

**The North Star**  
**Grade level: K-5**  
**June Nelson/Cynthia Robbins co-teaching lesson plan**

**Introduction:**

Rationale Statement:

The North Star plays an important role in various cultures, including the Navajo culture. One of the most noted uses of the North Star is its place in the galaxy, serving as a navigational tool on land and sea. The North Star can be used to find directions. In the Navajo culture, the North Star and other celestial phenomena, were deliberately placed in the heavens after careful planning by the Holy People. However, this was a time consuming process that Coyote, a well-know character in Navajo mythology, had no patience for, and so he tossed all the remaining stars into the sky in no discernable pattern. This and other related cultural stories teach morals, lessons, and character development. (Note: Coyote stories and making string figures are traditional wintertime activities among the Navajo people. Therefore, it would be inappropriate to present this material to Navajo students at the “wrong” time of the year.)

**Behavioral Objectives:**

1. Students will create star string figures with 100% accuracy.
2. After listening to a story, students will retell the stories and draw accurate cultural interpretations with 80% accuracy.
3. After listening to cultural stories, “winter stories,” students will be able to identify specific constellations with 100% accuracy.

**State Standards:**

Earth and Space Science: Students understand the composition, formative processes, and history of the earth, the solar system and the universe.

1. Identify basic phenomena in the sky
2. Describe changes that occur in the sky
3. Identify objects that move in the sky
4. Describe patterns of change visible in the sky over time
5. Describe the patterns of movement of objects in the sky
6. Identify natural events that affect humans
7. Explain how natural events impact human life
8. Distinguish between revolution and rotation
9. Describe how the earth’s movement, in relation to the sun, creates day and night
10. Describe common objects in the solar system
11. Explain how objects in the solar system are related

**Anticipatory Set:**

The teacher has the students sit in a group and asks them to close their eyes, and picture the night sky. “OK, everyone, settle down, breathe deeply, and get comfortable. That’s right, you can even lie down if you want to. Now, I want you to use your imaginations and see if you can picture what the night sky looks like when you stay at sheep camp or in the hogan with your grandma and grandpa. Can you see all the twinkling stars, bright moon, and dark sky?” (Teacher waits a

few moments, then ask the students to open their eyes and “return” to the classroom.) “What did you think of that?”

Student: “It was cool!”

Another student: “Yeah! I saw shooting stars!”

(Teacher encourages students to “buddy buzz” and share images and thoughts with one another.)

Teacher: “OK, let me have your attention again. Everyone quiet, please! Now, who can tell me which way is north? Raise your hand if you think you know. Corie?”

(Student points to the north.)

Teacher: “Good! Samantha, which way is north?” (Student hesitates. She tentatively points in the same general direction as the previous student did.)

Teacher: “Excellent! Does everyone agree?”

(And so on)

The teacher then displays a map of the constellations and draws the students’ attention to the Big Dipper. She then asks if anyone can identify the North Star in the Big Dipper. How many stars does the Big Dipper consist of? What is a dipper? What animal is the Big Dipper representing?

### **Teacher Input:**

“Let me tell you a little bit about our lesson. As you know, in Navajo culture you are only allowed to make string figures during what time of the year? (Several students call out, “In the wintertime!” “After the snow starts falling!” “When it gets cold.”)

Teacher: “Good! Now, I’m going to give each of you a nice long string and you can practice some of your string figures. Let’s see how many you can remember from last winter. (Give students approximately 10 minutes of exploratory playtime. When direct instruction commences, it may be helpful to have the students leave their strings at their desks or put them in their pockets, so they can pay attention to the instructions.

### **Modeling the Behavior/Guided Practice:**

For this lesson, the teacher models the process of making the star string figure. She discusses her actions as they occur, using sequence words such as “first, I ... ; next, take your ... ; I’m almost done, I just ... ; there! Do you think you can make this string figure?” (Teacher has students to try to follow along as she recreates the string figure. Once several students have figured out how to make the design, they can serve as peer tutors. Students with orthopedic impairments or mental retardation can do modified string figures or trace completed designs with their hands, etc.)

Students will have ample opportunity to use a variety of learning styles and multiple intelligences during this and other activities from the unit. Examples include:

**Interpersonal:** Ask students to write about traditional folklore and mythology and what it means to them personally.

**Bodily kinesthetic:** Move around or dance to “Twinkle, Twinkle, Little Star” and other astronomy-themed songs.

**Linguistic:** Read and role-play Ma’ii So’ Yaayiighaz in Navajo and English.

**Logical-Mathematical:** Create patterns with string and make drawings.

**Musical:** Sing and/or listen to “Twinkle, Twinkle little Star;” make up other songs about the sky, the North Star, or other constellations

**Spatial:** Research seasonal changes in the night sky; the path of the Big Dipper; or the relationships of objects in our solar system.

**Independent Practice:**

1. Students make the Big Dipper, using drawing materials, cotton balls, star stickers, or other materials, identifying the North Star.
2. Students create star patterns with string.
3. Students paraphrase, through writing and art displays, their interpretations of cultural stories.

**Checking for Comprehension/Assessment:**

Depending on the academic levels of the students, assessment can be accomplished in a number of ways. For example, students who are successfully able to produce the string figure may then make a drawing of it, teach the procedure to someone else, write the steps in proper order, or point out the North Star in the sky or on a map. Other students may demonstrate proficiency of the objectives by making any string figure, draw a star shape, or identify stars in a picture. Students who wish to expand on the research could look up astronomy facts on the Internet, write research reports, conduct interviews with elders about traditional cultural stories, write and produce a play about Coyote, or complete various art projects. Other considerations include whether or not student drawings relate to information presented in the lesson; whether or not the students can identify and construct the North Star using string or other materials; and whether or not students can distinguish between traditional stories and realistic fiction/non-fiction.

**Materials:**

String  
Black construction paper  
Chalk and/or gel pens  
“Ma’ii Tso’ Yaayiighaz” as told by Hosteen Bedonie  
Maps of the night sky, Western and Navajo constellations  
Other art supplies and writing materials  
Diagrams of string figures  
Videos, tapes, and literature pertaining to Coyote tales  
Telescopes and binoculars  
Internet access

**Modifications for Students with Disabilities:**

1. Recorded stories on tape
2. ASL interpreter for students with hearing impairments
3. Enlarged pictures or text
4. Drawing or pointing to pictures (assessment)
5. Paraphrasing or dictation (assessment)
6. Cooperative learning and peer tutoring
7. Manipulatives/shapes for visually impaired students

**Technology Integration:**

Computers/Software/Internet

Tape recordings and videos  
Amplifiers  
Telescopes and binoculars

**Closure:**

As a group, the class decorates a portion of the classroom (e.g., a closet or cabinet) as the night sky, using glow in the dark stars, paint, glitter, and other materials. If feasible, the class could also organize a local nighttime field trip to view the night sky, identifying constellations while listening to stories from cultural experts, etc.