Science: Solar System - First Peoples

Name: _____

Science: Solar System – First Peoples

Big Idea (6): The solar system is part of the Milky Way, which is one of billions of galaxies.
Content (6): The overall scale, structure, and age of the universe
Content (6): The position, motion, and components of our solar system in our galaxy
Content (5): First Peoples concepts of interconnectedness in the environment
Curricular Competency (6): Questioning and Predicting: Make observations in familiar or unfamiliar contexts
Curricular Competency (6): Processing and Analyzing Data and Information: Identify First Peoples perspectives and knowledge as sources of information
Curricular Competency (5): Communicating: Communicate ideas, explanations, and processes in a variety of ways
First Peoples Principles of Learning: Learning is reflective

Background Information

There are several Indigenous stories that view the stars as teachers or guides, often passing on lessons about life, nature, or culture. There are many perspectives on how the world came to be. Here are some First Nations Perspectives on the universe and stars:

1. Stars as Stories

- Many First Nations communities see **stars as part of stories or teachings**.
- Stars often represent **ancestors, animals, or important lessons**.
- Example: In some Cree and Ojibwe stories, stars are connected to **mythical figures or spiritual guides**.

2. The Sky as a Guide

- Stars, the Sun, Moon, and planets are used for **navigation and seasonal knowledge**.
- Indigenous people observed the **movements of stars** to know when to **hunt, fish, or gather food**.
- Example: The Pleiades star cluster (called the "Seven Sisters" in some cultures) signals **seasonal changes**.

3. The Sky is Connected to Life on Earth

- The Sun, Moon, and stars are not just "objects in space" – they are **alive and connected to Earth and people**.
- Some First Nations see the **milky way** as a pathway or river for spirits, guiding people in life and death.

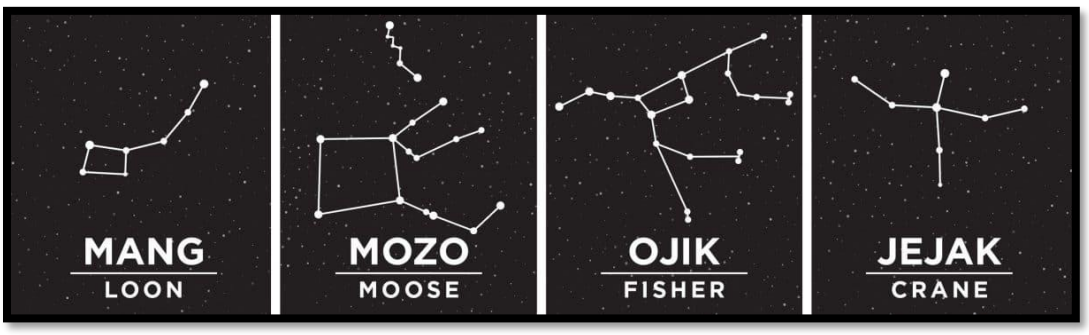
4. Learning from the Night Sky

- The stars are used to **teach values, history, and culture**.
- Stories of constellations often **explain natural events** or **teach lessons about living in harmony with nature**.

5. Respect for the Universe

- The universe is seen as **interconnected**, and humans are **part of a bigger whole**.
- Many First Nations traditions emphasize **observing, respecting, and learning from the night sky** rather than just measuring it scientifically.

For many First Nations people, the stars and universe are **alive with stories, lessons, and guidance**. The Sun, Moon, and stars help **teach, guide, and connect people to the world around them**.



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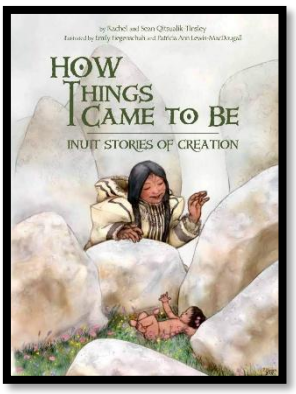

You will read the story "How the Sun and the Moon Arose", in the book How Things Came to Be: Inuit Stories of Creation, by Rachel and Sean Qitsualik-Tinsley. You will then have a chance to reflect on the teachings in the story, and discuss your ideas.

The Inuit story *How the Sun and the Moon Arose* shows how storytelling is a way of understanding and teaching about the universe. Instead of using scientific facts, the story explains the Sun and Moon through characters and relationships, reminding us that stories can carry knowledge across generations. It also teaches about balance in nature — the light and the dark, day and night, Sun and Moon — and how these opposites work together. In this way, the Sun and Moon are not seen as simple objects in space, but as beings with important roles and lessons, showing that the universe is alive, meaningful, and connected.

Why do you think many cultures tell stories about how the Sun and Moon began?

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What does this story suggest about the importance of balance between light and darkness?

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How is this explanation of the Sun and Moon different from the scientific explanation you've learned in class? How is it similar?

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How does the story connect people to their environment and the natural cycles of day and night?

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The Sky as a Guide

- Stars, the Sun, Moon, and planets are used for **navigation and seasonal knowledge**.
- Indigenous people observed the **movements of stars** to know when to **hunt, fish, or gather food**.
- Example: The Pleiades star cluster (called the "Seven Sisters" in some cultures) signals **seasonal changes**.

You are going to read the story "Nanabush and the spirit of winter". This story discusses seasonal changes. You will then have a chance to reflect on the teachings in the story, and discuss your ideas.

Edna Manitowabi (Odawa/Ojibwe Knowledge Keeper) tells the story of Nanabush, and what happens when he visits the Spirit of Winter. There are some stories that are only told at certain times of the year. Nanabush stories are told in the wintertime.

The winter was causing too much cold, and too much snow, and too much hardship. The animals and the people were struggling. They were having a hard time. It was Nanabush who saw that something was amiss here. Something's not running the way it's supposed to. How come everything is frozen? How come everything is cold? The animals were saying it's because of winter. He's causing all of this havoc. And so Nanabush said "I will go and talk to him". He asked for help to go and speak on behalf of the people and the animals, and so he went to the North. But Nanabush is the one who wanted to give food to Winter. Winter at first said "no". He didn't want to eat any of the stuff that Nanabush was offering. But Nanabush made a fire and cooked up some good food. Some rice and some corn and some berries. He warmed it up. He wanted to offer it to winter. At first he wouldn't take it, but then he saw that Nanabush was really enjoying his meal, so Winter decided "oh I'll taste it", and he really enjoyed it. He liked it. And he did ask Nanabush to go and talk to the son, so that they might be able to have a good working relationship.

First Peoples Principles of Learning: Learning is reflective

Have you ever heard stories that explain why the seasons happen? Why do you think people tell these stories?

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How does this story explain winter differently from the scientific explanation of seasons?

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What does the story teach about balance between humans and the natural world?

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The Sky as a Guide

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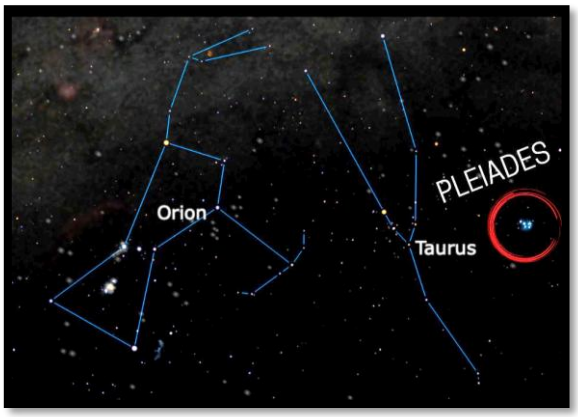
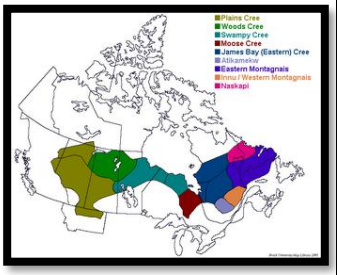


You will read another story about how the sky is a guide. The "Pleiades" (Seven Sisters) is a group of stars, and many First Nations cultures use these as a signal for seasonal changes. Sometimes the group of stars is visible, and sometimes it is not. The constellation serves as a winter constellation, rising in the northeast in October and becoming invisible in late March, marking the changing seasons; it is often associated with the planting season as it disappears during spring planting and reappears at harvest time. This group of stars is considered a place of origin in some Anishinaabe origin stories – this is where people came from.

The story of the Seven Sisters constellation (the Pleiades) originates in Greek mythology (800 BCE - 146 BCE), where they were the seven daughters of the Titan Atlas, transformed into stars to escape the pursuit of Orion the hunter or to be closer to their father. The seventh sister is often depicted as fainter or hidden because she married a mortal, or she is the "lost Pleiad" who was ashamed of her deed. Across different cultures, many similar myths feature seven young women transformed into stars to escape danger or grief, a concept that may have originated 100,000 years ago.

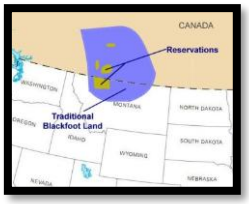
Different First Nations groups, have different origin stories:

CREE / OJIBWE / ANISHINAABE (Across most of Canada)



In Anishinaabe traditions, particularly Cree and Ojibwe, the Pleiades are known as the **Bugonagiizhig** (Hole in the Sky), representing a spiritual gateway to the spirit world. This "Hole in the Sky" leads to the spirit world. These seven stars also represent the seven poles used in the construction of the Jiisakaan Shaking Tent Ceremony," "Bugonagiizhig," a winter constellation that rises in the northeast sky in October and makes its way across the winter sky, sinks below the northwest horizon in late March, becoming invisible from April through August. Other Anishinaabek communities refer to Pleiades as "Madoo'asinug Sweating Stones." The even stars in this constellation represent the seven stones used in the weatlodge ceremony.

BLACKFOOT (Alberta / Montana)



The Blackfoot live in the southern part of Alberta, Canada. In their stories, the Pleiades are orphans known as the Lost Boys. No one cared for these boys, so they became stars. The mistreatment of these orphans made the Sun Man angry, so he punished the pe ople with a drought, causing the buffalo to disappear. Since buffalo aren't available when the Lost Boys are in the sky, the Blackfoot assemble after the Pleiades disappear from the summer sky to do large-scale hunts at buffalo jumps.

CHEROKEE (Kentucky / Tennessee / Carolina / Alabama)

The Cherokee have a story about seven boys who played instead of doing their ceremonial chores. They ran around the ceremonial ball court in a circle until they rose into the sky. As six of the boys rose to the sky, the seventh was caught by his mother. She yanked him down so hard that he sank into the ground when he hit. A pine tree grew over the place where he was buried in the earth.

IROQUOIS (New York, Pennsylvania, Ontario, Quebec)

The Iroquois version says that six boys danced on top of a hill while a seventh boy sang a tune to keep them dancing. One night, they danced so fast that they lifted off the ground and floated up to the sky. They became the Pleiades constellation.

KIOWA (Oklahoma)

In the Kiowa story, seven little girls were chased by bears. They did their best to escape by climbing on a low rock and pleading with the rock to save them from th e bear. That rock grew higher and higher until it stretched up into the sky. Those girls became the Pleiades. And the grooves on Devil's Tower (located in the Black Hills of Wyoming) are the marks of the bear's claws as it tried to get them.

NEZ PERCE (Idaho)

The Nez Perce see the Pleiades as a group of seven sisters. One sister fell in love with a mortal man, and when he died, as all mortal men do, she became overwhelmed with grief. Her sisters mocked her for feeling so sad about the death of a human man. But the sister grew sadder and sadder, making her feel ashamed. So she pulled the sky over her face to hide behind like a veil, explaining why there were only six stars visible to the naked eye.

TOHONO O'ODHAM (Arizona)

The Tohono O'odham of southern Arizona have a story about a man who lived in a cave on Girded Rock. He taught the people many things and sang beautiful songs to them. He intended for them to learn these songs to sing for a girl who reaches puberty. But the women didn't stop after the ceremony. They kept singing and singing. It wrecked their homes, and no one wanted them. People called them "homeless women" since they ran around and had no home. So, the women went to a powerful medicine woman who decided to put them in the sight of all people. The medicine woman said, "Every evening, your relatives will see you and tell their daughters why you are called the Homeless Women (the Pleiades). In this way, women will know what a good home is. Even though a puberty celebration is enjoyable, no one should go around just doing that." Then, she sprinkled the women with water, and they turned to stone. She threw them eastward, and they landed in the sky where they are now.

First Peoples Principles of Learning: Learning is reflective

Have you ever heard stories that explain a backstory behind the constellation? Why do you think people tell these stories?

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What do these stories teach us about the connection between Earth and the sky?

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Why might people have stories about constellations, to signal seasonal changes?

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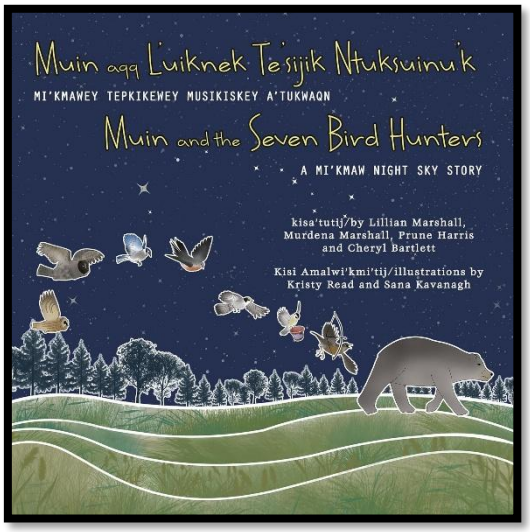
The Sky is Connected to Life on Earth

- The Sun, Moon, and stars are not just "objects in space" – they are **alive and connected to Earth and people**.
- Some First Nations see the **milky way** as a pathway or river for spirits, guiding people in life and death.



You will read the story: "Muin and the Seven Bird Hunters" (a Mi'kmaw story) by Lillian Marshall, Murdena Marshall, Prune Harris, and Cherul Bartlett.. You will then have a chance to reflect on the teachings in the story, and discuss your ideas.

The story explains how the **constellation we call the Big Dipper** is seen in Mi'kmaw culture. In this tradition, the stars are not just "dots in the sky" but a **bear (Muin)** being chased by **seven hunters** (stars). The movement of the constellation across the seasons reflects the **cycle of hunting and survival**. Muin and the Seven Bird Hunters shows how the Mi'kmaw people use the stars as teachers of seasonal knowledge and cultural values. Instead of just being objects in space, the stars are part of living stories that connect people, animals, and survival.

First Peoples Principles of Learning: Learning is reflective

Why do you think people tell stories about the stars?

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How do the hunters and Muin move through the sky as the seasons change?

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How is this way of understanding how stars are formed, different from the scientific one you've learned in class? How is it similar?

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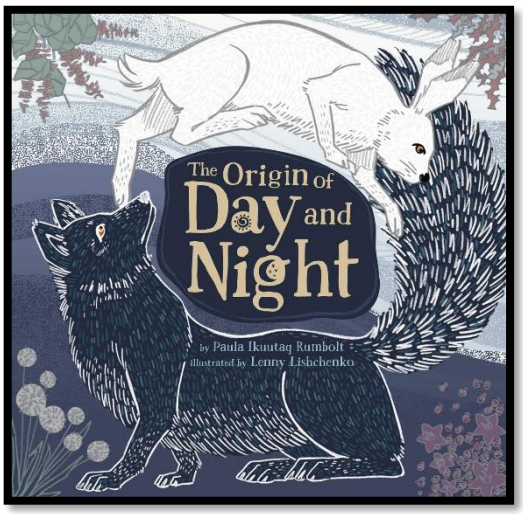
Learning from the Night Sky

- The stars are used to **teach values, history, and culture**.
- Stories of constellations often **explain natural events** or **teach lessons about living in harmony with nature**.



You will read the story: "The Origin of Day and Night", by Paula Ikuutaq Rumbolt. You will then have a chance to reflect on the teachings in the story, and discuss your ideas.

How it Relates to Inuit Perspective

1. **Story as Teaching**: Inuit stories often **explain natural phenomena** in ways that connect people to their environment. Day and night are explained not as abstract science, but as part of a meaningful story.
2. **Connection to Nature**: The story shows how **humans, animals, and the environment are interconnected**, reflecting Inuit respect for nature.

First Peoples Principles of Learning: Learning is reflective

Why do you think people tell stories about the origin of day and night?

How is this explanation of day and night **different from the scientific one** you've learned in class? How is it similar?

What does the story tell us about how Inuit people see their relationship with the world around them?

Respect for the Universe

- The universe is seen as **interconnected**, and humans are **part of a bigger whole**.
- Many First Nations traditions emphasize **observing, respecting, and learning from the night sky** rather than just measuring it scientifically.

"Raven Steals the Light" is an ancient Haida myth, a story about how the sun, moon, and stars came into the world. In the story, a crafty Raven, tired of the darkness, tricks a selfish chief into letting him play with boxes containing the celestial bodies. Raven then transforms himself into various objects, eventually becoming a baby, and tricks the chief into giving him the boxes of light. He releases the stars, then the moon, and finally the sun, transforming into his bird form as he escapes, forever changing the world and becoming the dark color of his feathers from the smoke of the chief's house.

Here is how the story "Raven Steals the Light" embodies First Nations perspectives:

1. **The Universe is Alive and Relational**
   - In the story, the sky, sun, moon, and stars are not just objects—they have **meaning and presence**.
   - This reflects the Indigenous worldview that the **world is interconnected** and full of beings that guide, teach, and influence humans.
2. **Stories as Teachers**
   - The story explains **why the world has light** and teaches lessons about **creativity, cleverness, and responsibility**.
   - Raven is a trickster figure whose actions shape the world. Even though he is mischievous, his actions **benefit humanity**, showing that **lessons can come through storytelling**.
3. **Balance and Respect for Nature**
   - The story emphasizes **balance**: light is now shared, and humans can live and thrive.
   - This reflects the First Nations principle that humans are **part of a larger system**—we must observe and respect the natural order.

Here is the whole story, as told by Bill Reid and Robert Bringhurst:

Before there was anything, before the great flood had covered the earth and receded, before the animals walked the earth or the trees covered the land or the birds flew between the trees, even before the fish and the whales and seals swam in the sea, an old man lived in a house on the bank of a river with his only child, a daughter. Whether she was as beautiful as hemlock fronds against the spring sky at sunrise or as ugly as a sea slug doesn't really matter very much to this story, which takes place mainly in the dark. Because at that time the whole world was dark. Inky, pitchy, all-consuming dark, blacker than a thousand stormy winter midnights, blacker than anything anywhere has been since. The reason for all this blackness has to do with the old man in the house by the river, who had had a box which contained an infinite number of boxes each nestled in a box slightly larger than itself until finally there was a box so small all it could contain was all the light in the universe.

The Raven, who of course existed at that time, because he had always existed and always would, was somewhat less than satisfied with this state of affairs, since it led to an awful lot of blundering around and bumping into things. It slowed him down a good deal in his pursuit of food and other fleshly pleasures, and in his constant effort to interfere and to change things. Eventually, his bumbling around in the dark took him close to the home of the old man. He first heard a little singsong voice muttering away. When he followed the voice, he soon came to the wall of the house, and there, placing his ear against the planking, he could just make out the words, "I have a box and inside the box is another box and inside it are many more boxes, and in the smallest box of all is all the light in the world, and it is all mine and I'll never give any of it to anyone, not even my daughter, because, who knows, she may be as homely as a sea slug, and neither she nor I would like to know that."

It only took an instant for the Raven to decide to steal the light for himself, but it took a lot longer for him to invent a way to do so. First he had to find a door into the house. But no matter how many times he circled it or how carefully he felt the planking, it remained a smooth, unbroken barrier. Sometimes he heard either the old man or his daughter leave the house to get water or for some other reason, but they always departed from the side of the house opposite to him, and when he ran around to the other side the wall seemed as unbroken as ever. Finally, the Raven retired a little way upstream and thought and thought about how he could enter the house. As he did so, he began to think more and more of the young girl who lived there, and thinking of her began to stir more than just the Raven's imagination. "It's probably that she's as homely as a sea slug," he said to himself, "but on the other hand, she may be as

beautiful as the fronds of the hemlock would be against a bright spring sunrise, if only there were enough light to make one." And in that idle speculation, he found the solution to his problem.

He waited until the young woman, whose footsteps he could distinguish by now from those of her father, came to the river to gather water. Then he changed himself into a single hemlock needle, dropped himself into the river and floated down just in time to be caught in the basket which the girl was dipping in the river. Even in his much diminished form, the Raven was able to make at least a very small magic -- enough to make the girl so thirsty she took a deep drink from the basket, and in so doing, swallowed the needle. The Raven slithered down deep into her warm insides and found a soft, comfortable spot, where he transformed himself once more, this time into a very small human being, and went to sleep for a long while. And as he slept he grew. The young girl didn't have any idea what was happening to her, and of course she didn't tell her father, who noticed nothing unusual because it was so dark -- until suddenly he became very aware indeed of a new presence in the house, as the Raven at last emerged triumphantly in the shape of a human boychild.

He was -- or would have been, if anyone could have seen him -- a strange-looking boy, with a long beaklike nose and a few feathers here and there. In addition, he had the shining eyes of the Raven, which would have given his face a bright, inquisitive appearance -- if anyone could have seen these features then. And he was noisy. He had a cry that contained all the noises of a spoiled child and an angry raven -- yet he could sometimes speak as softly as the wind in the hemlock boughs, with an echo of that beautiful other sound, like an organic bell, which is also part of every raven's speech. At times like that his grandfather grew to love this strange new member of his household and spent many hours playing with him, making him toys and inventing games for him. As he gained more and more of the affection and confidence of the old man, the Raven felt more intently around the house, trying to find where the light was hidden. After much exploration, he was convinced it was kept in the big box which stood in the corner of the house.

One day he cautiously lifted the lid, but of course could see nothing, and all he could feel was another box. His grandfather, however, heard his precious treasure chest being disturbed, and he dealt very harshly with the would-be thief, threatening dire punishment if the Ravenchild ever touched the box again. This triggered a tidal wave of noisy protests, followed by tender importuning, in which the Raven never mentioned the light, but only pleaded for the largest box. That box, said the Ravenchild, was the one thing he needed to make him completely happy. As most if not all grandfathers have done since the beginning, the old man finally yielded and gave his grandchild the outermost box. This contented the boy for a short time -- but as most if not all grandchildren have done since the beginning, the Raven soon demanded the next box.

It took many days and much cajoling, carefully balanced with well-planned tantrums, but one by one the boxes were removed. When only a few were left, a strange radiance, never before seen, began to infuse the darkness of the house, disclosing vague shapes and their shadows, still too dim to have definite form. The Ravenchild then begged in his most pitiful voice to be allowed to hold the light for just a moment. His request was instantly refused, but of course in time his grandfather yielded. The old man lifted the light, in the form of a beautiful, incandescent ball, from the final box and tossed it to his grandson. He had only a glimpse of the child on whom he had lavished such love and affection, for even as the light was travelling toward him, the child changed from his human form to a huge, shining black shadow, wings spread and beak open, waiting. The Raven snapped up the light in his jaws, thrust his great wings downward and shot through the smokehole of the house into the huge darkness of the world.

The world was at once transformed. Mountains and valleys were starkly silhouetted, the river sparkled with broken reflections, and everywhere life began to stir. And from far away, another great winged shape launched itself into the air, as light struck the eyes of the Eagle for the first time and showed him his target. The Raven flew on, rejoicing in his wonderful new possession, admiring the effect it had on the world below, revelling in the experience of being able to see where he was going, instead of flying blind and hoping for the best. He was having such a good time that he never saw the Eagle until the Eagle was almost upon him. In a panic he swerved to escape the savage outstretched claws, and in doing so he dropped a good half of the light he was carrying. It fell to the rocky ground below and there broke into pieces -- one large piece and too many small ones to count. They bounced back into the sky and remain there even today as the moon and the stars that glorify the night.

The Eagle pursued the Raven beyond the rim of the world, and there, exhausted by the long chase, the Raven finally let go of his last piece of light. Out beyond the rim of the world, it floated gently on the clouds and started up over the mountains lying to the east. Its first rays caught the smokehole of the house by the river, where the old man sat weeping bitterly over the loss of his precious light and the treachery of his grandchild. But as the light reached in, he looked up and for the first time saw his daughter, who had been quietly sitting during all this time, completely bewildered by the rush of events. The old man saw that she was as beautiful as the fronds of a hemlock against a spring sky at sunrise, and he began to feel a little better.

First Peoples Principles of Learning: Learning is reflective

What do you think the world was like before there was light?

What does the story teach about balance, respect, or the relationship between humans and nature?

How does this story explain the creation of light differently from the scientific explanation?

How do the sun, moon, and stars act as teachers in this story?

Emerging	Developing	Proficient	Extending
Some sections are completed. Decipherable answers show initial understanding of the concepts, and sometimes incorporate specific vocabulary terms and reasoning.	All sections are completed. Answers show a growing understanding of the concepts, with some correct use of vocabulary and reasoning. Students are beginning to make connections and explain ideas with increasing clarity.	All sections are completed. Answers are reasonable, show clear understanding of the concepts, and include appropriate vocabulary and logical reasoning.	All sections are completed thoroughly. Answers are reasonable, insightful, and demonstrate clear connections to bigger ideas, with precise vocabulary, effective reasoning, and reflect awareness of multiple perspectives or broader implications of the concept.