

Be A Stargazer!

Look! Up in the sky! It's a bird ... it's a plane ...

No! It's constellations and comets and planets and all kinds of wondrous things!

How many can YOU see in the night sky?

Stargazers who found

LYRA

Lyra can be easily seen in late summer and early fall. It is anchored by one of the brightest stars in the sky, Vega.



Stargazers who found

NORTH STAR

Located above the Earth's North Pole, the North Star, or Polaris can be found by looking straight above the bowl of the Big Dipper.

Stargazers who found

ORION

The largest constellation. Find Orion by locating the three stars that make up the Great Hunter's belt in February and March.



Stargazers who found

LEO

You can find Leo any time Orion is visible. Although it is not as big as the Great Hunter, you can identify Leo's distinctive shape to the east of Orion.



Stargazers who found


BIG DIPPER

Part of the constellation Ursa Major and most easily seen in the summer. Look for its curved handle in the northern sky, follow along and you'll find it's bowl.

Stargazers who found

PEGASUS

The night sky in October is dominated by the winged horse, Pegasus. It's many bright stars make it easier to trace than some of the other constellations.



Stargazers who found

MARS

Mars is the fourth planet from the Sun in our Solar system and is recognized by it's reddish color. Scientists are researching the possibility that Mars harbored some kind of life form in ancient times!

Stargazers who found

SHOOTING STAR

Shooting stars are actually chunks of rock that collide with the Earth's atmosphere. On a normal night in a dark sky you can expect to see a shooting star once every 10 to 15 minutes.



Stargazers who found

MILKY WAY

There are billions of stars in the Milky Way Galaxy, including our Solar System. Looking up on a clear night you can often see the hazy light of millions of stars along the edge of the Milky Way.

Teacher: Instruct students to go home and look for these objects in the night sky. When they see one, they can write their name in the spaces on the points of each star. You may want to offer a special reward to any student who sees all nine -- such as a set of the USPS Constellations stamps!

★ STARRY, STARRY NIGHT ★

MATERIALS NEEDED:

Create a Constellations bulletin board with midnight blue background paper, the USPS poster, prints of Van Gogh's and Munch's artworks, and an area to display students' work. For this lesson you will need large tablet paper, markers, long tables, newspaper, paper towels, sink, paint shirts, white paper, pastels, crayons, tempera paint, paint brushes, computer/Internet access, a CD player, *Starry, Starry Night* by Don McLean (recently re-popularized by Josh Groban), *Star Wars* music by John Williams, and *Somewhere Out There* by Linda Ronstadt and James Ingram (<http://www.magna.ca/~pfeiffer/sharon/somewhere.htm>)

SETTING THE STAGE

- Today we're going to begin a unit about the night sky. I want you shut your eyes and pretend that you have just spent a super summer day hiking, fishing, swimming, or waterskiing. Now you and your friends are sitting around a campfire, roasting marshmallows, looking up at the night sky. What do you see? Give students a few moments to think while you play *Somewhere Out There*. Invite them to list their night sky items; don't share at this time.
- In honor of National Stamp Collecting Month, the US Postal Service has sent us this beautiful poster about the night sky. The special stamps featured in the stars were created by McRay Magleby, an artist and educator. Do you recognize any of these constellations: Leo, Lyra, Orion, or Pegasus? Besides constellations, what else could you see in the night sky? Record students' responses on large tablet paper. Post the list on the bulletin board.
- For decades, artists have tried to capture the midnight magic of the night sky. Share the paintings *Starry Night*, *Café Terrace*, and *Starry Night over the Rhone* by Vincent Van Gogh and *Starry Night* by Edward Munch. These artworks can be found at <http://www.vangogh-galerie.com/painting/starryindex.html> and <http://www.getty.edu/art/collections/objects/0869.html>. Conduct a grand conversation about the paintings. How do the artists bring your attention to the night sky? What different objects appear in their paintings? How do the artists show movement in the night sky? Because Munch's work was inspired by Van Gogh's *Starry Night*, compare and contrast the two paintings.
- To better understand and appreciate these artworks, you might wish to learn more about the artists. Don McLean wrote a song, *Starry, Starry Night*, about Van Gogh's life. Accuse the lyrics by clicking on the appropriate [hotlink](#) on the above site. Additional biographical information about Magleby, Munch and Van Gogh may be found on the Internet. Search using the artist's name.

STAR ART:

Students create their own impressionistic, "starry" artworks using pastels, crayons, or tempera paint. If possible, use long tables in the cafeteria or art room. Cover students' work areas with newspaper. Discuss proper handling of art materials. After the art activity, roll up the newspaper and give students wet paper towels to clean their work areas. While students are creating their starry skies, play the songs suggested in the materials list. Let students' artworks completely dry before displaying them on the Constellations bulletin board.

★ SUPER STARGAZERS ★

MATERIALS NEEDED:

Computer with Internet access: *Starry Messenger* by Peter Sis, Copernicus: Founder of Modern Astronomy by Catherine M. Andronik, Dear Benjamin Banneker by Brian Pinkney, Follow the Drinking Gourd by Jeannette Winter, star maps, telescope, roll of paper, Timeliner, local astronomer, stamps, and large manila envelopes. Free, up-to-date star maps are available at <http://www.skymaps.com/downloads.html>

ASTRONOMY THROUGHOUT HISTORY

- Share Expectations: For centuries, stargazers have studied the sky for pleasure, curiosity, and traveling directions. The next few days we're going to learn about stargazers throughout history. By the end of these lessons you will be able to construct a timeline about astronomy and read a star chart.
- One of the most ancient examples of stargazing is Stone Henge. Share this site: <http://wtcombe.sbc.edu/earthmysteries/EM5stonehenge-aerial.html>. Students will learn about the construction of Stone Henge in 2950 BC, reconstruction efforts, and its association with the Druids' interpretation of the night sky. Some ancient Chinese astronomers' star maps date back to 940 AD. A sample star map is located at: <http://www.chinapage.com/astromy/chart/celestialchart.html>. Do students recognize any of the constellations on these charts?
- Nicolaus Copernicus, born in 1473, has been called the first "modern astronomer". Read Copernicus: Founder of Modern Astronomy by Catherine M. Andronik. Another famous astronomer, Galileo Galilei, born in 1564, was one of the first stargazers to use a telescope. After reading *Starry Messenger* by Peter Sis, demonstrate how to use a telescope. In the late 1700s, Benjamin Banneker, the first Black astronomer, studied the night sky so he could create an almanac for farmers. Read about his life in Dear Benjamin Banneker by Brian Pinkney.
- For centuries, travelers have used the stars to keep their bearings. Read *Follow the Drinking Gourd* by Jeannette Winter to learn how slaves used the North Star to find their way to freedom. People also used planispheres, or rotating star maps. View a 19th century planisphere at <http://www.gemmarj.com/instcat/03/p24-063-03.html>. Show students how to use a star map to study the night sky.
- Today, earthly stargazers study the skies using observatories and satellite telescopes. Astronauts study space from the space shuttle and space station. In July, NASA sent a probe from the Deep Impact spacecraft on a collision course with a comet 83 million miles away to learn more about comets! To investigate these and other "out of this world" astronomical events, go to NASA's home page at <http://www.nasa.gov/home/index.html>.
- Using paper or Timeliner, students create timelines depicting these important moments in astronomy. Share and post the timelines on the bulletin board.

COMMUNITY CONNECTIONS:

Invite a local astronomer to speak to your class about becoming an astronomer and using a telescope, star maps, and a planisphere. Afterwards, students can take their star maps home to locate objects in the night sky. Set aside time each day so students can share what they've seen. Arrange for a field trip to a local planetarium or observatory. Be sure to write and mail thank you letters to the astronomer and guide after the visit!

★ STAR SEARCH ★

MATERIALS NEEDED:

Computers with Internet access, thick cardboard or foam board, awl, yellow or white paint and brushes, writing utensils, scissors, string or yarn, reference materials, Star Search handout, KWL chart, and a mini-library of reference materials

SETTING THE STAGE

- Discussion: Look at the poster and featured stamps. Invite students to share what they think they know about constellations and stars. Record their responses in the "K" (What We Know) column of the KWL chart. What is the name of the nearest star? That's right, the sun! Let's start by learning more about our very own superstar, the sun. Share this sun slideshow: <http://www.michielb.nl/sun/kafk.htm>. Yesterday we talked about several other things we can see in the night sky. What do you know about these other nighttime objects? Record students' responses in the "K" column. What else would you like to learn about the night sky? Record what students would like to learn in the form of questions in the "W" (What We Wonder) column of the KWL chart.
- Share Expectations: The next few days we are going to search for more information about stars and other objects in the night sky. By the end of this week you will be able to tell 5 facts about an object in the night sky.

STAR-TING FACTS

- Students conduct research using print materials and the Internet. Use the STARting Facts outline master to facilitate their efforts. Whenever students find a fact, they should shut the book or look away from the computer before stating the fact in their own words. Student-friendly sites include: <http://hubblsite.org/>; <http://kids.mfsc.nasa.gov/>; <http://science.howstuffworks.com/>; <http://trackstar4teachers.org/trackstar/index.jsp>; <http://www.solarviews.com/eng/sun.htm>; <http://kids.mfsc.nasa.gov/stories/vacation/contents.htm>; and <http://solar-center.stanford.edu/about/>.
- Periodically reconvene as a class to share what students have learned. Asterisk the facts that have been verified in the "K" column. Write additional questions to the "W" column. Record what students have learned in the "L" (What We Learned) column. Continue the process until research is complete.

STAR MOBILES:

Cut 8" stars from corrugated cardboard or foambord. Paint the giant stars white or yellow. Use an awl to carefully punch a hole in each star point. Place a brad in the center of the star and attach a large paper clip that's bent like an S-shaped hook. Select five STAR-ting facts. Write each fact in a complete sentence on a separate 3" star-shaped paper. Using varying lengths of string, tie one fact onto each point of the giant star. Tie a length of string to the S-shaped paper hook. Suspend the star mobiles from the ceiling. The giant stars should hang parallel to the ceiling.

STAR SEARCH:

Now it's the students' chance to be "stars"! Form small musical ensembles. Using what they've learned, students create raps or songs about stars. Perform for their peers.

★ CONSTELLATION CONTEMPLATION ★

MATERIALS NEEDED:

Why the Sun and the Moon Live in the Sky by Elphinstone Dayrell, *Urbone* Illustrated Guide to Greek Myths & Legends by Cheryl Evans and Anne Millard, *Favorite Greek Myths* by Mary Pope Osborne, computer with Internet access and speakers, 20 card-sized pieces of colored cardstock for each pair, art materials, multiple copies of *Battle of the Stars* gameboard, dice, and multiple colored markers (small pieces of paper; unifix cubes, or small candy or cereal)

SETTING THE STAGE:

For centuries, people have created songs and stories to explain what they thought they were seeing in the night sky. During the next week, you're going to learn some of these stories, create your own star stories, and celebrate what you've learned. Read the African folktale, *Why the Sun and the Moon Live in the Sky*. Brainstorm other "creative" explanations for why the sun and moon are in the sky.

CONSTELLATION CONTEMPLATION

- The Greeks created myths, or star stories, to explain the four constellations featured on the stamps. What does Leo mean? That's right, it's Latin for lion because the Greeks thought it looked like the lion slain by Herakles (Hercules) as one of his 12 labors. Read this star story in the *Urbone* Illustrated Guide to Greek Myths & Legends. Lyra refers to the lyre (a harp-like instrument) that Orpheus played while trying to free his wife from the underworld. Read the story of Orpheus and Eurydice in *Favorite Greek Myths*. View this painting at http://www.aryznm.com/s/leimindzki/e_orpheus.htm. Dramatize the story while listening to Orpheus in the Underworld, by Oppenbach. This music is available at http://www.classics-for-kids.com/music/music_view.asp?id=19. The last two stamps feature Pegasus, a winged horse from Greek mythology who flies upside-down in the southern sky, and Orion, a famous Greek hunter-hero. Create "star stories" explaining how Pegasus and Orion became constellations.
- The International Astronomical Union has identified 88 constellations (<http://www.iau.org.uk/const.html>). Students can create their own constellations online at <http://kids.mfsc.nasa.gov/puzzles/connect/connect.asp>. After selecting a constellation, have students write "star stories" explaining why the constellation is in the sky. Practice telling the stories until they are memorized. Create giant "postage stamps" of the constellations to use as visual aids. Present the "star stories" as a "Tellers Theatre".

SHOOT FOR THE STARS:

Each pair of students needs a gameboard, one die, and two different colors of markers. Roll off to see who goes first. Players take turns rolling the die and advancing that number of stars. Players can move vertically, horizontally, and diagonally. They cannot touch a star more than once during a turn, however. Players "capture" the last star they land on, even if it's already been captured by another player. They place markers on their captured stars. Whenever a 6 is rolled, players lose a turn; they get a free turn whenever they roll a 1. The first player who connects 10 adjacent stars to create a constellation wins the game.

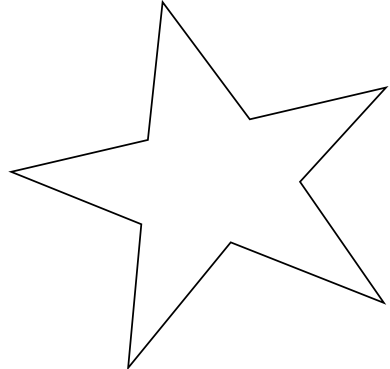
★ STARTLING FACTS ★

Student Name: _____

The topic I want to learn more about is: _____

These are my 5 research questions:

Each time you find an answer, close the book or look away from the computer. Write each answer in a complete sentence on a separate star. You should find 5 STARTLING facts in all. Your research stars will become part of your star mobile.



★ SHOOT FOR THE STARS ★

