CALIFORNIA Native American Studies MODEL CURRICULUM





Connected California: Cahuilla Unit Grade Level: 3rd – 5th Grades Subject Areas: Social Studies, Science, English Language Arts Materials Needed:

- Computer with internet access and projector
- Whiteboard and markers
- Chart paper and markers
- Printed copies of redwood tree diagrams
- Notebooks or journals
- Art supplies (colored pencils, crayons, construction paper)

Curriculum Themes: (Check that apply)

🗹 History

Cultural Strengths

Law/Government

Relationship to Place

Cross Curricular Integration

Unit Authors and Researchers

This unit was researched, authored, and edited by the California Indian Museum and Cultural Center, California Indian Education for All, and the San Diego County Office of Education. Additionally the videos from this unit come from the California Academy of Sciences. The California Academy of Sciences is a renowned scientific and educational institution dedicated to regenerating the natural world through science, learning, and collaboration. Based in San Francisco's Golden Gate Park, it's the only place in the world to house an aquarium, planetarium, rainforest, and natural history museum—plus cutting-edge research programs—all under one living roof. The unit resources were designed and created from funding through the California Department of Education's Native American Studies Model Curriculum grant and contract.

Instructional Video Credits

Lesson 1: This Land is Part of Us | California Academy of Sciences Video

https://www.youtube.com/watch?v=39iSA1wIdEI&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=1&pp=iAQB

Lesson 2: Coastal Human-Environmental Connections | California Academy of Sciences Video

Video: <u>https://www.youtube.com/watch?v=P2BbvrXuNI0&list=PLS14biAqBAtE-RYxvhTbDnsqkq2LuOR0j&index=35</u> Shannon Tushingham Videographer/Editor: Nick Perez Producer: Molly Michelson Additional Footage: KCET Images courtesy of Shannon Tushingham Stock footage and music: Pond5.com

Lesson 3: Defending Dark Skies | California Academy of Sciences Video

https://www.youtube.com/watch?v=Wlh5dzNMYdM&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=6&t=3s&pp=iAQB Kelly Herbinson, Mary Rhyne-Cook, Elizabeth Paige Videography: Luna Raya LLC dba West Cliff Creative Videographer/Editor: Erik Krumrey Producer: Molly Michelson Stock Footage and Music: Pond5.com

Lesson 4: Restoring the Desert Ecosystem | California Academy of Sciences Video

https://www.youtube.com/watch?v=kkFKEsA24iQ&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=11&pp=iAQB Kelly Herbinson, Executive Director Producer: Molly Michelson Videographer: Erik Krumrey Videography: Luna Raya LLC dba West Cliff Creative



Lesson 5: Ancestral Connections to the Desert | California Academy of Sciences Video

https://www.youtube.com/watch?v=8SCWSJZa674&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=12&t=10s&pp=iAQB Elizabeth Paige, Education Stewardship Manager, NALC Producer: Molly Michelson Videography: Erik Krumrey, Luna Raya LLC dba West Cliff Creative Stock Footage and Music: Pond5.com

Lesson 6: Desert Superblooms | California Academy of Sciences Video

https://www.youtube.com/watch?v=n2xtr_5jc1E&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=21&pp=iAQB Sarah Jacobs Producer: Molly Michelson Videographer: Nick Perez Stock Footage and Music: Pond5.com

California Native American Studies Model Curriculum

The California Native American Studies Model Curriculum (NASMC) will support the design and development of open-source lesson plans, primary source documents, planning resources, teaching strategies, and professional development activities to assist California K-12 educators in teaching about California Native American Studies. Per AB 167, the NASMC is defined as lesson plans, primary source documents, planning resources, teaching strategies, and professional development activities to assist educators in teaching about Native American Studies.

Unit Objectives:

- Students will explain how human activities impact coastal environments.
- Students will identify ways communities can sustainably interact with coastal ecosystems.
- Students will analyze the impact of restoration efforts on preserving history and supporting ecosystems.
- Students will understand the characteristics and importance of desert ecosystems.
- Students will understand the cultural and ecological importance of the Mojave Desert to Indigenous communities.
- Students will recognize the role of the Native American Land Conservancy in reclaiming and preserving ancestral lands.
- Students will discuss the intersection of cultural heritage and environmental conservation.
- Students will understand the conditions that lead to desert superblooms.
- Students will recognize the ecological importance of superblooms in desert ecosystems.
- Students will explore the concepts of respect, reciprocity, and reverence within Indigenous knowledge systems.
- Students will reflect on the importance of maintaining balanced relationships with the land and nature.
- Students will apply these concepts by discussing ways they can show respect, reciprocity, and reverence for their local environment.
- Students will learn from California Native American perspectives

Background for Educators

Essential Understandings of California Indian History and Culture

- Essential Understanding 1: Great Diversity Among Tribes (EU1 Video) https://bit.ly/NASMC EU1
- Essential Understanding 2: Diversity Among Identity (EU2 Video) https://bit.ly/NASMC_EU2
- Essential Understanding 3: Native Traditional Beliefs (EU3 Video) https://bit.ly/NASMC EU3
- Essential Understanding 4: Policies that Affected Tribes (EU4 Video) https://bit.ly/NASMC_EU4
- Essential Understanding 5: Reservations (EU5 Video) https://bit.ly/NASMC_EU5
- Essential Understanding 6: History from a California Indian Perspective <u>(EU6 Video)</u> <u>https://bit.ly/NASMC_EU6</u>
- Essential Understanding 7: Tribes Have Sovereign Powers (EU7 Video) https://bit.ly/NASMC_EU7



Overview

The Connected California: Cahuilla Unit is a rich, interdisciplinary educational experience that invites students in grades 3–5 to explore the interconnected relationships between Indigenous cultures, land, and ecosystems, with a focus on the Mojave Desert and coastal California environments. Developed by the California Indian Museum and Cultural Center, California Indian Education for All, and the San Diego County Office of Education, this unit is grounded in Indigenous knowledge systems and aligned with the California Native American Studies Model Curriculum. Through six engaging lessons, students examine the environmental, cultural, and scientific significance of land stewardship and sustainability from Native perspectives.

Each lesson is built around a compelling video story produced by the California Academy of Sciences, highlighting themes such as land loss and resilience, coastal human-environmental connections, dark sky conservation, desert ecosystem restoration, ancestral land preservation, and the science of desert superblooms. The unit emphasizes Indigenous values of respect, reciprocity, and reverence, and supports students in developing environmental literacy and cultural understanding. Using the 5E instructional model—Engage, Explore, Explain, Elaborate, Evaluate—students participate in discussions, collaborative projects, scientific inquiry, and creative reflection. By integrating science, social studies, English language arts, and civic learning, the Cahuilla Unit empowers students to think critically about ecological stewardship and their own role in sustaining the planet's future. Each lesson is anchored by Native voices and encourages students to think critically, reflect deeply, and act responsibly as stewards of the natural world.

Core Themes:

- History and sovereignty
- Cultural strengths and Indigenous knowledge systems
- Environmental relationships and stewardship
- Science, civics, and ELA integration

Students will:

- Analyze environmental impact on Indigenous communities and ecosystems.
- Identify ways communities can sustainably interact with coastal ecosystems.
- Analyze the impact of restoration efforts on preserving history and supporting ecosystems.
- Understand the characteristics and importance of desert ecosystems.
- Explore Indigenous cultural perspectives and the environment.
- Evaluate solutions for balancing conservation and human needs.
- Express learning through art, reflection, and collaborative discussion.

Lesson Highlights:

Lesson 1: This Land is Part of Us

- Students explore the deep cultural and spiritual connections Native American communities have with their ancestral lands.
- Through video storytelling and class discussion, students analyze the impact of land loss and reflect on Native resilience and cultural preservation.
- Activities include journaling, group reflection, and creative writing from Indigenous perspectives.

Lesson 2: Coastal Human-Environmental Connections

- Students examine how human activities impact coastal ecosystems and learn ways to support sustainable interaction with these environments.
- After viewing a science video, students engage in group discussions and design fictional coastal communities that balance human and environmental needs.
- Emphasizes Indigenous environmental stewardship and systems thinking.

Lesson 3: Defending Dark Skies

- Students learn about light pollution and its effects on wildlife, ecosystems, and cultural traditions.
- They investigate real-world solutions, including the WISDOM program, which protects night skies in the Mojave Desert.
- Activities include group research, concept mapping, and student-led conservation proposals.



Lesson 4: Restoring the Desert Ecosystem

- This lesson focuses on the Mojave Desert and the Mojave Desert Land Trust's restoration efforts.
- Students analyze threats to desert ecosystems and develop strategies for habitat restoration and species protection.
- A hands-on project asks students to research native desert species and propose conservation actions.

Lesson 5: Ancestral Connections to the Desert

- Students explore how Indigenous peoples, particularly through the Native American Land Conservancy (NALC), preserve ancestral lands and cultural practices.
- They reflect on the intersection of cultural heritage and environmental conservation.
- A reflective writing activity deepens understanding of how cultural identity and ecological stewardship are interwoven.

Lesson 6: Desert Superblooms

- Students study the science behind desert superblooms and their ecological roles.
- They explore how climate change could affect bloom frequency and biodiversity.
- The lesson includes a student research activity, concept mapping, and creative expression to demonstrate understanding and advocacy.

Pedagogical Approach:

Each lesson follows a 5E learning model—Engage, Explore, Explain, Elaborate, Evaluate—and includes:

- Video-based storytelling from Native voices
- Hands-on activities and group projects
- Scaffolded strategies for differentiation
- Formative and summative assessments
- Emphasis on respect, reciprocity, and reverence in learning



Connected California: Cahuilla Unit Lesson 1: This Land is Part of Us Grade Level: Grades 3-5 Subject: Social Studies / Native American History and Culture, English Language Arts, Science Duration: 60 minutes

Learning Objectives

- Students will be able to understand the historical and cultural connection between Native American tribes and their land.
- Students will analyze the impacts of land loss on Native American communities.
- Students will reflect on the resilience and ongoing efforts of Native Americans to preserve their cultural heritage.

Materials

- Internet access to play the video
- Chart paper or whiteboard
- Markers
- Student notebooks

Video Link: This Land is Part of Us

https://www.youtube.com/watch?v=39iSA1wldEI&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=1&pp=iAQB

Curriculum Themes: (Check that apply)

- History
- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

HSS 3.2: Students describe the American Indian nations in their local region long ago and in the recent past.

ELA Literacy W.3.7: Conduct short research projects that build knowledge about a topic.

NGSS 3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes.

Lesson Plan

Engage

- 1. Begin by asking the class:
 - "What do you think land means to a person or a community?"
 - "How might losing land affect someone emotionally, culturally, or economically?"
- 2. Write students' responses on the board to create a "word cloud" or visual map of ideas. Encourage multiple answers and ask clarifying questions to deepen their thinking.
- 3. Preview the topic:
 - Show the first 1-2 minutes of a video that highlights Native American connections to land. (Provide background on why the video is relevant.)



- Video Link: This Land is Part of Us
 - https://www.youtube.com/watch?v=39iSA1wldEl&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index =1&pp=iAQB
- Ask: "What do you think this video will teach us about Native American connections to land?" Write predictions on the board.

Explore

Watch the Video:

- 1. Play the full video, pausing at key moments to ask reflective questions:
 - "What is being said about the relationship between the land and the community?"
 - "How did historical events, such as forced removals, impact Native American land ownership?"
- 2. Encourage students to share immediate reactions during the pauses, connecting their thoughts to earlier responses in the "word cloud."

Note-Taking Activity:

- 1. Distribute a T-chart template for note-taking.
 - Left column: "What the land means to Native Americans."
 - Right column: "How they have been affected by losing it."
- 2. Instruct students to fill in the chart as they watch the video and listen to the discussion.

Explain

Group Discussion:

- 1. Divide students into small groups (3-4 students each).
- 2. Ask them to share their T-chart notes with one another and look for common themes.
- 3. Guide the discussion with these questions:
 - "Why is land central to Native American identity?"
 - "What emotional or cultural effects does losing land have on a community?"
 - "How have Native Americans shown resilience in preserving their culture despite land loss?"
- 4. Group Discussion and Reflection Activity:
 - Divide students into small groups. Ask them to share their notes and identify common themes from the video.
 - \circ $\$ Have the small group complete the Video Discussion and Reflection Group Activity.

Elaborate

Interactive Activity:

- 1. Have students work in pairs to create a short creative writing piece, such as:
 - A letter or journal entry written from the perspective of a Native American during a period of land loss.
- 2. Instruct students to incorporate themes from the video, such as:
 - The cultural and emotional significance of land.
 - Acts of resilience and cultural preservation.
- 3. Provide sentence starters if needed, such as:
 - "Today, I saw our land taken, and it made me feel..."
 - "The land means more than just a place to live because..."

Extension Discussion:

- 1. Lead a whole-class discussion, asking questions like:
 - \circ \quad "How can we honor Native American history and culture today?"
 - \circ "What lessons can we learn about resilience and advocacy from their experiences?"
 - "How do modern Native communities continue to preserve their connection to the land?"



Evaluate

Exit Ticket:

- 1. Ask students to respond to one of the following prompts in 2-3 sentences on an index card or sheet of paper:
 - \circ $\ \ \,$ "What is one thing you learned about Native American culture and land today?"
 - \circ "Why is it important to understand this part of history?"
 - "What can we do to support Native American communities today?"
- 2. Collect responses to assess understanding and guide future lessons.



Name:	at Worksheet: "This Land is Part of Us" 			
	Pre-Video Reflection			
1.	What does land mean to you?			
	Write a few sentences about what land represents to you personally (e.g., your home, community, nature).			
2.	How would losing your home or community space affect you?			
	Video Notes			
	watching the video, take notes on the following:			
1.	Why is the land important to Native American communities?			
	0			
	0			
	0			
2.	What challenges have Native Americans faced in keeping their land?			
	0			
	0			
	0			
3.	How have Native Americans shown resilience and preserved their culture?			
	0			
	0			
	0			
Part 3:	Map Comparison Activity			
	Look at the historical and modern maps of Native American tribal lands provided in class. Answer the following questions:			
	a. What differences do you notice between the historical and modern maps?			
	b. How have the changes in land ownership affected Native American communities?			
	c. What do these maps tell you about the history of Native American resilience?			
	Creative Deflection			
Part 4:	Creative Reflection			



Choose one of the following options and complete it in the space below or on a separate sheet:

1. Write a Poem

- Write a short poem from the perspective of a Native American about the importance of the land.
- 2. Journal Entry
 - Imagine you are a Native American reflecting on your connection to the land. Write a journal entry about what the land means to you and how you feel about losing it.
- 3. Letter
 - Write a letter to future generations about why it is important to preserve the land and your cultural traditions.

Your Work:

Part 5: Exit Ticket

Answer one of the following in a few sentences:

- 1. What is one thing you learned about Native American relationships to the land?
- 2. Why is it important to understand the challenges Native Americans have faced?

3. What does resilience mean to you, and how have Native Americans shown it?

Optional Extension

- 1. Research a local Native American tribe and write three interesting facts about their culture and relationship to the land.
 - 0 0
 - 0



Group Discussion	fornia Academy of Sciences luction on and Reflection
Video Link Connected California California Academy of Sciences	Summary of Video "Connected California" by the California Academy of Sciences emphasizes the interconnectedness of humans an nature, highlighting how our actions impact the environment and, in turn, how environmental changes affec us. It underscores the importance of understanding these relationships to foster a sustainable future.
	and how do the land, animals, and people depend on each erything is linked together.)
2. How do the choices people make affect the plants, a (Consider what happens when people take care of or har	

Video Link:



Connected California: Cahuilla Unit Lesson 2: Connected California: Cahuilla Unit Grade Level: Grades 3-5 Subject: English Language Arts Duration: 60 minutes Topic: Exploring the relationships between humans and coastal environments, focusing on sustainability and conservation. Video Resource: Coastal Human-Environmental Connections by the California Academy of Sciences

Learning Objectives

- Explain how human activities impact coastal environments.
- Identify ways communities can sustainably interact with coastal ecosystems.
- Analyze strategies for conserving coastal resources and habitats.

Materials

- Access to the <u>Coastal Human-Environmental Connections video</u>
 Video: <u>https://www.youtube.com/watch?v=P2BbvrXuNI0&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=35</u>
- Whiteboard or chart paper for brainstorming
- Printed fact sheets or infographics on coastal ecosystems (optional)
- Student notebooks or worksheets
- Markers and sticky notes

Curriculum Themes: (Check that apply)

- History
- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

ELA Literacy RL.3.2: Recount stories, including fables and folktales from diverse cultures, and determine the central message or moral.

ELA Literacy W.3.3: Write narratives to develop real or imagined experiences or events.

Lesson Plan

Engage

- 1. Opening Question:
 - Write on the board: "What do you know about how humans use and affect coastal environments?"
 - Students will share prior knowledge in a think-pair-share format.
- 2. Introduce the Topic:
 - \circ Show a brief clip from the video (the first 1–2 minutes) to spark curiosity.
 - Video: <u>https://www.youtube.com/watch?v=P2BbvrXuNI0&list=PLS14biAgBAtE-RYxvhTbDnsqkq2Lu0R0j&index=35</u>
 - Pose the question: "Why do you think coasts are important to both humans and the environment?"



Explore

1. Watch the Video:

- Play the video in its entirety, instructing students to take notes on:
 - Examples of how humans use coastal resources.
 - Specific human impacts on coastal ecosystems.
 - Solutions or sustainable practices mentioned.

2. Group Discussion:

- After the video, students will form small groups to discuss their notes and identify the most significant points.
- Each group will share one key takeaway with the class.

3. Group Discussion and Reflection Activity:

- Divide students into small groups. Ask them to share their notes and identify common themes from the video.
- Have the small group complete the Video Discussion and Reflection Group Activity.

Explain (15 minutes)

- 1. Class Discussion and Clarification:
 - Create a T-chart on the board:
 - Left Side: Human Activities (e.g., fishing, tourism, urban development).
 - Right Side: Environmental Impacts (e.g., habitat destruction, pollution, biodiversity loss).
 - Fill out the chart collaboratively, based on student input.

2. Introduce Key Concepts:

- Briefly explain:
 - Ecosystem services provided by coasts (e.g., storm protection, food resources, recreation).
 - The role of conservation and sustainable practices in preserving these environments.

Elaborate

1. Design a Sustainable Coastal Community:

- Students will work in groups to design a fictional coastal community that balances human needs with environmental sustainability.
- They will create a simple diagram or list of features (e.g., renewable energy, waste management systems, protected areas).

2. Presentations:

• Each group presents their design, explaining how it addresses human-environmental connections.

Evaluate

- 1. Exit Ticket:
 - Students will answer one of the following prompts:
 - "What is one way humans can positively impact coastal environments?"
 - "Why is it important to conserve coastal ecosystems?"
 - "What is one thing you can do to support coastal sustainability?"

Homework/Extension

- **Research Project**: Students will research a specific coastal ecosystem (e.g., mangroves, coral reefs, salt marshes) and create a poster or infographic highlighting its importance and threats.
- Action Plan: Students will write a paragraph about how their community could improve its relationship with local water resources or coastal areas.



Differentiation

- For Advanced Learners: Encourage deeper analysis by having them research case studies of successful coastal conservation projects (e.g., marine protected areas).
- For Struggling Learners: Provide sentence starters and guided notes to help them follow along with the video and class discussions.



Name:			eet: Coastal Human-Environmental Connections
1. What do you already know about coastal environments?			
2. Why do you think coasts are important for both humans and wildlife? Part 2: Video Notes While watching the video, take notes on the following topics: 1. How Humans Use Coastal Resources	Part 1:	Pre-Video	Reflection
Part 2: Video Notes While watching the video, take notes on the following topics: 1. How Humans Use Coastal Resources	1.	What do	you already know about coastal environments?
Part 2: Video Notes While watching the video, take notes on the following topics: 1. How Humans Use Coastal Resources	2.	Why do	
1. How Humans Use Coastal Resources •			tes
Human Impacts on Coastal Environments O Human Impacts on Coastal Environments O			
Human Impacts on Coastal Environments O Bart 3: Group Discussion After the video, discuss these questions with your group and write down your answers: What was the most surprising thing you learned from the video? What is one example of a human activity that harms coastal ecosystems? What is one example of a human activity that harms coastal ecosystems?			
2. Human Impacts on Coastal Environments			
 Solutions and Sustainable Practices Mentioned So			
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 3. Solutions and Sustainable Practices Mentioned Part 3: Group Discussion After the video, discuss these questions with your group and write down your answers: 2. What is one example of a human activity that harms coastal ecosystems? 		0	
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Part 3: Group Discussion After the video, discuss these questions with your group and write down your answers: 1. What was the most surprising thing you learned from the video? 2. What is one example of a human activity that harms coastal ecosystems?		0	
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 What was the most surprising thing you learned from the video? What is one example of a human activity that harms coastal ecosystems? 	Part 3:	Group Dis	scussion
2. What is one example of a human activity that harms coastal ecosystems?			
	1.	What wa	as the most surprising thing you learned from the video?
3. What is one way humans can help protect coasts?	2.	What is o	one example of a human activity that harms coastal ecosystems?
	3.	What is o	one way humans can help protect coasts?



Part 4: Design a Sustainable Coastal Community

Work with your group to design a sustainable coastal community that balances human needs with environmental conservation. Use the space below to sketch your community or list its key features.

Features of Our Sustainable Coastal Community:

- _____
- _____
- _____

Part 5: Exit Ticket

Answer the following question to reflect on what you learned today:

- 1. What is one way humans can positively impact coastal environments?
- 2. Why is it important to conserve coastal ecosystems?

Optional Extension

If you had the power to protect one coastal ecosystem, which would you choose and why?

This worksheet is designed to guide students through the lesson, encouraging active engagement, critical thinking, and reflection on coastal human-environmental connections.



Coastal Human-Environmental Connections -CA Academy of Science Preservation Group Discussion and Reflection

Video Link Coastal Human-Environment Connections

Summary of Video

"Coastal Human-Environmental Connections" by the California Academy of Sciences explores the intricate relationships between coastal ecosystems and human communities. It highlights how Indigenous knowledge contributes to the understanding and preservation of marine and intertidal biodiversity.

Reflection Questions

1. How do people living near the coast use and depend on the ocean and coastal environments? (Think about how the ocean provides food, resources, or other benefits.)

2. What are some ways people might harm coastal environments, and how can they help protect them instead? (Consider things like pollution or overuse and actions people can take to care for these areas.)

3. Why is it important to keep a balance between human activities and protecting coastal ecosystems? (Think about how taking care of the coast helps both people and the environment.)

Video: https://www.youtube.com/watch?v=P2BbvrXuNI0&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=35



Connected California: Cahuilla Unit Lesson 3: Defending Dark Skies Grade Level: Grades 3-5 Subject: Science Duration: 60 minutes Video Resource: Defending Dark Skies by the California Academy of Sciences

Learning Objectives

- Understand the concept of light pollution and its impact on ecosystems.
- Identify strategies used to monitor and protect night skies.
- Analyze the role of the WISDOM program in preserving dark skies.

Materials

- "Defending Dark Skies" video <u>https://www.youtube.com/watch?v=Wlh5dzNMYdM&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=6&t</u> <u>=3s&pp=iAQB</u>
- Projector and screen
- Internet access
- Computers or tablets for student research
- Chart paper and markers
- Student notebooks
- Student notebooks or worksheets
- Markers and sticky notes

Curriculum Themes: (Check that apply)

History

- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

NGSS 3-LS4-3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

NGSS 3-LS2-1: Construct an argument that some animals form groups that help members survive.

Lesson Plan

Engage:

- Begin with a brief discussion on the importance of the night sky in various cultures and ecosystems.
- Show a series of images depicting starry skies versus light-polluted skies.
- Pose the question: "How does light pollution affect our environment and daily lives?"



Explore:

- Play the "Defending Dark Skies" video for the class.
- Video link:
 - https://www.youtube.com/watch?v=WIh5dzNMYdM&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&in dex=6&t=3s&pp=iAQB
- Divide students into small groups to discuss the key points from the video, focusing on:
 - The definition and causes of light pollution.
 - The ecological and astronomical impacts of light pollution.
 - Methods and technologies used to monitor and reduce light pollution.

Group Discussion and Reflection Activity:

- Divide students into small groups. Ask them to share their notes and identify common themes from the video.
- Have the small group complete the Video Discussion and Reflection Group Activity.

Explain:

- Each group creates a concept map on chart paper summarizing their discussion points.
- Groups present their concept maps to the class, facilitating a broader discussion.
- Introduce additional information on the WISDOM program and its role in protecting dark skies.

Elaborate:

- \circ $\;$ Assign a research project where students investigate local efforts to combat light pollution.
- Students can explore local ordinances, community programs, or technological solutions implemented in their area.
- Encourage students to propose new initiatives or improvements to existing measures.

Evaluate:

- Students submit a written report or create a presentation on their research findings.
- Assess understanding through a quiz covering key concepts discussed in the lesson.
- Facilitate a reflective discussion on how students can contribute to reducing light pollution in their communities.

Differentiation:

- Provide additional resources or scaffolding for students who need more support.
- Offer extension activities for advanced learners, such as designing a community awareness campaign about light pollution.

Assessment:

- Participation in group discussions and activities.
- Quality and completeness of the concept map and research project.
- Performance on the quiz assessing comprehension of light pollution and mitigation strategies.



Defending Dark Skies: Student Worksheet

Name: _____ Date: _____

Engage

- 1. Look at the images shown by your teacher (starry skies vs. light-polluted skies).
 - What do you notice about the differences between the two images?
 - Write one question you have about light pollution:
- 2. Why do you think the night sky is important for ecosystems and people?

Explore

While watching the "Defending Dark Skies" video, answer the following questions:

- 1. What is light pollution?
- 2. List two causes of light pollution mentioned in the video:
 - o _____
- 3. What are two impacts of light pollution on the environment or astronomy?
- 4. What strategies or technologies are being used to monitor and reduce light pollution?

Explain

Work with your group to discuss the video. Use this space to jot down your group's main ideas:

- Definition of light pollution:
- Impacts of light pollution:
- Solutions to light pollution:

Draw or describe one idea your group came up with for reducing light pollution:



Elaborate

For your research project:

1. Investigate one local or global effort to combat light pollution. Use the table below to organize your findings.

Торіс	Your Notes
Name of the program or law	
Purpose	
Actions taken	
Results or success stories	
2. What new initiative or imp	rovement would you propose to reduce light p

Evaluate

- 1. What is one thing you learned about light pollution that surprised you?
- 2. What can you personally do to help reduce light pollution in your community?
- 3. Answer the following true/false questions:
 - T/F: Light pollution only affects people, not wildlife.
 - T/F: Shielded outdoor lighting can reduce light pollution.
 - T/F: Light pollution helps astronomers observe the night sky.

Reflection:

Write a short paragraph explaining why protecting dark skies is important for you, your community, and the planet.





Video link:

https://www.youtube.com/watch?v=Wlh5dzNMYdM&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=6&t=3s&pp =iAQB



Connected California: Cahuilla Unit Lesson 4: Restoring the Desert Ecosystem Grade Level: Grades 3-5 Subject: Social Studies, Science Duration: 60 minutes Video Resource: Restoring the Desert Ecosystem by the California Academy of Sciences

Learning Objectives

- Understand the characteristics and importance of desert ecosystems.
- Identify the challenges facing the Mojave Desert and the role of the Mojave Desert Land Trust (MDLT) in conservation efforts.
- Analyze and propose strategies for restoring and preserving desert habitats.

Materials

- "Restoring the Desert Ecosystem" video <u>https://www.youtube.com/watch?v=kkFKEsA24iQ&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=11&pp=iAQB</u>
- Computers or tablets for student research
- Chart paper and markers
- Student notebooks
- Student notebooks or worksheets
- Markers and sticky notes

Curriculum Themes: (Check that apply)

History

- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

HSS 3.2.2: Discuss the ways in which physical geography influenced the lives of the local American Indian nations.

NGSS 3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes.

Lesson Plan

Engage:

- \circ $\;$ Begin with a discussion on the unique features of desert ecosystems.
- \circ $\;$ Show images of the Mojave Desert, highlighting its flora and fauna.
- Pose the question: "What factors threaten the health of desert ecosystems, and why is it important to protect them?"



Explore:

- Play the "Restoring the Desert with the MDLT" video for the class. <u>https://www.youtube.com/watch?v=kkFKEsA24iQ&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&inde</u> <u>x=11&pp=iAQB</u>
- Divide students into small groups to discuss key points from the video, focusing on:
 - The significance of the Mojave Desert.
 - Challenges and threats facing the desert ecosystem.
 - Conservation strategies employed by the MDLT.

Group Discussion and Reflection Activity:

- Divide students into small groups. Ask them to share their notes and identify common themes from the video.
- Have the small group complete the Video Discussion and Reflection Group Activity.

Explain:

- \circ ~ Each group creates a concept map on chart paper summarizing their discussion points.
- \circ $\;$ $\;$ Groups present their concept maps to the class, facilitating a broader discussion.
- Introduce additional information on desert restoration techniques and the importance of biodiversity.

Elaborate:

- Assign a research project where students investigate a specific plant or animal native to the Mojave Desert.
- Students will explore the species' role in the ecosystem, threats it faces, and conservation efforts in place to protect it.
- Encourage students to propose additional measures to aid in the species' preservation.

Evaluate:

- \circ $\;$ $\;$ Students submit a written report or create a presentation on their research findings.
- Assess understanding through a quiz covering key concepts discussed in the lesson.
- Facilitate a reflective discussion on how students can contribute to desert conservation efforts.

Differentiation:

- Provide additional resources or scaffolding for students who need more support.
- Offer extension activities for advanced learners, such as designing a community awareness campaign about desert conservation.

Assessment:

- Participation in group discussions and activities.
- Quality and completeness of the concept map and research project.
- Performance on the quiz assessing comprehension of desert ecosystems and conservation strategies.



Restoring the Desert Ecosystem: Student Worksheet

Name: _____ Date: _____

Engage

- 1. Look at the images and maps of the Mojave Desert shared by your teacher.
 - What are some unique features of the desert you observe?
- 2. Why do you think deserts are important ecosystems?
- 3. Write one question you have about desert conservation:

Explore

Watch the video, "Restoring the Desert with the MDLT," and answer the following questions:

- 1. What makes the Mojave Desert a special ecosystem?
- 2. List two major threats to the Mojave Desert mentioned in the video:
 - ° _
- 3. What is the role of the Mojave Desert Land Trust (MDLT) in preserving the desert?
- 4. Describe one restoration or conservation technique used by the MDLT:

Explain

Work with your group to discuss the video. Use this space to summarize your group's discussion:

- 1. Challenges Facing the Mojave Desert:
- 2. Conservation Strategies Used by MDLT:
- 3. Why is it important to protect desert ecosystems?

Draw or describe one example of a restoration technique that could help the desert:

Elaborate

Research a plant or animal native to the Mojave Desert. Use the table below to organize your findings:

Feature	

Your Notes

Name of the species

Role in the ecosystem



Threats it faces

Conservation efforts in place

Answer the following:

• What additional conservation strategies would you propose to protect this species?

Evaluate

- 1. What is one surprising fact you learned about desert ecosystems?
- 2. What is something you can do to help conserve deserts in your community?
- 3. Answer the following questions:
 - True or False: Deserts have low biodiversity.
 - True or False: Habitat restoration involves planting native species.
 - True or False: Human activity has no impact on desert ecosystems.

Reflection:

Write a short paragraph explaining how the Mojave Desert is an example of why conservation is important:



Restoring the Desert with MDLT CA Academy of Science - Cahuilla Group Discussion and Reflection

Video Link
<u>Restoring the Desert with the MDLT | California</u>
<u>Academy of Sciences</u>



Summary of Video

"Restoring the Desert with MDLT" by the California Academy of Sciences showcases the Mojave Desert Land Trust's (MDLT) efforts in conserving and restoring California's desert ecosystems. It highlights MDLT's initiatives in land acquisition, native plant propagation, and habitat restoration to protect ecologically significant areas.

Reflection Questions

1. Why is it important to restore deserts, and how do healthy deserts help plants, animals, and people? (Think about what the desert provides and why it needs to be cared for.)

- 2. What challenges do people face when trying to restore deserts, and how do they overcome them? (Consider things like the dry environment and how they bring plants and animals back.)
- 3. What are some actions you can take to help protect desert ecosystems, even if you don't live near one? (Think about ways to support conservation or learn more about deserts and their importance.)

Video link:

https://www.youtube.com/watch?v=kkFKEsA24iQ&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=11&pp=iAQB



Connected California: Cahuilla Unit Lesson 5: Ancestral Connections to the Desert Grade Level: Grades 3-5 Subject: Social Studies and Science, English Language Arts Duration: 60 minutes Video Resource: Ancestral Connections to the Desert by the California Academy of Sciences

Learning Objectives

- Understand the cultural and ecological importance of the Mojave Desert to Indigenous communities.
- Recognize the role of the Native American Land Conservancy in reclaiming and preserving ancestral lands.
- Discuss the intersection of cultural heritage and environmental conservation.

Materials:

- "Ancestral Connections to the Desert" video. <u>https://www.youtube.com/watch?v=8SCWSJZa674&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=12&t</u> <u>=10s&pp=iAQB</u>
- Computers or tablets for student research
- Chart paper and markers
- Student notebooks
- Student notebooks or worksheets
- Markers and sticky notes

Curriculum Themes: (Check that apply)

- History
- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

HSS 4.2.1: Explain how geography and climate influenced the way various California Indian groups adapted to their natural environment.

NGSS 4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

ELA Literacy SL.4.1: Engage effectively in a range of collaborative discussions with diverse partners.

Lesson Plan

Engage:

- \circ $\$ Begin with a discussion on the significance of land to cultural identity.
- Ask students: "What does land mean to you and your family?"
- Show images of the Mojave Desert and ask students to share any prior knowledge about its cultural or ecological importance.



Explore:

- Play the "Ancestral Connections to the Desert" video for the class. <u>https://www.youtube.com/watch?v=8SCWSJZa674&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&ind</u> <u>ex=12&t=10s&pp=iAQB</u>
- While watching, have students note down key points related to:
 - The cultural significance of the Mojave Desert to Indigenous communities.
 - The efforts of the Native American Land Conservancy in land reclamation.
 - Challenges faced in preserving ancestral lands.

Group Discussion and Reflection Activity:

Divide students into small groups. Ask them to share their notes and identify common themes from the video. Have the small group complete the Video Discussion and Reflection Group Activity.

Explain:

- Divide students into small groups to discuss their notes from the video.
- \circ ~ Each group creates a concept map on chart paper summarizing:
 - Cultural connections to the Mojave Desert.
 - Conservation efforts by the Native American Land Conservancy.
 - Intersections between cultural heritage and environmental conservation.
- Groups present their concept maps to the class, facilitating a broader discussion.

Elaborate:

- Assign a reflective writing activity where students consider the following prompt:
 - "How do cultural heritage and environmental conservation influence each other, and why is it important to integrate both in preserving natural landscapes?"
- Encourage students to incorporate examples from the video and class discussions.

Evaluate:

- \circ $\,$ Collect and assess the reflective writings for understanding and insight.
- Conduct a class discussion to allow students to share their reflections and deepen their understanding.
- Provide feedback on group presentations and concept maps, highlighting strengths and areas for improvement.

Differentiation:

- Provide guiding questions or sentence starters for students who may need assistance with the reflective writing.
- Offer opportunities for artistic expression (e.g., drawing, poetry) for students to convey their reflections.

Assessment:

- Participation in group discussions and activities.
- Quality and completeness of concept maps.
- Depth of insight in reflective writing pieces.



Ancestral Connections to the Desert: Student Worksheet

Name:	
Date: _	

Engage

- 1. Think about the land where you live or places you've visited. What does land mean to you and your family?
- 2. Why do you think certain landscapes, like deserts, might hold special cultural importance for some people?
- 3. Write one question you have about the Mojave Desert or its cultural significance:

Explore

Watch the video, "Ancestral Connections to the Desert," and answer the following questions:

- 1. What is the cultural significance of the Mojave Desert for Indigenous communities?
- 2. What is the Native American Land Conservancy (NALC), and what is its mission?
- 3. List two challenges mentioned in the video that Indigenous communities face in reclaiming and preserving ancestral lands:
 - o _____
- 4. Describe one specific effort or project by the NALC to restore and protect ancestral lands:

Explain

Work with your group to discuss the video and create a concept map summarizing the key points. Use the space below to jot down your ideas:

- 1. Cultural Connections to the Mojave Desert:
- 2. Conservation Efforts by the NALC:
- 3. Why is it important to preserve both cultural heritage and the environment?

Draw or describe one example of how cultural practices might support environmental conservation:

Elaborate

Answer the following reflection questions:

- 1. How do cultural heritage and environmental conservation influence each other?
- 2. Why do you think it's important to integrate cultural traditions into efforts to protect natural landscapes?



Evaluate

- 1. What is one surprising fact you learned about the Mojave Desert or the Native American Land Conservancy?
- 2. How do you think the work of the NALC could inspire other conservation efforts around the world?
- 3. Answer the following questions:
 - **True or False:** The Mojave Desert is only important for its ecological value.
 - **True or False:** Cultural heritage has no role in modern conservation efforts.
 - True or False: Protecting ancestral lands can also help protect biodiversity.

Reflection Activity:

Write a short paragraph explaining how you would connect your own cultural heritage (or values) to environmental conservation.



Ancestral Connections to the Desert California Academy of Sciences - Cahuilla Group Discussion and Reflection

Video Link Ancestral Connections to the Desert | California Academy of Sciences



Summary of Video

"Ancestral Connections to the Desert" by the California Academy of Sciences highlights the Native American Land Conservancy's efforts to reclaim and protect ancestral lands in the Mojave Desert. It emphasizes the cultural and ecological significance of these lands to Indigenous communities.

Reflection Questions

1. How did the people in the video describe their connection to the desert, and why is the desert important to their culture?

(Think about the traditions, stories, or ways of life they shared.)

2. What are some ways that people have used the desert's resources while still respecting and protecting the land?

(Consider how they lived in balance with the desert environment.)

3. Why is it important to learn about the ancestral connections to the desert, and how can this knowledge help us today?

(Think about how understanding the past can guide us in taking care of the desert now.)

Video link:

https://www.youtube.com/watch?v=8SCWSJZa674&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=12&t=10s&p p=iAQB



Connected California: Cahuilla Unit Lesson 6: Desert Superblooms Grade Level: Grades 3-5 Subject: Social Studies and Science, English Language Arts Duration: 60 minutes Video Resource: Desert Superblooms video by the California Academy of Sciences https://www.youtube.com/watch?v=n2xtr_5jc1E&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=21&pp=iAQB

Learning Objectives

- Understand the conditions that lead to desert superblooms.
- Recognize the ecological importance of superblooms in desert ecosystems.
- Discuss the potential impacts of climate change on the frequency and intensity of superblooms.

Materials:

- "Desert Superblooms" video. <u>https://www.youtube.com/watch?v=n2xtr_5jc1E&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=21&pp=iAQB</u>
- Computers or tablets for student research
- Chart paper and markers
- Student notebooks
- Student notebooks or worksheets
- Markers and sticky notes

Curriculum Themes: (Check that apply)

History

- Cultural Strengths
- Law/Government
- Relationship to Place
- Cross Curricular Integration

Instructional Standards:

HSS 4.2.1: Explain how geography and climate influenced the way various California Indian groups adapted to their natural environment.

NGSS 4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

ELA Literacy SL.4.1: Engage effectively in a range of collaborative discussions with diverse partners.

Lesson Plan

Engage:

- \circ $\$ Begin with a discussion on plant growth in extreme environments.
- Ask students: "What challenges do plants face in desert environments?"
- Show images of desert landscapes with and without blooms to highlight the contrast.



Explore:

- Play the "Desert Superblooms" video for the class. <u>https://www.youtube.com/watch?v=n2xtr_5jc1E&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=</u> <u>21&pp=iAQB</u>
- While watching, have students note down key points related to:
 - The environmental conditions necessary for a superbloom.
 - The types of plants involved in superblooms.
 - The ecological roles of superblooms in desert ecosystems.

Explain:

- Divide students into small groups to discuss their notes from the video.
- Each group creates a concept map on chart paper summarizing:
 - Factors contributing to superblooms.
 - Ecological benefits of superblooms.
 - Potential threats to the occurrence of superblooms.
- Groups present their concept maps to the class, facilitating a broader discussion.

Elaborate:

- Assign a research activity where students investigate how climate change might affect the frequency and intensity of desert superblooms.
- Students can present their findings through a short report or presentation, incorporating data and predictions from reputable sources.

Evaluate:

- Assess student understanding through a combination of group presentations, individual reports, and participation in discussions.
- Provide feedback on the accuracy and depth of information presented, as well as the connections made between environmental factors and ecological outcomes.

Differentiation:

- Provide guiding questions or sentence starters for students who may need assistance with the research activity.
- Offer opportunities for creative expression (e.g., drawing, poetry) for students to convey their understanding of superblooms.

Assessment:

- Participation in group discussions and activities.
- Quality and completeness of concept maps.
- Depth of insight in research reports or presentations.



Desert Superblooms: Student Worksheet

Name: _____ Date: _____

Engage

- 1. What challenges do you think plants face in deserts?
- 2. Look at the images of desert landscapes (with and without blooms) shared by your teacher.
 - What differences do you notice between the two images?
- 3. Why do you think a "superbloom" might be important for a desert ecosystem?

Explore

Watch the video, "Desert Superblooms," and answer the following questions:

- 1. What environmental conditions are necessary for a superbloom to occur?
- 2. Name two types of plants commonly involved in desert superblooms:
 - 0 _____
- 3. Describe two ecological benefits of superblooms in desert ecosystems:
- 4. What are some potential threats to the occurrence of superblooms?

Explain

Work with your group to create a concept map summarizing key points from the video. Use this space to outline your contributions to the group discussion:

- 1. What factors contribute to superblooms?
- 2. What ecological roles do superblooms play?
- 3. Why might climate change affect superblooms?



Elaborate

Complete the following activity:

1. Research how climate change might impact desert superblooms. Use the table below to organize your findings:

Aspect of C	limate Change	Impact on Superbloom Occu
Changes in rai	nfall patterns	
Rising tempera	atures	
Human activity	y and land use	
2. Based o	on your research, ar	nswer:
0	How might fewer	superblooms affect desert ecosystems?

3. Imagine you are part of a conservation team. What steps would you propose to protect superblooms and their ecological role?

Evaluate

- 1. What is one surprising fact you learned about desert superblooms?
- 2. How does understanding superblooms help us appreciate desert ecosystems?
- 3. Answer the following:
 - **True or False:** Superbloom events are predictable and occur every year.
 - True or False: Superbloom plants support pollinators like bees and butterflies.
 - $\circ \quad \mbox{True or False: } Superbloom \mbox{ events have no connection to rainfall patterns.}$

Reflection Activity:

Write a short paragraph summarizing why superblooms are important for desert ecosystems and how human actions might help or harm their occurrence.





https://www.youtube.com/watch?v=n2xtr_5jc1E&list=PLS14biAqBAtE-RYxvhTbDnsqkq2Lu0R0j&index=21&pp=iAQB

