact with their lands, using their knowledge on their own terms. It is the way Indigenous Peoples interact with their cultures, do ceremonies, and protect the environment. Indigenous Peoples' relationship with the environment is inherently collaborative - across different Tribal spaces, Tribes, and non-Native people. It does not follow a one-size-fits-all model, and varies from place to place.

Tribal Historic Preservation Officer (THPO)

Tribal Historic Preservation Officers (THPOs) are officially designated by a federally-recognized Indian tribe to direct a program approved by the National Park Service and the THPO must have assumed some or all of the functions of State Historic Preservation Officers on Tribal lands.

Understory

Underlying layer of vegetation

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