

S.T.A.R. TOUR

Our STAR-LAB planetarium takes students on an exploration of the night sky — during the day! Activities match grade level standards. The tour is 90 minutes including teacher-supervised museum exploration time. Program options include bird migration, weather, constellations, star fields, and Native American legends. (Also available as a “Museum-to-Go” program.)

6th GRADE

Standards:

Science

Language Arts

Earth and Space Science

Standard 6. THE UNIVERSE:

Conceptual Strand 6: The cosmos is vast and explored well enough to know its basic structure and operational principles.

GLE 0607.6.1. Analyze information about the major components of the universe.

Teacher Questions, Pre-Tour

Q: List the major components of the universe (planets, stars---including the sun, moon).

Teacher Questions, Post-Tour

Q: Divide class into small groups, assigning a quality of the planets to compare (for all planets). Examples: distance from sun, diameter, temperature, etc. Have each small group make a chart comparing the assigned quality, then present their findings to the class. (They *may* use a model, a powerpoint, an activity, etc. in their presentation.)

GLE 0607.6.2. Describe the relative distance of objects in the solar system from earth.

Teacher Questions, Pre-Tour

Q: Ask students to think about the distances of other planets in the solar system from the earth. Which ones are we able to see without a telescope? How far away from earth are these planets? How far away are they from each other?

Teacher Questions, Post-Tour

Q: Using the information available, have students explain the *appearance* of the size of the moon, the sun, and other planets to us on earth. Why does the moon seem bigger than the sun?

GLE 0607.6.3. Explain how the positional relationships among the earth, moon, and sun control the length of the day, lunar cycle, and year.

Teacher Questions, Pre-Tour

Q: How many hours in a day, days in a lunar cycle, days in a year? Are all our calendar months the same? Why aren't there the same number of days in each month? Remind them of the old rhyme:
"Thirty days hath September,
April, June, and November;
All the rest have thirty-one,
Excepting February alone.
And that has twenty-eight days clear,
And twenty-nine in each leap year."

(For more information, see NASA's Website:
<http://nssdc.gsfc.nasa.gov/planetary/planets/moonpage.html>)

Teacher Questions, Post-Tour

Q: Explain a day in terms of the earth. Explain a lunar cycle (month) in terms of the relationship between the earth and the moon. Explain a year in terms of the relationship between the earth and the sun.

(Suggestion: If possible, assign these questions to small groups and have them act out the relationships, outside.)

GLE 0607.6.4. Describe the different stages in the lunar cycle.

(See <http://astro.unl.edu/naap/lps/animations/lps.html> for an excellent simulation video).

Teacher Questions, Pre-Tour

Q: Define the terms "waxing," "waning," and "gibbous" in relation to the shape of the moon. How can you tell which is which?

Teacher Questions, Post-Tour

Q: Using the analogy of a baseball diamond, describe the lunar cycle in terms of waxing, 1st quarter, full moon, waning, 3rd quarter, new moon.

GLE 0607.6.6. Illustrate the relationship between the seasons and the earth-sun system.

Teacher Questions, Pre-Tour

Q: How would you explain the four seasons for the Northern Hemisphere in terms of the earth and the sun?

Teacher Questions, Post-Tour

Q: Describe the four seasons if you lived at the equator. How is this different from the four seasons in Tennessee?

GLE 0607.6.7. Describe the causes of lunar and solar eclipses.

Teacher Questions, Pre-Tour

Q: Review the rotation of the earth and the revolution of the moon. How does a lunar eclipse occur? Why do we call it a lunar eclipse?

Teacher Questions, Post-Tour

Q: Review the rotation of the earth as it revolves around the sun, and the revolution of the moon around the earth. How does a solar eclipse occur? Why do we call it a solar eclipse? (Students might model the sun, earth, and moon for this explanation.)

How can people safely view a solar eclipse? (For more information, see NASA's website: <http://eclipse.gsfc.nasa.gov/solar.html>)

Language Arts

Recommended Reading:

Nonfiction:

A Child's Introduction to the Night Sky: The Story of the Stars, Planets, and Constellations--and How You Can Find Them in the Sky by Michael Driscoll (2004).

Don't Know Much About the Solar System by Kenneth C. Davis (2004). (Ages 6 - 9 and older.)

Find the Constellations by H.A. Rey (2008). HMH Books, 2nd edition.

Flight of the Golden Plover: The Amazing Migration Between Hawaii and Alaska by Debbie Miller. (2011). (Grade 3 +).

Janice VanCleave's Constellations for Every Kid: Easy Activities that Make Learning Science Fun by Janice VanCleave. (1997).

On the Wing: American Birds in Migration by Carol Lerner (2001). (Gr 3-6.)

The Stars by H.A. Rey (2008, 1952). HMH Books, 2nd edition. (Upper elementary, classroom reference).

Fiction:

All the Stars in the Sky: Native Stories from the Heavens by C.J. Taylor (2006). (Ages 8 and up.)

Native American Tales and Legends by Allan Macfarlan (2001). (Age 9 and up).

They Dance in the Sky: Native American Star Myths by Ray A. Williamson (2007). (Ages 10-14)