

Stars and Stories

Grade Levels: 4-8

Nutshell

Students will learn to identify the circumpolar constellations and will hear the stories associated with those constellations. They will observe the night sky, find the constellations and may use the telescopes to observe the stars more closely. They will have the opportunity to create their own star patterns and a legend to explain their new constellation.

Objectives

Upon completion of this lesson, students should be able to:

1. Describe what a constellation is and how humans have used stories to explain the patterns of stars.
2. Identify five major constellations in the sky.
3. Make up a fable or legend about a new star pattern that they create.

Stars and Stories Pre-visit Activities

The following materials are aids to help prepare your students for their visit to the Central Wisconsin Environmental Station. The vocabulary list contains terms and concepts your students will encounter in their visit. Please modify the definitions as needed. The activities listed below are merely options—it is not necessary to do them all or to follow any particular order. Keep in mind that your students' learning experiences at CWES will be enhanced if they are familiar with these concepts and terms prior to the on-site activities.

Vocabulary

Astronomy:	The study of the universe
Constellation:	a pattern of stars in the sky
Fable:	a fictitious narrative which can involve supernatural happenings
light year:	the distance light can travel in a year, which is 6 trillion (6,000,000,000,000) miles. (Light travels at a speed of 186,282 miles per second.)
Circumpolar Constellation:	a constellation that does not rise and set, but is continuously above the horizon; they are visible year-round.

Activity #1

Have the students look for articles about astronomy in newspapers and magazines. Briefly summarize these articles. Explore how the frequency of astronomy news today compares with the astronomy headlines' frequency and content in 1969, 1962, and 1957.

Some astronomy related magazines to start with include:

Astronomy Magazine, Kalmbach Publishing Co.

<http://www.astronomy.com/content/static/magazine/default.asp>

Meteorite! Magazine, Pallasite Press.

<http://www.meteor.co.nz/>

Sky and Telescope Magazine, Sky Publishing Corp.

<http://www.skypub.com/skytel/skytel.shtml>

Activity #2

Give each student an index card and 7 stars with gummed backs. Ask them to lick the stars and place them anywhere on their card. When they've finished, challenge them to "connect the stars" with lines to create a "constellation." Have them write a story or fable about their constellation.

Activity #3

Ask the students to think about other meanings of the word "star." How do they think those meanings originated? What about the first five-pointed star shape which we are familiar with? Since stars do not actually

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have that shape, where do the students think it came from? Have them research this topic, either in groups or individually, after the discussion.

Stars and Stories Post-visit Activities

A visit to the Central Wisconsin Environmental Station can be a school-year highlight for both students and their educators. We feel the knowledge and concepts gained during a Station visit apply outside the Station as well. The following activities will allow students to expand their knowledge and help them incorporate those lessons into their everyday lives. Feel free to pick from and modify the activities as best suits your group.

Activity #1 “The Star-Splitter”

Read Robert Frost’s “The Star-Splitter” to the class. Discuss what the poem means and how it makes the students feel. Challenge them to find other poems written about stars and constellations and have them share these poems with the class.

Activity #2 Star Poems

Pass out a star cut-out to each of the students. tell them they are going to write a poem in the shape of a star. The poem can be about how they feel about the stars, about something that a star does, or another topic related to stars. The students could also write picture poems about constellations in the shape of that constellation. Encourage the students’ creativity!

Activity #3: Constellation Tubes

Have the students cut small circles out of black construction paper. The circles should be slightly larger than the end of a paper towel roll. Have them poke holes in the cutout circles to form real or imagined star patterns. Then tape each circle over one end of an empty paper towel roll. Look through the tubes into a light to view the constellations. Remember to have the students write their names on the outside of the tubes and label which side is “up.”

Stars and Stories Post-visit Activities

The Star-Splitter (Robert Frost)

You know Orion always comes up sideways.
Throwing a leg up over our fence of mountains,
And rising on his hands, he looks in on me
Busy outdoors by lantern-light with something
I should have done by daylight, and indeed,
After the ground is frozen, I should have done
Before it froze, and a gust flings a handful
Of waste leaves at my smoky lantern chimney
To make fun of my way of doing things,
Or else fun of Orion's having caught me.
Has a man, I should like to ask, no rights
These forces are obliged to pay respect to?"
So Brad McLaughlin mingled reckless talk
Of heavenly stars with hugger-mugger farming,
Till having failed at hugger-mugger farming
Burned his house down for the fire insurance
And spent the proceeds on a telescope
To satisfy a lifelong curiosity
About our place among the infinities.
"What do you want with one of those blame things?"
I asked him well beforehand. "Don't you get one!"
"Don't call it blamed; there isn't anything
More blameless in the sense of being less
A weapon in our human fight," he said.
"I'll have one if I sell my farm to buy it."
There where he moved the rocks to plow the ground
And plowed between the rocks he couldn't move,
Few farms changed hands; so rather than spend years
Trying to sell his farm and then not selling,
He burned his house down for the fire insurance
And bought the telescope with what it came to.
He had been heard to say by several:
"The best thing that we're put here for's to see;
The strongest thing that's given us to see with's
A telescope. Someone in every town
Seems to me owes it to the town to keep one.
In Littleton it may as well be me."
After such loose talk it was no surprise
When he did what he did and burned his house down.
Mean laughter went about the town that day
To let him know we weren't the least imposed on,
And he could wait-we'd see to him tomorrow.
But the first thing next morning we reflected
If one by one we counted people out
For the least sin, it wouldn't take us long
To get so we had no one left to live with.
For to be social is to be forgiving.
Our thief, the one who does our stealing from us,
We don't cut off from coming to church suppers,
But what we miss we go to him and ask for.
He promptly gives it back, that is if still
Uneaten, unworn out, or undisposed of.

It wouldn't do to be too hard on Brad
About his telescope. Beyond the age
Of being given one for Christmas gift,
He had to take the best way he knew how
To find himself in one. Well, all we said was
He took a strange thing to be roguish over.
Some sympathy was wasted on the house,
A good old-timer dating back along;
But a house isn't sentient; the house
Didn't feel anything. And if it did,
Why not regard it as a sacrifice,
And an old-fashioned sacrifice by fire,
Instead of a new-fashioned one at auction?
Out of a house and so out of a farm
At one stroke (of a match), Brad had to turn
To earn a living on the Concord railroad
As under-ticket-agent at a station
Where his job, when he wasn't selling tickets,
Was setting out, up track and down, not plants
As on a farm, but planets, evening stars
That varied in their hue from red to green.
He got a good glass for six hundred dollars.
His new job gave him leisure for stargazing.
Often he bid me come and have a look
Up the brass barrel, velvet black inside,
At a star quaking in the other end.
I recollect a night of broken clouds
And underfoot snow melted down to ice,
And melting further in the wind to mud.
Bradford and I had out the telescope.
We spread our two legs as we spread its three,
Pointed our thoughts the way we pointed it,
And standing at our leisure till the day broke,
Said some of the best things we ever said.
That telescope was christened the Star-Splitter,
Because it didn't do a thing but split
A star in two or three, the way you split
A globule of quicksilver in your hand
With one stroke of your finger in the middle.
It's a star-splitter if there ever was one,
And ought to do some good if splitting stars
'Sa thing to be compared with splitting wood.
We've looked and looked, but after all where are we?
Do we know any better where we are,
And how it stands between the night tonight
And a man with a smoky lantern chimney?
How different from the way it ever stood?

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Stars and Stories Resources

Teacher Resources

Brecher, Kevin and Michael Feirtag. *Astronomy of the Ancients*. Cambridge, MA: MIT Press, 1977.

Chartrand, Mark R. *Sky Guide: A Field Guide for Amateur Astronomers*. New York: Golden Press, 1982.

Dickinson, T. *Summer Stargazing: A Practical Guide for Recreational Astronomers*. Willowdale, Ontario: Firefly, 1996.

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Hoyle, Fred. *Highlights in Astronomy*. San Francisco: W.H. Freeman and Company, 1975.

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Mechler, Gary and Mark R. Chartrand. *National Audubon Society Pocket Guide: Constellations*. New York: Alfred A. Knopf, Inc. 1995.

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Newton, Jack. *The Guide to Amateur Astronomy*. Second Ed. Cambridge, MA: Cambridge University Press, 1994.

Rey, H.A. *Find the Constellations*. Boston: Houghton Mifflin Co., 1976.

Youth Resources

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Reigot, Betty Polisar. *A Book about Planets and Stars*. New York: Scholastic, 1988.

Zim, Herbert Spencer. *Stars: A Guide to the Constellations*. New York: Golden Press, 1985.