



Tellus Science Museum
P.O. Box 3663
Cartersville, GA 30120
Physical Address: 100 Tellus Drive, White, GA 30184

2009 - 2010 Program Descriptions for All Galleries

90 students for all Pre-K & Kindergarten, 120 students for all other grades and galleries.

Collins Family My Big Backyard Gallery

It's ALIVE! Pre-K and Kindergarten

Pre-K program available January through May only.

Introduce your four to five year old **Pre-K students** to insects in this entertaining and interactive program. These young learners will learn the parts of an insect and make their own butterfly to take home. In the Collins Family My Big Backyard gallery, students will be able to match animals to their habitats and to what they eat in the food cycle, as well as match adult to child in the life cycle of various animals.

*Program will run 1 ½ hours.

- 30 minutes – lab
 - Introduce insects
 - Make antenna headbands
 - Make morpho butterfly rings
- 30 minutes – gallery time
 - Point out life science on the tree exterior
 - Give time to explore the gallery
- 30 minutes – store & tree activity
 - Compare butterflies and moths

Take home items - morpho butterfly rings and antenna headbands

Kindergartners will discover that bugs are living things, compare bugs to other animals, and use their classification skills to compare insects and arachnids. In the Collins Family My Big Backyard gallery, students will have the opportunity to match the life cycle of various insects and explore other interactive exhibits of the gallery.

Georgia Performance Standards: SKCS1a; SKCS4a; SKCS5a; SKCS6c; SKL1a, b; SKL2a, c, d

Program will run for two hours.

- 30 minutes – lab
 - Introduce insects
 - Introduce arachnids
 - Make spiders
- 30 minutes – gallery time
 - Point out life science on the tree exterior
 - Give time to explore the gallery
- 30 minutes – theater
 - Bees are insects
 - Play and dance insect songs
- 30 minutes – store & tree activity
 - Compare butterflies and moths

Take home items – pom spider pin

What's the Matter? Second Grade

Second graders will examine the states of matter. "Chilling" demonstrations using liquid nitrogen allow students to experience condensation and evaporation. Students find out how molecules behave when matter changes from state to state and take part in a tasty experiment while changing a liquid to a solid. Time will be given for exploration of the Collins Family My Big Backyard gallery.

Georgia Performance Standards: S2CS1a; S2CS4b, c; S2CS6a, b; S2P1a, b

Program will run for two hours.

- 30 minutes – intro in theater, ALL STUDENTS
Introduce the three states of matter
Introduce concepts of condensation, evaporation, melting, freezing
Demonstration on condensation and evaporation using balloons and liquid nitrogen
- 30 minutes – lab
Experience matter changing from liquid to solid/freezing experiment
- 30 minutes – gallery time
Introduce the Collins Family My Big Backyard
Encourage students to look for items that are solid, liquid, or gas
- 30 minutes – store & tree activity
Kinesthetic demonstration of solid, liquid, and gas molecules
The freezing song

Take home items - bubbles

Magnet Mania First Grade and Third Grade

First graders will explore magnetic attraction and repulsion through prediction and experimentation. Hands-on exploration of magnets encourages students to discover what objects are magnetic and whether magnets attract through other materials. Investigation of magnets will include exhibits in the workshop area of the Collins Family My Big Backyard gallery.

Georgia Performance Standards: S1CS1a; S1CS5a, b; S1CS6a, b; S1P2a, b, c

Program will run for two hours.

- 30 minutes – intro in theater, ALL STUDENTS
PowerPoint review of basic concepts of magnetism
- 30 minutes – lab
Introduce magnetic field
Students explore whether magnets attract through objects
- 30 minutes – gallery time
Introduce the Collins Family My Big Backyard pointing out magnet activities
- 30 minutes – store & tree activity
Mr. Red Magnet and Mr. Yellow Magnet: poles attract and repel
Magnetic field & cow magnets

Take home items - bookworm magnets

Third graders will build on their magnetic knowledge as they are encouraged to find out what a magnetic field will do and how to create a magnet using electricity. Students will further their knowledge while experimenting with magnets, electromagnets, and electricity in the workshop exhibit in the Collins Family My Big Backyard gallery.

Georgia Performance Standards: S3CS4a; S3P2a, b

Program will run for two hours.

- 30 minutes – intro in theater, ALL STUDENTS
PowerPoint review of basic concepts of magnetism

- 30 minutes – lab
Investigate 3 electromagnet activities and identify variables that affect the strength of an electromagnet
- 30 minutes – gallery time
Introduce the Collins Family My Big Backyard pointing out magnet activities
Demonstrate electromagnetic exhibits
- 30 minutes – store & tree activity
Game review “What attracts to a magnet and what doesn’t?”
Other magnetic metals...

Take home items - magnets

***Energy Quest!* Fourth Grade and Fifth Grade**

Enhance your **fourth graders'** energy unit with this “enlightening” program. This presentation introduces light as a form of energy, examines the properties of light, offers hands-on opportunities bouncing light with various shapes of mirrors, as well as giving students a first-hand opportunity to experience light exhibits in the greenhouse of the Collins Family My Big Backyard gallery.

Georgia Performance Standards: S4P1a, b, c; S4CS1b, c, d; S4CS8a, b

Program will run for two hours.

- 30 minutes – intro in theater, ALL STUDENTS
PowerPoint introducing characteristics of light including:
 1. Translucent, transparent, opaque
 2. Reflection and refraction
- 30 minutes – lab
Students compare how light bounces off a flat mirror versus a convex or concave
Students compare how reflections change with the various types of mirrors
- 30 minutes – gallery time
Introduce the Collins Family My Big Backyard pointing out greenhouse and light activities
Have students compare the changes in images to the shape of the mirror
Closure/review translucent, transparent, opaque; give out the sun catcher activity
- 30 minutes – store & tree activity
Practical applications of mirrors
Mirrors flip images

Take home items - sun catchers

Highlight your **fifth grade** study of electrical energy with this electrifying program. This program introduces students to the “hair-raising” topic of static electricity, gives them the basics for designing their own circuit boards and allows them to explore electricity and magnetism in the garage exhibit in the Collins Family My Big Backyard gallery.

Georgia Performance Standards: S5P3a, b, c; S5CS1b, c, d; S5CS3a, d; S5CS4a

Program will run for two hours.

- 30 minutes – intro in theater, ALL STUDENTS
Introduce static and current electricity
Demo using electrostatic generator (static)
Demo using energy balls (current)
- 30 minutes – lab
Explore current electricity using the circuit boards

- 30 minutes – gallery time
Introduce the Collins Family My Big Backyard pointing out electricity activities
- 30 minutes – store & tree activity
Demonstrate electromagnets – relate magnets and electricity

Take home items - static bags

Science in Motion Gallery

Galactic Weather Kindergarten, First and Second Grade

The PBS award winning **Zula Patrol**'s zany characters discover Dark Truder's plan to steal the Kaboobie Ruby and go after him - discovering all about weather in the process, both on Earth and on other planets in our solar system. Students will enjoy an introduction to the night sky, find the Big Dipper and a few seasonal constellations.

Georgia Performance Standards: SKCS3a, SKCS4a, c; SKE1, S1E1a, S1CS4a, S1E2a, b; S2CS7c, S2E1, S2E2d

Program will run for two hours.

- 30 minutes - Planetarium Show: Under the Weather, ALL STUDENTS
- 30 minutes - lab
Students will make a thermometer and learn about patterns of change by observing the basic function of how and why it works.
- 30 minutes – gallery time
Identify machines that help us predict and chart the weather
Cloud comparison activity between Earth and the other planets
Students will find the first satellite, Sputnik and look for rockets that placed other satellites into orbit
Students will study aircraft that might help meteorologists explore the weather
- 30 minutes – store & lobby for cloud activity

Take home items – gliders

Star Patterns & Moon Rockets Second and Third Grade

Compare how one invention relates to another as we examine the development of rockets that have carried astronauts into space while walking through the Science in Motion gallery. In the planetarium we learn about the early space program in our show "Dawn of the Space Age". We also investigate constellations and star patterns and make your own constellation.

Georgia Performance Standards: S2CS4, S2E1, S2E2, S2E3, S3CS4, S3P1b, c

Program will run for two hours.

- 30 minutes - Planetarium show: Dawn of the Space Age, ALL STUDENTS
- 30 minutes - lab
Making constellations, using constellation viewers
- 30 minutes - gallery time
Use Apollo models to explain manned mission to the Moon
Search for inventions in the Science in Motion gallery that led to the Moon program
Put the inventions in order chronologically
- 30 minutes – store & Foucault pendulum

Take home items - constellation drawings and Tellus bookmarks

Exploring Moons & Solar System Fourth, Fifth & Sixth Grade

Are you an explorer, a geographer, an astronomer or a doctor? With these careers in mind identify which inventions in the Science in Motion gallery will be most useful to you! Take a tour of the solar system in the planetarium show "Oasis in Space". This show examines the constructive and destructive processes of the Earth from space. The fourth grade lab will examine an Earth-Moon model and reinforce why the Moon has phases and where to locate the Moon in the night sky. Fifth and sixth graders will investigate the properties and characteristics of meteors, meteorites, meteorite craters and tektites.

Georgia Performance Standards: S4E1, S4E2, S5E1, S5P2, S6E2, S6E6

Program will run for two hours.

- 30 minutes - Planetarium show: Oasis in Space, ALL STUDENTS
- 30 minutes - lab
- **4th grade** Moon Phase activity using models and power point
- **5th & 6th grade** participates in hands on investigation of meteorites
- 30 minutes – gallery time
- Assigned profession and use a scavenger hunt to locate vehicles, aircraft, and spacecraft that might assist you
- 30 minutes – store & Foucault pendulum

Take home items – souvenir compass, magnifying glass, telescope, or globe key chain based on occupations assigned

Farming for Fuel: Biofuels and Alternative Energy

Fifth, Sixth & Seventh Grade

This program explores the energy we use to power cars, aircraft, and rockets and in the planetarium show, "Heart of the Sun" we learn about the ultimate energy source, the Sun. Alternative energy sources, with an emphasis on Biofuels made from non-food plants, are appropriate for transportation and do not put as much carbon dioxide into the atmosphere as fossil fuels. Students will investigate how plants can be converted into fuels for combustion engines. In the Science in Motion gallery students will investigate how combustion engines work and how other engines propel on the ground, into the air, and out to the planets.

Georgia Performance Standards: S5P2, S5L3, S5L4, S6E6, S7L2,

Program will run for two hours and ten minutes.

- 40 minutes - Planetarium show: Heart of the Sun, and Solar D-House introduction ALL STUDENTS
- 30 minutes – lab
- Making ethanol, measuring sugar levels, manipulating hydrogen car, and carbon cycle demonstration
- 30 minutes – gallery time
- Demonstration of an internal combustion engine
- Observe other types of engines in the Science in Motion gallery
- Solar & wind cars investigation & investigating plant cells with a microscope
- 30 minutes - store & Foucault pendulum

Take home items – grass terrariums

This program is partially funded by the U.S. Department of Energy and the BioEnergy Science Center.

Exploring the Sun and Solar Energy

Eighth Grade through College

This program explores the Sun as a star and how we can harness its energy to use here on Earth. In the planetarium we learn about our closest star, the Sun, in our program "Heart of the Sun."

In the Science in Motion gallery we investigate alternative energies that are used to power

vehicles and rockets. We will also tour the Georgia Tech Solar Decathlon House to allow students to see an environment totally run by energy from the Sun. In addition, students will investigate the large solar panels that help power the Tellus Science Museum.

Georgia Performance Standards: S8P1, S8P2, SAST5, SEV1, SEV2, SEV4, SEV5, SM4, SM5

*Program will run for two hours and ten minutes.

- 40 minutes - Planetarium show: Heart of the Sun and solar cell introduction
ALL STUDENTS
- 30 minutes - Solar Decathlon House exploration
- 30 minutes – gallery time
Investigate fuels for rockets and alternative energies that are used to power other vehicles
- 30 minutes - store & Foucault pendulum

Take home items - Solar Bead backpack pulls or bracelets

Fossil Gallery

Meet Stan the T. Rex Kindergarten, First and Second Grade

Ask a child which dinosaur is their favorite and they are likely to say, "The *T. rex*." Stan the *T. rex* is the star of this program at Tellus. Students will tour the Fossil Gallery and meet Stan along with his prehistoric friends, some that lived during the same time period, and some that lived long before him and long after him. They will explore where Stan lived, what his world was like, compare Stan to other dinosaurs, and how he may have behaved and even draw and measure a *T. rex* tooth.

Georgia Performance Standards: SKCS4a, b, c, SKCS5a, b, SKCS6a, SKL1b, SKL2a; S1CS3a, S1CS5 b, S1L1d; S2CS4b & d, S2CS5b

Program will run for two hours.

- 30 minutes – gallery time
Stan the *T. rex*
Other large iconic dinosaurs
- 30 minutes – lab
Original short story of Stan the *T. rex*
Draw and measure *T. rex* bones
- 30 minutes - Fossil Dig and Careers in Paleontology information
- 30 minutes - store & Foucault pendulum

Take home items – Three genuine Fossils from the Fossil Dig

Fossiliferous Third and Fourth Grade

What is a fossil? How is it made? These questions are answered in our Fossil Gallery walkthrough. Students learn how a fossil forms and discuss factors that affect the survival or extinction of organisms. Manipulatives will include make it/take it fossil rubbings, a mold, and three real fossils to keep!

Georgia Performance Standards: S3E2a, S3E2b, S4L1, S4L2

Program will run for two hours.

- 30 minutes – gallery time
Definition of a fossil
How fossils form
Different types of fossils
- 30 minutes – lab
Explain what a fossil is and how fossils form
Students will make fossil mold and discuss molds and casts
Fossil rubbings
- 30 minutes - Fossil Dig and Careers in Paleontology information

- 30 minutes - store & Foucault pendulum

Take home items – Three genuine fossils from the Fossil Dig

The Key to Fossils Sixth, Seventh and Ninth – Twelfth Grades

After studying a huge variety of early life in the Fossil Gallery, students learn how to use a dichotomous key by classifying and identifying actual fossil specimens. They then get to experience a fossil dig keeping their three favorite specimens.

Georgia Performance Standards: S6CS6c, S7L1a, S7L1b, SES6d, S7L5c

Program will run for two hours.

- 30 minutes – gallery time
 - Definition of a fossil
 - How fossils form
 - Different types of fossils
 - Adaptations and extinctions
- 30 minutes – lab
 - Define classification
 - Students will utilize a dichotomous key to classify several actual fossils
- 30 minutes - Fossil Dig and Careers in Paleontology information
- 30 minutes - store & Foucault pendulum

Take home items – Three genuine fossils from the Fossil Dig

Geologic Time Scale Sixth, Seventh and Ninth – Twelfth Grades

Students travel through geologic time in the Fossil Gallery starting at the formation of planet Earth and moving through the various eras of prehistoric life to the present. This concept is reinforced as the students physically model the time line and take home three real fossils.

Georgia Performance Standards: S6E5e, S6E5f, S6E5g, , S7L5c, SES6d, SES4a-e

Program will run for two hours.

- 30 minutes – gallery time
 - Travel through geologic time
 - Discuss geologic time periods and the creatures that lived during that time. Major events that scientist believed occurred to cause mass extinctions
 - Geologic time rope activity to emphasize the brief period of time of life
- 30 minutes – lab
 - Define and identify the various divisions on a geologic time scale, eon, era, etc.
 - “Go Dig” card game
 - Game of “Geopardy”
- 30 minutes - Fossil Dig and Careers in Paleontology information
- 30 minutes - store & Foucault pendulum

Take home items – Three genuine fossils from the Fossil Dig

Weinman Mineral Gallery

Let's Rock and Roll Third, Sixth and Ninth - Twelfth

Isn't a rock a rock? Students discuss, discover, and sort specimens into the three major rock types. Focal points of the Weinman Mineral Gallery include the Rock Cycle Wall and our extensive mineral collections.

Georgia Performance Standards: S3E1a, S3E1b, S6E5b, SES1e, SES6c

Program will run for two hours.

- 30 minutes – gallery time

Anatomy of the Planet
Rock Cycle Wall
Magic Planet
Minerals in our Lives area

- 30 minutes – lab
Define classification and why it is important in our lives
Classify rocks into three major categories – igneous, sedimentary, metamorphic
Depending on the grade level, further classify rocks until achieve name of each
Discuss various parts of the rock cycle using hand specimens
- 30 minutes – Gem Panning and Careers in Geology information
- 30 minutes – store & Foucault pendulum

Take home items – Keep the gemstones that you find at the Gem Panning

Messy Minerals Third and Sixth Grade

Learn about minerals mined in Georgia, benefits and concerns of mining, and the many uses of minerals. The Kitchen Cutaway Corner and the Mining in Georgia areas will be features in the Weinman Mineral Gallery.

Georgia Performance Standards: S3E1a, S3E1b, S3E1c, S6E5b

Program will run for two hours.

- 30 minutes – gallery time
Rock Cycle Wall
Mining in Georgia
Minerals in our Lives area
Mineral properties
- 30 minutes – lab
Define a mineral
Show and manipulate various minerals
Demonstrate, discuss, and experience uses of various minerals
- 30 minutes – Gem Panning and Careers in Geology information
- 30 minutes – store & Foucault pendulum

Take home items – Keep the gemstones that you find at the Gem Panning

Mineral Testing Third, Sixth and Ninth – Twelfth Grade

The Weinman Mineral Gallery has a dedicated area to the physical properties of minerals, including a unique fluorescent mineral display. Learn how to classify minerals based on Moh's Hardness Scale as well as other physical properties of minerals, using all five senses.

Georgia Performance Standards: S3E, S3E1b, S6E5b, S8P1f, SCSh3

Program will run for two hours.

- 30 minutes – gallery time
Rock Cycle Wall
Mineral properties
Mining in Georgia
Minerals in our Lives area
- 30 minutes – lab
Define minerals and their varying properties
Introduce how a mineral is classified
Discuss Mohs Hardness Scale and its purpose
Allow students to lay out Mohs Hardness Scale by scratch testing
Take students through the steps of testing one unknown
Allow students to test as many unknowns as time allows
- 30 minutes – Gem Panning and Careers in Geology information

- 30 minutes – store & Foucault pendulum

Take home items – Keep the gemstones that you find at the Gem Panning

Plate Tectonics: Where the Action Is Fifth, Sixth and Ninth - Twelfth Grade

The Earth's crust is continually shifting, crashing, and spreading, creating various geologic happenings. Explore our restless earth through the many displays in the Weinman Mineral Gallery, including our Magic Planet and our large floor model of the cross section of Earth.

Georgia Performance Standards: S5E1a, S5E1b, S6E5a, S6E5c, S6E5d, S6E5e, S6E5f, S6E5g, SES1a, SES2a, b, c, SES3e, SES6e

Program will run for two hours.

- 30 minutes – gallery time
 - Anatomy of the Planet
 - Earthquake and volcano displays
 - The Magic Planet
 - Rock Cycle Wall
- 30 minutes – lab
 - Discuss how planet Earth's crust is divided into numerous plates that move
 - Students will understand through various manipulatives: plate movement, Subduction zones, rift valleys, convergent, divergent, transform boundaries and hot spots
 - PowerPoint shows plate movement from Pangaea to 50 million years into the future
- 30 minutes – Gem Panning and Careers in Geology information
- 30 minutes – store & Foucault pendulum

Take home items – Keep the gemstones that you find at the Gem Panning

Periodic Table Eighth & Ninth grade - College

What is an element? Have you ever wondered why elements in the same group number on the periodic table have similar chemical reactivity? Who thought up the idea of a periodic table? How did it get its name? How does it affect our everyday lives? Come answer these questions and more as we learn about the basics and the makeup of the periodic table by visiting a life-sized version in Tellus' Weinman Mineral Gallery and then experience some hands-on manipulatives in the lab.

Georgia Performance Standards: S8P1a, b, c & f, SPS1a, SPS4a, SPS4b, SC4

Program will run for two hours.

- 30 minutes – gallery time
 - Anatomy of the Planet – discuss elemental components of the various layers
 - The Periodic Table – scavenger hunt
 - The Magic Planet – discuss differences in continental vs. oceanic plates
 - Rock Cycle Wall
- 30 minutes – lab
 - Discuss Earth's crust contains 92 natural elements found on the table
 - Students will understand through various manipulatives: periods, groups or families, metals, non metals, transition metals, halogens, noble gases, valence electrons, basic atomic structure, etc.
- 30 minutes – Gem Panning and Careers in Geology information
- 30 minutes – store & Foucault pendulum

Take home items – Keep the gemstones that you find at the Gem Panning