



A Teacher's Guide to . . .

"SPIRITS FROM THE SKY, THUNDER ON THE LAND"

Objectives:

Students/visitors should be able to:

- Identify certain Native American constellations and articulate their importance to the society.
- Recognize that the Pawnee nation used celestial objects and seasonal cycles as one of the many ways to organize, and to ensure the survival of, their cultures.
- Observe and understand basic motions of the Sun, Moon, and stars.
- Articulate an appreciation for the sky knowledge of the Pawnee nation.

This program is aligned with the following Illinois Education Standards: 12.F.2a, 12.F.2b, 12.F.2c, 12.F.4a, 13.B.3b, 13.B.3c, 13.B.5e, 18.C.4a. Next Generation Science Standards: 1.ESS1.1, 1.ESS1.2, 5.ESS1.2

Brief Summary:

"Spirits From the Sky, Thunder On the Land" was originally written by the Adler Planetarium in Chicago. The program takes an in-depth look at the Pawnee nation, which thrived in parts of Kansas and Nebraska from the late 1600's to the 1750's. We see into the Pawnee mudlodge, see how they organized their calendar according to which stars were visible in the sky, and hear the Pawnee creation legend. The program is intended for students in grade 5 or older.

Background:

There are four independent bands of the Pawnee Nation, namely the Skidi (Wolf), the Chawi, the Kitkahahki, and the Pitahawirata. The focus of the show is in the Skidi, who, perhaps more than the other three bands, incorporated the sky into their society and their calendar. To the Skidi, the sky was the deity "Tirawahut," the "place of origin." A buckskin chart (depicted in the show), while not being a literal map of the sky, shows how specific stars and star patterns were significant to the Skidi.

The Pawnee mudlodge usually housed two families or about 20 people. The lodge had a sod roof that you could stand on. Four posts inside the lodge depicted the four "world quarter stars" (NW – yellow, SE – red, NE – black, and SW – white) and the entrance faced the rising Sun towards the east. A sacred bundle was hung on the wall opposite the entrance. A fire was placed in the center of the lodge and a smoke hole in the top of the lodge allowed the smoke to escape. The smoke hole allowed inhabitants to see the stars directly overhead plus allowed the "sky beings" to look in on the families. Maize, beans, squash, or melons could be stored in dry underground chambers.

Pre-visit Questions/Activities:

- Look at a star chart (seasonal charts can be found on the planetarium web site) to locate some of the Pawnee constellations:
 - a) Chief Star (Polaris, the North Star) – never moves in the sky.
 - b) The big and small stretcher (Big & Little Dippers)
 - c) Council of Chiefs (Corona Borealis)
 - d) Seven Brothers (Pleiades star cluster or "Seven Sisters")
 - e) Wolf Star (Sirius, the brightest star in the night sky)

- f) Swimming Ducks (two stinger stars in tail of Scorpius)
- g) Rabbit (Cassiopeia)
- h) Bobcat (every star in the sky!)
- i) Pathway of Departed Spirits (Milky Way)
- Discuss what sorts of rituals, traditions or habits we have today. Which holidays do we celebrate and how and why do we celebrate? How is the calendar configured? Do these rituals differ from place to place? Ask relatives about how holidays/traditions have changed over time.
- Use the web sites below to create a bulletin board on the Pawnee Nation. Where did they live? What did that eat? Were they hunters?

Post-visit Questions/Activities:

- Using a template provided by the planetarium, duplicate and construct “star wheels” for everyone in the class. Locate the Council of Chiefs and the Seven Brothers. Note how when one is rising in the east, the other is setting in the west (they stars are about 180-degrees apart in the sky). Discuss how this can be used as a calendar. Using the star wheel, during what date(s) are these star patterns near straight up during sunset? How about sunrise?
- Try modeling the Pawnee mudlodge using either sticks or tongue depressors. Include the smoke hole and an entrance that faces east. Try to locate some of the objects discussed in the show in the real sky, such as the Pleiades star cluster, the Big Dipper, Polaris, and Corona Borealis. The planetarium can provide a seasonal star chart plus public libraries have books that contain star charts.
- Visit the Spurlock Museum on the University of Illinois campus and tour the Laubin Gallery of Native American Cultures. A virtual tour is available at: <http://www.spurlock.illinois.edu/>
- Discuss what the chief meant when he said that all Pawnee “came from the stars.” Does that conflict or agree with current scientific thinking?

Internet & Print Resources:

“*Stars of the First People: Native American Star Myths and Constellations*” by Dorcas S. Miller, Pruett Publishing Company, Boulder, CO. 1997. ISBN: 0-87108-858-4. The Skidi star chart is depicted in the book. Note: May be out of print.

“*When Stars Came Down to Earth: Cosmology of the Skidi Pawnee Indians of North America*” by Von Del Chamberlain (a former planetarium director). Ballena Press Anthropological Papers. October, 1982

“Native Peoples” magazine (with featured articles): <http://www.nativepeoples.com/>

National Museum of the American Indian: <http://www.nmai.si.edu/>

The Pawnee Nation homepage: <http://www.pawneenation.org/>

Pawnee cosmology: <http://what-when-how.com/ancient-astronomy/pawnee-cosmology/> and

<http://www.angelfire.com/md3/metis/st1.html> and

http://www.windows2universe.org/the_universe/uts/pawnee.html

Pawnee Indian State Historic Site: http://www.kshs.org/pawnee_indian

Native American stories & myths: <http://starryskies.com/Artshtml/dln/5-97/native.myths.html>

and <http://www.wvu.edu/depts/skywise/legends.html>

and <http://www.kstrom.net/isk/stars/starmenu.html>

and <http://www.angelfire.com/ca/Indian/stories.html>

Native American culture: <http://www.ewebtribe.com/NACulture/>

Starteach site on Native American astronomy: <http://www.starteachastronomy.com/american.html>

A story on the production of the planetarium show (2000):

<http://www.sfgate.com/news/article/Planetarium-Rekindles-Pawnee-Astronomy-Chicago-2740779.php>

StarLab curriculum guide: <http://starlab.com/wp->

[content/uploads/2012/02/D.9.NativeAmericanMyth.pdf](http://starlab.com/wp-content/uploads/2012/02/D.9.NativeAmericanMyth.pdf)

Another educator's curriculum: http://www.northern-stars.com/Native_American_Sky_Legends.pdf

Sky Tellers: <http://www.lpi.usra.edu/education/skytellers/constellations/>