

**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.

**FIRST GRADE**

**Standards:**

**Science**

**Math**

**Language Arts**

**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 0107.7.1** Realize that water, rocks, soil, living organisms, and man-made objects make up the Earth's surface.

**Teacher Questions, Pre-Tour**

**Q:** What things do you see on the school grounds that occurs naturally? What things do you see that are made by people?

**Teacher Questions, Post-Tour**

**Q:** How can you tell if something is natural or man-made? Give an example from something you saw at the Discovery Center.

**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 0107.8.1.** Gather and interpret daily weather data.

**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 makes a weather prediction accurate?

## 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 0107.9.1.** Classify objects according to their physical properties.

#### **Teacher Questions, Pre-Tour**

**Q:** Describe an object in the classroom in terms of what you can see or feel.

#### **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 0107.10.1.** Investigate the effect of the sun on land, water, and air.

#### **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 using a thermometer.

c. On a different day, place the 3 containers in the shade. Use a thermometer to find the temperature of each container. Write down the temperature of each one. 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 0107.11.1.** Investigate how forces (push, pull) can move an object or change its direction.

**Teacher Questions, Pre-Tour**

**Q:** Take an object, such as a pencil or crayon. First, push it forward, keeping it on your desk. Then, pull it backward. 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:** What objects were you able to push or pull at the Discovery Center (building blocks are on the second floor, gravel or fossil pit is on first floor)? What stops the motion you started with this object?

**MATH****Standard 1. MATHEMATICAL PROCESSES:**

**GLE 0106.1.3.** 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)

**GLE 0106.1.5.** Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.

**Teacher Questions, Pre-Tour**

**Q:** a. Predict temperatures taken for different materials in sunshine and in shade. Write down what the class thinks will happen!

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 using a thermometer.

c. On a different day, place the 3 containers in the shade. Use a thermometer to find the temperature of each container. Write down the temperature of each one. How different are these temperatures from the ones recorded on the sunny day? Why?

**Teacher Questions, Post-Tour**

**Q:** Was the parking lot at DC warm? Do you think it was cooler or warmer than the grassy area around it? Why? Using a thermometer, measure the temperature of your parking lot, and then measure the temperature of a grassy area in your schoolyard. How do the two temperatures compare? Which is cooler? Why?

**Standard 3. ALGEBRA:**

**GLE 0106.3.8.** Determine whether a number is odd or even by pairing objects.

**Teacher Questions, Pre-Tour**

**Q:** There are 12 boys in the class, and 9 girls. Which number is odd and which is even? How can you tell?

**Teacher Questions, Post-Tour**

**Q:** There are 3 birds inside the DC: an owl, a finch, and a dove. Is 3 an odd or even number? How can you tell? (pairing)

**Q:** If you count 8 red-eared sliders in the turtle tank, is this an odd or an even number? What if you count 15 sliders? Is 15 odd or even? Prove it by pairing pictures or tokens to represent the turtles.

**GLE 0106.4.7.** Understand and use comparative words such as long, longer, longest; short, shorter, shortest; tall, taller, tallest; high, higher, highest.

**Teacher Questions, Pre-Tour**

**Q:** When we compare objects, we can see that they are different in certain ways. [have pictures of a child, a door, and a house]. A child may be tall, but a door is taller than the child, and the house is the tallest of these three things.

A mouse might be small, but a grasshopper is \_\_\_\_\_ (students should volunteer the word “smaller”), and an ant is the \_\_\_\_\_ (smallest) of the three.

**Teacher Questions, Post-Tour**

**Q:** Correctly compare these items from your visit to the Discovery Center, starting with the word “tall” to describe:

The log cabin: The log cabin at the DC is tall.

The slide at the DC is \_\_\_\_\_ (taller) than the cabin.

The roof of the DC is the \_\_\_\_\_ (tallest) of these.

**Standard 5. DATA, PROBABILITY, and STATISTICS:**

**GLE 0106.5.1.** Use various representations to display and compare data.

**Teacher Questions, Pre-Tour**

**Q:** How many girls are in this class? How many boys? [besides writing a number (7, 11) we could spell out the numbers of each (seven, eleven)] How else could we show numbers of girls and boys?



(symbols for girls,  symbols for boys---) and straight lines for counting (four lines with the fifth diagonally across the four (counting by fives)).

**Teacher Questions, Post-Tour**

**Q:** [Prepare circles to represent the planets by size]. What planets do you remember seeing at the Discovery Center’s S.T.A.R. Lab?

Group planets according to size; how do you decide which are smaller and which are larger?

Group them according to which have ‘moons’ and which don’t.

Are there any other ways to represent the planets (the circle --- which are symbols, not ‘real’ spheres as the planets are).

## 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)