



OBJECTIVES

- The students will be able to define "Traditional Ecological Knowledge"
- The students will be able to explain how traditional ecological knowledge can accompany scientific knowledge to improve our sustainability practices.
- The students will be able to describe the values of traditional ecological knowledge.

MA STATE FRAMEWORK(S)

- History and social sciences: The development of the United States government, Understanding conflict and our relationship with Native Peoples
- MA NGGS Science Standards: Crosscutting concepts- Understandings about the nature of science - Science is a human endeavor: People have practiced science for a long time. Men and women of diverse backgrounds are scientists and engineers

ESSENTIAL QUESTIONS

- How do we acquire and pass on knowledge?
- What can we learn from ancestral knowledge of our environment?
- How can understanding ancestral knowledge help us think differently about our environment and all its inhabitants?

MATERIALS NEEDED

Articles:

- [Two-Eyed Seeing](#)
- [Native Knowledge: What Ecologists are Learning From Indigenous People](#)
- [American Indian Responses to Environmental Challenges](#)

Website: [Native Land](#)

Handouts (attached)

LESSON

Teachers should read the background information provided before beginning the lesson. The students will be provided with the student handout, where they will answer questions as they go along in the lesson. The work will be submitted to the teacher at the end of the lesson.

The teacher will ask students the question, "How do we learn?" The students should respond out loud, hopefully sharing how they learn formally in school, but also how they learn at home, from parents, family, and friends. Eventually students should be able to share times when they were told stories, explanations of the world, and how knowledge can be passed through time, written and spoken.

The teacher will direct the students to the article "What is TEK?" The teacher can decide to have students read this article on their own, or aloud as a class, depending on the level they are teaching. Students should respond to what they learn in their student handout.

Following this article, teachers will ask the students, "What are the similarities and differences between traditional ecological knowledge and scientific knowledge?" Writing these in a Venn Diagram on the board as students share.

Lesson by:

Heidi Ragno
West Springfield High School

PROCEDURE

A basic list that could be created: while both methods can benefit the environment and lead to sustainability, traditional ecological knowledge takes into account the whole picture of an ecosystem, including all inhabitants. Whereas in scientific practices today, it is possible a researcher may be studying one specific part of an ecosystem, as an outsider, without fully understanding all the connections to the biodiversity in the area. Traditional ecological knowledge is passed on less formally, but is still very important to a land and its people, always thinking of sustainability, rather than a quick fix.

Lesson: How is TEK helpful today?

In this lesson, students will be guided to an interactive website where they will meet different tribes facing climate change issues today. Using the website as a guide, they will learn one specific case study to research. They should answer the questions on the student handout. Teachers may adapt this, as they can do this together as a class, or assign the students more than one tribe, using this interactive website as a guide.

To conclude the lesson, students will reflect on what they've learned and how it may have made them think about traditional knowledge and how it is passed on. They will then use the website provided to learn about the tribes that would've lived on the land they live on today. The teacher should ask, "What do you value about the land you live on? Do you use it for food, water, shelter, enjoyment?" This should prompt students to think about sustainability and connection to land. Do they personally feel connected to any land? If so, why? If not, why not? What would help lead us all to truly appreciate our environment?

EXTENSIONS & VARIATIONS

Teachers can assign the article called "Two-Eyed Seeing," as homework, or an article to be read in class. Students can write their own summaries and responses to this article. This article is not explicitly included in this lesson, so teachers can add this to the lesson as they see fit.

Teachers can assign writing prompts in addition to the assignments in this lesson. The teachers may also choose to use part of these lessons, adjusting to their time constraints, if they cannot set multiple class days aside for this lesson.

Citations:

- *STEM Trading Cards* > <https://www.stemtradingcards.org/teklessons>
- *Braiding Sweetgrass* by Robin Wall Kimmerer > <https://milkweed.org/book/braiding-sweetgrass>
- *American Indian Responses to Climate Change* > <https://americanindian.si.edu/environment/>

Understanding Traditional Ecological Knowledge

HANDOUT: GUIDED QUESTIONS

Introduction

Warm up (discuss): Think about the last time you learned something new. How did you learn it? How did you know you "mastered" it? Were you able to explain it to someone else?

- What ways can people acquire and pass on information?
- What is the best way for you to best learn?
- If you wanted to know the best way to begin a garden, how would you find this information?
- How do you know someone is an "expert" at a skill? What makes someone an expert?

What is TEK?

Traditional ecological knowledge (TEK) is a way of understanding an ecosystem based on years of cultures living in the area and passing on their knowledge over time.

Read this article to learn more about its importance in environmental science today.

[Native Knowledge: What Ecologists are Learning From Indigenous People](https://bit.ly/Yale360-Ecology)

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- What does traditional ecological knowledge consider that is not necessarily considered in modern science practices?
- How can traditional knowledge benefit and complement scientific studies across the globe?
- Describe how scientists in Australia are tapping into the traditional knowledge of the aborigines to help them combat climate change.
- In your own words, provide one example from the text of a traditional practice that helps protect the environment in a sustainable way.

Understanding Traditional Ecological Knowledge

HANDOUT: HOW IS TEK USEFUL FOR PROTECTING THE ENVIRONMENT TODAY?

Go to the following website: <https://americanindian.si.edu/environment/>

On the website, you will be assigned by your instructor to research one of the tribes on this site. You should learn about the tribe, their relationship with their environment, & the environmental issue they are facing. When you are done, you should be able to answer the questions below. You may work in groups, but each member needs to complete these questions individually.

1. Which tribe are you studying?
2. What have you learned about this tribe? What makes the place they live in unique?
3. What environmental issues are facing their specific community?
4. Why are people concerned about the environmental issues facing their community?
5. How long has their environment faced damage? What caused this damage?
6. How are the native people working to repair this damage to their environment?
7. What are their hopes and goals for the future?

Reflection

Traditional ecological knowledge is all about one's connection with their environment.

- 1) If you could choose one outdoor space, describe the place where you feel you have the most connection with nature. It could be a yard, a park, or another place you enjoy spending time outdoors. Describe your space and what is special about it.
- 2) Think about what the space you enjoy brings to you. Does it provide food? Shelter? Enjoyment?
- 3) Do you know what tribal ancestral lands this space belonged to? If not, go to the following website <https://native-land.ca/> to help you discover the tribal land your favorite outdoor space belonged to.
- 4) As humans have created settlements across the Earth over time, we have created a system of ownership of wild spaces. However, some say that we are really just "borrowing" the land. The Native American Indian-Iroquois law states "In our every deliberation, we must consider the impact of our decisions on the next seven generations." How would this consideration change the way we make decisions in our daily lives? Give at least two examples of decisions we have learned in class so far that would be impacted by the consideration of seven generations ahead. Using your own words, write a thoughtful and thorough response, using what you have learned about TEK.