Teacher's Guide for Lesson 3
Animals Important to Yurok TEK

Overview

In this lesson, students learn about Yurok culture and animals important to TEK. They start with informational readings titled "Animal Readings." We supply a sheet to take notes as they read. They then share information using the Jigsaw technique.

There are four different readings on four different animals important to Yurok TEK: elk, river otter, brush (cottontail) rabbit, and porcupine. The beginning section of all four readings discuss the Yurok tribe.

Note: Total time for this lesson is ~1.5 hours and includes reading together, reading independently with notetaking, a jigsaw activity, and a debrief.

NGSS Alignment

In these readings, students practice the NGSS Science and Engineering Practice: Obtaining, Evaluating, and Communicating Information. They obtain information from written text and must clearly and accurately communicate that information to their groups.

Why Yurok Culture and TEK?

Co-creators of these lessons include Dr. Seafha Ramos, a member of the Yurok Tribe, and Cherie Paul, a 5th grade teacher in a region with Yurok students. As discussed in lesson two, TEK is "placed-based" and we created a lesson that overlapped with the knowledge base of the creators or their students.

There is value in the lessons wherever you are located. If you are outside of Yurok ancestral lands, we encourage you to learn about the tribes in your local area. You can also compare the wildlife in your location to the wildlife in the Yurok ancestral lands described in this series of activities.

We hope you and your students enjoy learning and teaching about Yurok TEK through these lessons!

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Advance Preparation

- Print the 4 Animal Readings; each student will need one reading.
- Print the 4 Animal Cards; each student will need one card. There are two cards per sheet of paper so cards will need to be cut. We suggest you print on cardstock or laminate so students can easily hold cards up for the class to see.
- Create Jigsaw groups/teams of 3-4 students. (See details below).
- Print a class set of the "Guided Notes for Animal Readings" sheets for notetaking. (One worksheet per student).
- (Optional but recommended) Have chart paper to write on for the debrief with the class.

Instructions for the Animal Card Activity

Overview of the Jigsaw technique

Jigsaw is a classroom organizational technique that breaks down an assignment into manageable sections and allows for students to become an expert in their specific topic or reading. This type of technique fosters cooperative learning among students. A brief overview of the steps is as follows:

- Each student is assigned a particular aspect of the assignment. (In this case, it would be one of the four animal readings).
- Students are assigned to "Expert groups." Students learn about their area of expertise (In this case, about one of the four animals).
- Students then convene with their "Expert Groups." All students in the "Expert Groups" have the same expertise (so here you'll have an "Elk Group," Otter Group," etc.). Students share and firm up their knowledge in their Expert Groups and discuss what they will share with the rest of their classmates.
- Students are then assigned to "Diverse Knowledge Groups." (In this case the "diverse knowledge groups" are called "Mixed Animal Groups" and ideally comprise four students, one representing each animal).
- Students take turns sharing their area of expertise within their Mixed Animal Group.

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Instructions for the Animal Card Activity (cont)

Animal Card Reading and Activity

- Put your students into their groups/teams of 3-4 students and pass out the cards. Each student should receive the card of the animal that corresponds with their reading. As the teacher, you can decide how to pass cards out. Some suggested ways are:
    - Have the cards collated in stacks and go around to each group with cards face down so students can not see the title. Have a student draw from the stack.
    - Students can count from 1-4 and each number is assigned an animal.
    - Have students determine whose birthday is first, second, third, fourth and then they can choose a card in that order.
    - Have students throw dice and whoever has the largest number can pick first, second largest number can pick second, (or vice versa).
    - Teacher can randomly assign the cards.

- Pass out the Animal Readings to students. Students should receive the reading that corresponds to their cards (so students with an elk card get an elk reading and so on).
- All readings start with an identical Yurok TEK and culture section. Begin with this part of the reading and model filling in the "Guided Note" sheet as a class. (15 min.)
- Have students continue reading and taking notes independently. (Allow 20 min.)
- Upon completion of the reading, have students go into their "Expert Groups" (or, in other words, have all the elk students together, all the otter students together, etc.) If you have a big class, you can make multiple expert groups in each category to keep group sizes low. Students work together to ensure all the important information in their group is documented and rehearsed. (Allow approximately 15 min.)
- Have students go to their 3-4 person "Mixed Animal Groups" (i.e. the "Diverse Knowledge Group") to share out the information they have learned. Within the group, students can be assigned or pick "roles," but this is optional. In this case the following roles could apply:
    - A timekeeper
    - A leader who raises their hand if group has a question for the teacher
    - Someone to create the order of who speaks
    - Another role that would work well for your students

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Instructions for the Animal Card Activity (cont)

Animal Card Reading and Activity (cont)

- One at a time, students will share out the information about their animals to their Mixed Animal group members. (Allow 20 min.)
- Following the Mixed Animal Group session, debrief as a class to go over the information the students collected. You can create a chart with the questions so students can visually compare information. This chart can be put up for students to refer to during Lesson 5's Mammal Survey activity. (15 min)
- To make the debrief more interactive, we strongly suggest the following:
    - The teacher poses a variety of questions and students can hold up their card if their animal can answer that question (or student can answer verbally). This creates an interactive approach and allows for students to visually see which animals match the answers. (See questions below).
    - Suggested questions to ask and get a conversation going in class:
        - What animals live or spend time in a certain ecosystem? (On the chart have Forest, Prairie, River, Creek).
        - Many animals live or spend time in multiple ecosystems. Why do you think they are able to do this or why do you think they would go to more than one ecosystem? What animals eat food X? (Examples can be found on the cards and readings like woody plants, acorns, fish, bark etc.) Does anyone know what we call an animal that eats only plants? Eats only meat? Eats both?
        - What is the largest of the four mammals? What is the smallest of the four mammals?
        - What is the animals' contribution to Yurok culture and TEK? (groups can share out answers).
        - A range of size and height questions can be asked- Is your animal taller/shorter than a desk? etc.
        - Is your animal an herbivore?
        - Is your animal a carnivore?
        - Is your animal an omnivore?
        - Is your animal a consumer?

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Instructions for the Animal Card Activity (cont)

Animal Card Reading and Activity (cont)

- Is your animal a producer?
- Is your animal a decomposer?
- Is your animal nocturnal?
- Is your animal diurnal?
- Is your animal crepuscular (comes out at dawn and twilight)?

Some additional context for this lesson

As described previously, TEK is tied to place, as the relationship with the environment and knowledge are built over many generations in a particular place or location. In this lesson (3) and lessons 4-5, we provide a real-world example of TEK to emphasize the importance of place and relationship with the environment in TEK, and also to help students more concretely understand what TEK is. For instance, this lesson highlights the Yurok relationship with wildlife, which is part of a relationship to the environment. This lesson also shows how the connection to wildlife is connected to culture and TEK. One example of this is using parts of animals for ceremonial regalia. This lesson and future lessons also show the parts of TEK that tend to align more with "standard" (Western) scientific concepts, such as animals' habitats, features, and behaviors.

Moving Forward

The lesson 3 readings about animals and Yurok TEK give students background information for lesson 4, where they learn about scientist and Yurok tribal member Dr. Seafha Ramos, and lesson 5, where students engage in a simulated mammal survey!

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