

**Elder Quote/Belief:**

*“Full moon means there will be big tides, when there is a big tide it gets windy”*

-Stella Meganack, Port Graham



**Grade Level: 3-5**

**Overview:** Traditionally, the Chugach People were able to predict the weather by observing the phases of the sun, moon and stars. The communities in the Chugach Region are spread out, but the traditional ecological knowledge (TEK) to predict the weather by observing the sun, moon and stars is similar in each community. In this lesson activity, the students will learn how to predict the weather by using the Elder TEK by observing the sun, moon and stars.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content Science:</i>	<i>CRCC:</i>
<b>A (3)</b> - Culturally-knowledgeable students are well grounded in the cultural heritage and traditions of their community.	<b>D (3, 4)</b> - Concepts of earth science. A student should understand and be able to apply the concepts, process, theories, models, evidence and systems of Earth and space entities.	<b>Survival S (7)</b> Students should be able to learn/observe the weather and tides.

**Lesson Goal:**

Students will learn how to predict the weather by observing the sun, moon and stars based on the Elder’s TEK.

**Lesson Objective(s):** Students will:

- Learn the Sugt’sun names for the sun, moon and stars
- Learn how the Elders predicted the weather by observing the sun, moon and stars
- Create a poster that reflects the Elder TEK

**Vocabulary Words:**

**Sugt’sun Dialects**

English:	Prince William Sound:	Lower Cook Inlet:	Eyak:
star		agyaq	AwaaLX qAyALqah
moon	tanqim	Tangik	qAXah

sun		macaq	GAdAgiL
The weathers going to be good		Paluluku	
The weathers going to be bad		Asilnguq Qutartuq	
Waning Moon		Tanqik Nangqartarkut	

### **Materials/Resources Needed:**

Elder or Recognized Expert to share TEK on weather prediction

Poster Paper, Markers, Scissors, etc.

Computers, printer

Pictures of the Sun, Moon and Stars

Worksheet of Elder Quotes

### **Books:**

- *Alaska Cloud and Weather Field Guide*, by Jim Green/Williwaw Publishing Co
- *Reading Weather*, by Jim Woodmency
- *The Weather Tracker Handbook*, by Gregory C. Aaron

### **Teacher Preparation:**

- Invite an Elder to share their TEK on sun, moon and stars weather predictors.
- Locate and review materials needed for activity
- Make copies of the Sun, Moon and Star Phases worksheet and the Elder Quotes for each student

### **Opening:**

For this lesson, you will be learning how to predict the weather by using the Elder Traditional Ecological Knowledge (TEK). Before there was technology, our Chugach ancestors were able to successfully predict the weather by observing the environment. One way they predicted weather was by observing the sun, moon and stars. In this lesson you will learn about these predictors the Elders TEK used and observe corresponding pictures.

Show the students the various pictures of the sun, moon and stars and explain what each predicted the weather to come.

#### **Moon:**

- Different phases of the moon crescent moon; holding the weather, spilling out the bad weather, full moon brings a lot of weather with the big tides. New Moon and Sugt'stun/Eyak words for the names of the different phases.

#### **Sun:**

- The Sun Dog, a ring that you see around the sun that predicts that there will be a change of weather in the next day or so, it is the front of a storm or the front of bad weather approaching.
- Observing the sunrise and sunsets, the color of the sky on the horizon are indicators of weather to come.

#### **Stars:**

- When you see the stars twinkling really fast that means that there is a storm coming, when the stars are twinkling slowly it means the weather will stay calm. The stars were relied upon as navigational tool by traditional Sugpiaq travelers.

### **Activities:**

#### **Class I:**

1. Introduce the Elder guest if available.
2. Hand out the Elder quotes and corresponding photographs.
3. Practice the Sugt'stun/Eyak vocabulary words.
4. Discuss how each the TEK is used and what observations were weather indicators for each of the sun, moon and stars.
5. Ask the students if they have heard of other beliefs using the sun, moon or stars for weather predictions. Allow time for answers and discuss.
6. Explain that the students will be creating a poster with following components:
  - a.) Title the poster with ***Traditional Weather Forecasting Using the Sun, Moon and Stars***
  - b.) Ask the students to find pictures for each of the sun, moon and stars.
  - c.) Underneath each picture, paste an Elder quote that corresponds with each observation for a weather prediction
  - d.) Remind the students that they will can use some of the pictures provided but can also research for pictures online
  - e.) Regarding the moon, look for pictures of a crescent moon, full moon and new moon because each of these were used as predictors of weather to come
  - f.) Apply the Sugt'stun/Eyak vocabulary words to their poster
  - g.) Decorate the posters as they wish.
7. When the students are finished, display the posters in the classroom or school hallway for others to learn the Elders TEK for weather prediction based on sun, moon and stars.

### **Assessments:**

- Students successfully completed TEK poster with the required components.
- Students can explain each of the traditional observations of the sun, moon and stars as weather predictors.
- Students correctly pronounce and use the Sugt'stun and Eyak vocabulary words in their activity.















## ELDER QUOTES/BELIEFS

“If there is a circle around the sun or moon, it means that there is going to be bad weather.”

-Jenny Kamluck, Port Graham

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*“Every day he has to check the weather by watching the stars. When the stars twinkle slow that means it’s going to be a fine day, no wind tomorrow. When the stars flutter fast that means it’s going to be windy the next day.” -Sergius Moonin, Nanwalek, Alexandrovsk Vol. 2*

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“Crescent moon; tilted, if the moon is crescent and if it looks like it is leaning backwards, it’s holding back the weather. If the crescent moon is leaning forward it’s dumping out the weather.”

-Patience Faulkner, Cordova

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*“Two uncles could tell what weather would be like by looking at the clouds and the moon.” “My brothers were named Jack and Willie.” - Mary Kompkoff, Chenega*

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“Northern lights were a good indicator that the weather was going to get cold.”

-Patience Faulkner, Cordova

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*“Paul Kompkoff used to say, ‘when the Northern Lights are prevalently red, it means there will be a lot of death’, and examples of that would be when the 1964 earthquake and the Exxon Valdez oil spill happened.” -Diane Selanoff, Valdez*

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“In the winter, if you see the stars at night, it will be cold.” -Patience Faulkner, Cordova

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*“Observing stars, Simeon Kvasnikoff would observe the stars and he would be able to set the time on his pocket watch.” – Pat Norman, Port Graham*

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“Full moon means there will be big tides. When there is a big tide, it gets windy.”

-Stella Meganack

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*“Fall/Winter: the days get darker. The sun gets lower, so that it looks like it’s going behind the mountains in Port Graham. Spring/Summer: the days get longer and the sun will go above the mountain. When spring is turning into summer, the sun starts getting higher in the sky. You will know spring is over when the sun sets and doesn’t go behind the mountain.*

*-Mary Malchoff, Port Graham*

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