

S.T.A.R. TOUR
(maximum of 4 classes per tour, may be Museum-to-Go Program)

Explore the night sky during the day with our S.T.A.R. Lab Planetarium! Program topics available include Bird Migration, Weather, Constellations, Star Fields, and Native American legends. Activities included in the tour will be age-appropriate, curriculum-driven, and include time inside and outside the planetarium. S.T.A.R tour is 90 minutes including teacher-supervised museum exploration time. Also available as a Museum-to-Go.

SECOND GRADE

Standards:

Science

Math

Language

Earth and Space Science

Standard 7. THE EARTH

Conceptual Strand 7: Major geologic events that occur over eons or brief moments in time continually shape and reshape the surface of the Earth, resulting in continuous global change.

GLE 0207.7.3 Differentiate between renewable and non-renewable resources.

Teacher Questions, Pre-Tour

Q: What does “renewable” mean? (Re-new --- make again) “Non-renewable”? (NOT able to be made again).

Teacher Questions, Post-Tour

Q: What are some renewable resources that you saw at the Discovery Center? (water—part of the water cycle; wood – we can plant trees) What resources were around us that, once we use them, we can’t “make” again? [metals (steel, aluminum)---if not recycled; oil/gas --- from petroleum deposits. Oil can be re-refined if recovered.]

Standard 8. THE ATMOSPHERE

Conceptual Strand 8: The Earth is surrounded by an active atmosphere and an energy system that controls the distribution of life, local weather, and global temperature.

GLE 0207.8.1. Associate temperature patterns with seasonal changes.

Teacher Questions, Pre-Tour

Q: Describe the weather for the past several days. Has it been cool or warm? Sunny or cloudy? Rainy? What season is it? Based on the season and the current weather, write a prediction for the weather for the next several days and on the day we visit the Discovery Center.

Teacher Questions, Post-Tour

Q: What was the weather the day we visited the Discovery Center? Was your prediction correct or not? What weather would you predict for each season: summer, fall, winter, spring?

Physical Science

Standard 9. MATTER

Conceptual Strand 9: The composition and structure of matter is known, and it behaves according to principles that are generally understood.

GLE 0207.9.1. Use tools to observe the physical properties of objects.

Teacher Questions, Pre-Tour

Q: [Collect 4-5 sets of materials with stones, sticks, or other natural objects easily found in nature, English and/or metric rulers as well as magnifiers.] Have the students work in small groups to measure and investigate the objects given to their group. Each student can pick an object to record. Possible topics:

- a. length and/or height of the object
- b. color, shape (drawing or written description)
- c. an additional detail seen with the magnifier

Teacher Questions, Post-Tour

Q: Pick three different objects you saw on our tour at the Discovery Center. (To simplify this, the teacher can choose the objects). Draw each one, then write a description of each one, including size, shape, color, texture, hardness, whether it can change shape, if it has magnetic attraction, whether it would sink or float in water, and what it is used for. (This could be done using a tri-fold “foldable.”)

Standard 10. ENERGY

Conceptual Strand : Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.

GLE 0207.10.1. Explain why the sun is the primary source of the earth’s energy.

Teacher Questions, Pre-Tour

Q: Do any of you wake up before the sun rises in the morning? Describe how the sun lights the Earth---is it like turning on a light switch?

Q: Tell how you know the sun provides heat as well as light.

Teacher Questions, Post-Tour

Q: Was the sun out the day you visited the Discovery Center? If your class walked on the boardwalk, ask them if they remember feeling warm when they were in the sunshine. Where was it cooler? (Hint: inside, under the patio awning, or in the shade of trees at the Discovery Center.)

Q: Was the parking lot at DC warm? Do you think it was cooler or warmer than the grassy area around it? Why?

Q: a. Predict how you think the sun’s heat will affect air? Water? A land surface?

b. Place 3 containers, one filled with sand, one with soil, and one with water, in a sunny window. Find and record the temperature of each container.

c. On a different day, place the 3 containers in the shade. Find and record the temperature of each container. How different are these temperatures from the ones recorded on the sunny day? Why?

Standard 11. MOTION

Conceptual Strand: Objects move in ways that can be observed, described, predicted, and measured.

GLE 0207.11.1. Investigate how vibrating objects produce sound.

GLE 0207.11.2. Classify sounds according to their loudness and pitch.

Teacher Questions, Pre-Tour

Q: Fill four glass bottles (like soft drink bottles) with different amounts of water. Blow across the tops of the bottles to produce different sounds. What makes the sounds different for each bottle? What makes the sound loud or soft?

Teacher Questions, Post-Tour

Q: What sound-making objects did you see at the Discovery Center? [Blow up a balloon and rub your hand across it]. What makes the sound? How does it get to you?

Standard 12. FORCES IN NATURE

Conceptual Strand: Everything in the universe exerts a gravitational force on everything else; there is an interplay between magnetic fields and electrical currents.

GLE 0207.12.2. Realize that things fall toward the ground unless something holds them up.

Teacher Questions, Pre-Tour

Q: Take an object, such as a pencil or crayon. Pick it up and drop it on your desk. Does it go up or down when you let go? Why?

Teacher Questions, Post-Tour

Q: Did you go down the slide at the Discovery Center? What made you go down instead of up?

Math

Standard 1. MATHEMATICAL PROCESSES

GLE 0206.1.3. Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.

Teacher Questions, Pre-Tour

Q: How long do you think it will take us to drive to the Discovery Center? To eat our lunch? (estimate)

Q: How much time do you think each presentation will take? (estimate)

Teacher Questions, Post-Tour

Q: When did we go to the Discovery Center? (yesterday)

Q: Which activity took longer: eating lunch or driving to the DC? A DC activity or eating lunch?

Q: How long were we at the DC? In hours? In minutes? (estimate)

Standard 5. DATA, PROBABILITY, STATISTICS

GLE 0206.5.1. Use and understand various representations to depict and analyze measurements.

Teacher Questions, Pre-Tour

Q: Using science sources, show the proportionate distance from the Sun to the Earth, and from Earth to its moon, inside the classroom or on wall in the hallway.

Teacher Questions, Post-Tour

Q: After seeing the S.T.A.R. Lab presentation, use paper cutouts to represent the planets and the Sun, and measure the distances from each planet to the Sun. (The hallway wall may be the easiest place to display this representation!)

Language Arts

Recommended Reading:

Nonfiction:

Constellations:

Constellations: A Glow-in-the-Dark Guide to the Night Sky by Chris Sasaki

The Big Dipper by Franklyn Branley

Glow-in-the-Dark Constellations by C.E. Thompson

Once Upon a Starry Night: A Book of Constellations by Jacqueline Mitton

Zoo in the Sky by Jacqueline Mitton

Bird Migration:

How Do Birds Find Their Way? by Roma Gans

Migration. by Robin Nelson

The Peregrine's Journey: A Story of Migration by Madeleine Dunphy.

Weather:

The Cloud Book by Tomie DePaola

Flash, Crash, Rumble and Roll by Frank Branley

Tornados! By Gail Gibbons

Weather Words and What They Mean by Gail Gibbons

What Will the Weather Be? By Linda DeWitt

Fiction:

Native American Legends:

Arrow to the Sun. by Gerald McDermott. (A Caldecott Medal Book.)

Between Earth & Sky: Legends of Native American Sacred Places by Joseph Bruchac

Coyote and the Sky: How the Sun, Moon, and Stars Began by Emmett Garcia

How the Stars Fell Into the Sky: A Navaho Legend. By Jerrie Oughton

Quillworker: A Cheyenne Legend by Cohlene. (Ages 7 and up)

Red Hawk and the Sky Sisters: A Shawnee Legend by Gloria Dominic (Ages 7 and up)

