

Time

A unit in ten 45-60 minute lessons, grades K-12

Stage 1 – Desired Results

<p>ESTABLISHED GOALS</p> <p>Content Standard: - solve problems involving time</p> <p>Cultural Standards: -identify and utilize appropriate sources of cultural knowledge to find solutions to everyday problems; - anticipate the changes that occur when different cultural systems come in contact with one another</p>	<i>Transfer</i>	
	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> - understand and manage successfully in time systems based on natural cycles and systems based on calendars and clocks. 	
	<i>Meaning</i>	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> - nature has time systems - lunar, tidal, solar, seasonal - that Native people use successfully for sustenance and culture. - reading schedules, calculating elapsed time, and being on time are considered highly desirable work traits. 	<p>ESSENTIAL QUESTION</p> <p>How can I be bi-cultural, or use two-eyed seeing, in my understanding and use of time?</p>
<i>Acquisition</i>		
	<p><i>Students will know...</i></p> <ul style="list-style-type: none"> - how to describe their community uses an understanding of natural cycles for subsistence activities such as clamming, hunting, and gathering plants. - how to explain the lunar cycle is the basis for the Native and Western construction of months. - how to read and calculate time from an analog and digital clock. 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> - asking Elders how their community uses natural cycles and stories associated with those cycles. - identifying time words in their community's language and understanding the importance of maintaining cultural time words and concepts. - explaining how different situations demand different use of time and effectively apply that knowledge.

Stage 2 – Evidence and Assessment

Evaluative Criteria	Assessment Evidence
<p>Analyze data Use a variety of clocks and calendars Research Present information clearly</p>	<p>PERFORMANCE TASK(S): -produce a song, dance, or piece of art that represents a natural cycle that the community uses. -apply knowledge of elapsed time by scheduling a complex event.</p>
	<p>OTHER EVIDENCE: -Time types chart with evidence -Journals with reflections on culture and time</p>

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Preparation: Two-three weeks prior to the launch of the unit.

- Contact Elders about sharing local knowledge (see Cultural Notes).
- Survey students about who has a cellphone/tablet, and consult staff on device use at school.
- Print tide tables (lesson 5)

Day 1: Theme - Talking about time/Creating a Subsistence Calendar

- *Prep:* Read the teacher's [background](#) on “two-eyed seeing.”
- *Hook:* Have you ever seen anyone come here and is always checking the time? Where does this happen? Why do you think that is? What are you doing while they are checking the time constantly? Do you do this? If so, why? If not, why?
- *Teach:* “two-eye seeing”, the ability to use the Native and Western ways of knowing.
- *Inform:* In many places outside the village, life is driven by a very precise sense of time: planes leave at a set time, and movies at the theater start at the advertised time (at least the previews do). Most people Outside learn to fit their lives into this sense of exact time even though they find it very stressful. Many of them imagine vacations when they can unplug from their clocks and “lose their sense of time.”
- *Brainstorm:* If a new teacher came to live here or someone married into the village from Outside, what advice would you give them about how time works here? Chart and take notes.
- *Ask:* How do you see time? Does it have a shape or is it a line or a circle?
- *Discuss:* Look at this [calendar](#) of subsistence activities. A calendar from the store has a page for each month. What shape is this calendar? Why might it have this shape? What other things in nature have cycles?
- *Chart:* Brainstorm natural cycles: Day, Seasons, moon, tides. How do people in the community track these cycles?
- *Define:* Observation, to watch closely with the intention of learning.
- *Move:* Go to the schoolyard. What could we begin observing now that has a cycle? How much evidence could we gather?
- *Discuss:* Which natural cycles are you personally involved in? How could you show that on a circular calendar?
- *Create:* A circular calendar with seasonal or monthly segments that show the subsistence activities that you participate in.
- *Journal:* “Mostly I imagine time like a ... Sometimes, it seems like...”

Day 2: Theme - Solar Cycle: Seasons

- *Prep:* Gather globes or balls, lantern or bare light bulb on socket
- *Review:* Yesterday you made a seasonal calendar. Was that a Native or Western way of viewing time?
- *Hook:* What causes the seasons? Do you think this is a Native or Western way of knowing?
- *Watch:* [Seasons](#) video
- *Clarify:* The earth is further away and the sun is a million times larger than the Earth.
- *Teach:* **rotate** (to spin on an axis -such as a day); **orbit** (to circle a distance over a period of time such as a year)
- *Demonstrate:* The earth rotates on its axis. The axis always points in the same direction as it orbits the sun. Move around the room in an approximate circle. Relocate to a space that can be dark (like a gym) save for the lantern or bare bulb. Have students orbit the sun. Holding the globe with the top of the axis inclined toward the sun ask what the season is. Which season is next? How does the earth move (it rotates and orbits)? Where would Fall be? Go through each season.
- *Practice:* Allow student pairs of older/younger students to demonstrate a solar year.
- *Journal:* label a drawing that shows how the Earth orbits the Sun in each of the four seasons.

Day 3: Theme - Lunar Cycles and the Tides

- *Prep:* Use this award-winning unit “[Charting the Tides](#)” on the science of tides. Also, use this Chugachmiut unit called “[Tidal Action](#)”. They both have everything; links to videos, handouts, and standards.
- *Review:* Rotate, Orbit, Seasons
- *Hook:* How do we rely on the tides? What causes the tides? How can we use tides safely?

- *Pair:* older/younger students.
- *Journal:* “By knowing how tides work I can be helpful by...”

Day 4: Theme - Elder Visit: Tides and Reading a Tide Table

- *Prep:* Read and print the materials from Chugachmiut on “[Oceans and Tides](#)” Have greeters for Elder (younger students), students who will record (audio with previous permission) of the Elder’s comments on the walk, recording device (use an app that formats in mp4), and students who will photograph locations. Communicate with the Elder that you want to walk to the beach at low tide and highlight knowledge of tides as it connects to food collection, boating, and safety. Highlight words or phrases in the community language. Have students prepare questions such as: What are important things we should know about the tides.?
- *Share:* with students what you asked Elder to show and talk about before the Elder arrives.
- *Create:* students make a Before Walk Map and journal entry “I think that the Elder will tell us...about the tides.”
- *Review:* How to listen to an Elder. Make list.
- *Pair:* older/younger students during the walk.
- *Create:* an After Walk Map with their partner. Annotate the map with community words that the Elder shared.
- *Recollect* all the local words and phrases the Elder used. Refer to the audio recording if necessary.
- *Journal:* “How was today’s lesson an example of ‘two-eyed seeing.’”
- *Extension:* for Jr and Sr high is this three-day unit called “[Climate Change, Tides, and Changing Seas](#)”

Day 5: Theme - Telling Time/Calculating Elapsed Time

- *Prep:* Read and print the materials on this [website](#). It is important to [pre/test](#)/teach the older kids to make sure they can accurately read an analog clock so they can appropriately help their younger partner. For [elapsed time](#) read and print these materials
- *Review:* What did the Elder say about tides? Why would being able to read the clock help you follow that advice?
- *Hook:* Show the color-coded [clock](#).
- *Partner:* Older students work with younger on-time reading.
- *Differentiate:* Younger students color in their hour-delineated clocks. Older students are given a challenge.
- *Challenge:* “It is 12:02 p.m. The next low tide is at 4:39 p.m. How long is that?”
- *Distribute:* Tools to help teach elapsed time. Practice with additional problems.
- *Journal:* Youngers, “Knowing how to tell time will help me by...” Olders, “When I helped my partner learn to tell time I felt... I know this will help them by...”
- *Prepare:* Encourage/require students with cellphones/tablets to bring them to the next class

Day 6: Theme - Using Technology to Schedule (4th grade and up)

- *Prep:* Have two instructional centers. Preprint setting reminder directions: [iOS](#) and [Android](#) (and Kindle). Generate a list of ideas and useful reminders that kids could enter during the lesson: evening activity night at school, talent show, after-school clubs offered by the non-school group, a college application or scholarship due dates, and meeting with Project Grad coaches.
- *Brainstorm:* What event have you ever been late to or missed entirely? Without using anyone’s name, why did this happen? Identify which of these could have turned out differently. In which would a reminder to get ready have helped?
- *Hook:* Today you will learn the power of reminders on your cell phone or tablet.
- *Demonstrate:* “I need to buy an airplane ticket from Anchorage to Seattle to visit a (friend, or family). I’ve learned that the cheapest tickets are sold on Tuesdays at 7 p.m. six weeks before the trip will begin.” Work the math on the board to the next vacation that meets that criteria.
- *Project:* Use your computer to demonstrate setting reminders on Android (Google). Show the directions from the link above for iOS.
- *Separate:* iOS on one side of the room and Android on the other.
- *Collaborate:* If you have done this before stand up. Walk over and sit down with someone who hasn’t stood up.
- *Model:* Set an actual reminder. Move slowly enough that your partner can follow.

- *Assist:* Without touching your partner's device, have them set an actual reminder. Use words only if they get stuck.
- *Practice:* Watch and praise as your partner sets another reminder.
- *Journal:* "Knowing how to set a reminder could help me by...It will still be up to me to..."
- *Prepare:* Students will need cellphones/tablets for the next lesson

Day 7: Theme - Applying Elapsed Time: Planning a Clamming Trip

- *Prep:* print an upcoming [tide table](#) for your area for two or three months for each pair of students. Kids will ask if this is a real clam trip. Check Fish and Game for seasonal openings and information about red tide.
- *Review:* Elder knowledge from the field trip and how to calculate elapsed time.
- *Hook:* You and your partner (younger/older) are going to plan a clamming trip. You will need a schedule and a list of supplies.
- *Brainstorm:* What supplies are needed? How long will it take to gather each one? What size tide do we need? How long before low tide do you need to be there? How long does it take to get there? What time do you need to begin gathering supplies? What time do you need to leave to get to the beach? How do you begin figuring out how much time to prepare? Model the calculations with an upcoming low tide.
- *Demonstrate:* make an electronic supply list on [Keep](#) (Google/Android) of clamming supplies. Show directions for doing this in [iOS](#).
- *Separate:* iOS on one side of the room and Android on the other.
- *Collaborate:* If you have done this before stand up. Walk over and sit down with someone who hasn't.
- *Model:* Make a list with checkboxes. Move slowly enough that your partner can follow.
- *Assist:* Without touching your partner's device, have them build a list. Use words only if they get stuck.
- *Journal:* "What was easy and what was hard about planning for an activity that would happen in the future?" "Some places I could use lists to make planning easier are..."

Day 8-9: Theme - Culture as Past, Present, and the Future

- *Hook:* Write a sentence about what you did yesterday. Share. Write one about what we are doing now. Share. Write a sentence about what you will do tomorrow. Share.
- *Teach:* tense. **Language** allows us to put activities on a time continuum.
- *Discuss:* Think about when we took our walk with our Elder. Write a sentence about that. Share. What tense is that sentence?
- *Consider:* When you participate in cultural activities you are in the past, present, and future. Do you agree or disagree with this? Why or why not?
- *Revisit:* The subsistence calendar from Lesson 1. Does this show the past, present, and future at the same time? Why or why not?
- *Create:* a song, dance, or piece of art that represents how you are the past, present, and future of the village.
- *Guided:* if students are at a loss about what to produce share this [project](#) idea.

Day 10: Theme - Sharing about Time

- *Prep:* the type of sharing you organize will depend on what expression the students create. If there are lots of songs and dances, then a mini-assembly will be appropriate. If everyone creates a piece of art or craft, then a bulletin board display may be more appropriate.
- *Review:* All the activities of this unit. What used Native knowledge? Western knowledge? Which used both?
- *Journal:* "To me "two-eyed seeing" means... I use a Native way of seeing time when I... I use a Western way of seeing time when I...I use both eyes when I..." "I see that I am the past, present, and future of our culture because..."

Cultural Notes

*General guidelines for school and community success
and space to make notes specific to your community*

Asking for help from Elders

- Ask a trusted colleague about the accepted community norms for requesting help from an Elder. These may include the following considerations: making a personal visit, using a liaison, establishing first contact via phone or email, or having a conversation about a visit while at the store, post office, or other community space.
- You are asking an elder to walk around the community with the class and share community knowledge of locations and resources and their uses. Account for the physical demands of walking and speaking loudly enough to be heard outside.
- Also, ask for permission to make an audio recording of what the Elder shares on the walk. Explain that the students will use the recording as a resource to help them learn. Offer them a copy.

Extensions

Suggestions and space to make notes.

High school: Plan a trip to Anchorage. Show departure and arrival times. Make a to-do and packing list on your phone. Go through the plans with your coach.