RPSEC Student Programs

2009 – 2010

Abbreviated Catalog of Offerings

*** Planetarium Program** ****Extended Hour Program**

Astronomy

***Cruising Through the Constellations**: (4-12 • **60 minutes** • Dec, Feb, Mar) During this live presentation, students learn the names and locations of constellations and why we have circumpolar, seasonal, and zodiac constellations. Reasons for the seasons are also explored.

***Dark Shadows**: (4-12 • **60 minutes** • Oct) In this program, students learn that "dark shadows" are responsible for the phases of the Moon and for solar and lunar eclipses.

***The Explorers of Mauna Kea**: (4-12 • **60 minutes** • Feb) Learn about telescopes, volcanoes, and plate tectonics as we visit the world's largest observatories on Mauna Kea, a dormant volcano in Hawaii. Enjoy viewing the night sky above different latitudes as we learn why Mauna Kea is such a great observing site.

***In My Backyard**: (K-2 • **60 minutes** • Apr, May) Children will enjoy story telling, poetry, and song as they learn about the seasons, constellations, planets, meteors and the Moon.

***Larry Cat In Space**: (4K, 5K, Grades 1 & 2 • **60 minutes** • Nov) Younger students will enjoy this playful program about a cat who takes a trip to the Moon; his trip is compared with NASA's Apollo missions as NASA slides and a Saturn V model rocket are discussed.

***Mission to Mars**: (3-12 • **60 minutes** • Jan, Mar) We'll compare surface features, landforms and rock types on Mars with Earth's geology and view the Martian night sky as we take a mission to Mars using NASA images and our Digistar projector.

***More Than Meets The Eye**: (4-12 • **60 minutes** • Sept, Oct) Students learn to identify objects in the sky using the naked eye, binoculars and telescopes. Planets, galaxies, nebulae and stars are some of the objects shown and discussed in this great introduction to astronomy.

Solar System Rescue: (6-12 • **60 minutes** • Jan, Apr) Travel through space on a cooperative rescue effort while studying astronomy, geology, chemistry, and more. Students use reference material, analyze data, and develop hypotheses to locate a lost Starfleet probe and plan a rescue strategy.

***Star Stories:** (2 • **60 minutes** • Sept, Dec Using a 3-D model, we show how the Sun, Earth and Moon are related in space. Then, we connect the stars on the planetarium dome to make constellations and share some of the stories about them. We also discuss the difference between stars and "shooting stars."

***The Voyager Encounters**: (4-12 • **60 minutes** • Apr, May) Students view stunning images collected by Voyagers I and II of Jupiter, Saturn, Uranus, Neptune and their moons. Learn how the Voyagers send data back to Earth and where they are now -- 30 years after they were launched!

A Walk Across the Solar System: (4 & 6 • **60 minutes** • Nov, Apr) Students learn about the planets and the size of the solar system as they create a model of the solar system using a scale of 1 inch = 100,000 miles. This requires walking outside for ¾ mile, so **please wear appropriate shoes**!

Program descriptions, Georgia standards correlations, pre- and post- visit activities, Traveling Science kits and more can be found at: http://rpsec.usca.edu/student/

Earth Science

***Blown Away: Wild World of Weather:** (4-12 • **60 minutes** • Oct) Students will be swept into a thunderstorm, immersed in a hurricane, and caught up in a tornado - all in the comfort and safety of the DuPont Planetarium. Learn about the water cycle, the Sun's effect on weather, methods used to predict storms, and safety in hazardous weather.

Dig In!: (5K • **60 minutes** • Nov, Apr) Students will examine, compare, and sort Earth materials. Using magnifiers and sifting screens, they will investigate and describe properties of minerals, rocks, gravel, sand, and soil.

Mapping Landforms: (6-12 • **60 minutes** • Sept, Oct) Students create a topographic map and discover how landforms are represented by specific contour patterns. Using topographic maps of our area, we will locate Hitchcock Woods, the site of the Graniteville train wreck, and more.

Marvelous Minerals (3 • **60 minutes** • Jan) Working together in small groups, students handle mineral specimens such as sulfur, malachite, amethyst, hematite, quartz, bauxite, pyrite, fluorite, copper, and mica. They learn to identify and classify common minerals on the basis of their properties using a field guide and minerals identification key.

Minerals, Ores, & Fossil Fuels: (6 • **60 minutes** • Jan) Students learn to identify minerals by examining key properties of excellent specimens; then they identify 10 unknown minerals using a dichotomous key. Valuable products made from earth resources are discussed throughout the program.

Planet Earth Rocks!: (3 • **60 minutes** • Feb) Students observe, describe, and classify samples of igneous, sedimentary, and metamorphic rocks. Sediments and fossils are examined and described, and rock formation is discussed.

Rockin' & Rollin': (6 • **60 minutes** • Feb) Students handle and classify rocks and investigate how igneous, sedimentary, and metamorphic rocks are interrelated in the rock cycle. Sediments and fossils are examined and described, and a dichotomous key is used to identify 12 rock specimens.

NEW! Shake, Rattle, & Roll: (6 • **60 minutes** • Mar) **NEW!** Learn about catastrophic events such as volcanic eruptions and earthquakes. Find out why these events occur and how they impact the earth over time.

Interdisciplinary

***Follow the Drinking Gourd**: (1-4 • **60 minutes** • Feb) This planetarium show explains how American slaves used astronomy and song to escape bondage.

The Great Ocean Rescue: (5-12 • **60 minutes** • Oct, Dec) Travel the oceans on a cooperative rescue effort while studying oceanography. Students use reference material, analyze data, and develop hypotheses to locate a lost ship and plan a rescue strategy.

****Hitchcock Woods EcoHike**: (2, 3, 4, 5, 7 • **2 hours** • Sept, Oct, Apr, May) This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Participants should wear long pants and closed toe shoes and notify the guide of any health conditions or restrictions.

Rainforest Researchers: (5-12 • **60 minutes** • Sept, May) Working together as ecologists, ethnobotanists, plant chemists, and taxonomists, students use critical thinking and teamwork to solve problems affecting the rainforest.

***'Tis the Season**: (1-12 • **60 minutes** • Dec) 'Tis the Season traces the development of many holiday customs and how they involve lighting up the winter season. The reasons for our seasons are explained in the show, and possible explanations for the star of Bethlehem are discussed.

NEW! *To the Moon and Beyond: (4-12 • **60 minutes** • Nov) **NEW!** This program features the past, present, and future of lunar exploration and celebrates the success of NASA. This exciting, interdisciplinary program addresses social studies, science and math standards including the Space Race and the technological advances made during the Cold War.

Life Science

Animals with Backbones: (K, 2, 4, 5, 9-12 • **60 minutes** • Sept, Nov, Feb) We will compare and contrast attributes, adaptations, and habitat requirements of fish, amphibians, reptiles, birds, and mammals. Students will observe live animals including salamanders, frogs, turtles, snakes, and a small alligator.

NEW! Cold Blooded Creatures: (4K, 5K &1 • **60 minutes** • Dec, May) **NEW!** Students will learn about the major body parts of insects and test different insect "mouth parts" at feeding stations. Insects will be examined, sorted, and classified according to various attributes. The physical characteristics and life cycles of amphibians will be compared to insects.

Exploring Our Senses: (4K & 5K • **60 minutes** • May) Students will explore and exercise their five senses through hands-on, eyes-on, ears-on, and noses-on activities. They will describe and identify mystery sights, sounds, textures, shapes, smells, and tastes.

***Journey into the Living Cell**: (5-12 • **60 minutes** • Jan, Mar) The DuPont Planetarium takes students from vast, outer space to the intricacy of our inner space as students see and learn the structure and functions of major cell organelles.

Owls: Wise Guise: (3, 4, 5, 7, 9-12 • **60 minutes** • Oct, Jan, Apr) Silent flight, a curved, hooked beak and sharp, powerful talons are some of the adaptations that enable these nocturnal predators to survive at the top of the food chain! We will examine owls' physical characteristics, behaviors, and habitat requirements. We will also dissect owl pellets.

Plantastic: (1 • **60 minutes** • Apr) Students will identify the main parts of a plant, assemble plant life cycle puzzles, view time lapse photography of plants, and investigate methods of seed dispersal.

Ravenous Raptors: (3, 4, 5, 7, 9-12 • **60 minutes** • Sept, Nov, Mar) Students will have an up-close look at birds of prey and examine their role in the food chain. We will compare and contrast physical characteristics, adaptations, and habitats of hawks and owls, use field guides, and, if time permits, dissect owl pellets.

Mathematics

Coin Critters: (K-2 • **60 minutes** • Sept, Dec, Apr) Students will use computer software to explore counting, simple money concepts, and basic operations. They will identify, compare, and contrast attributes of pennies, nickels, dimes, and quarters.

The Graph Club: (1-3 • **60 minutes** • Feb, Apr, May) Students learn to gather information, construct colorful graphs, talk about their graphs, and use graphs to solve problems.

Hiker: (5-6 • **60 minutes** • Nov, Dec) This interactive program explores graphing concepts by using a computer program that creates graphs based on student movement. Students enjoy the challenge and fun of moving to create specific line graphs.

Measuring Matters (Merry Measuring I): (2 • **60 minutes** • Dec, Jan) Students are actively engaged in demonstrations and measuring projects involving length, capacity, and mass. Students enjoy using a balance to measure and order masses of different types of food.

Measuring with Minerals (Merry Measuring II): (3 & 4 • **60 minutes** • Jan, Feb) Students use Earth materials to investigate capacity and mass. They will explore the difference between mass and weight, learn how and why their weight would change if they left the planet Earth, and engage in problem solving activities such as estimating, measuring, and ordering the masses of different mineral samples.

Multiplication Madness: (3 • **60 minutes** • Oct) This program introduces and extends multiplication concepts. Students build arrays, learn problem-solving strategies, and play fast-paced games in the Macintosh computer classroom.

Polygon Puzzle: (5-6 • **60 minutes** • Oct, Nov, Mar) In this program students will use the Geometer's Sketchpad, a dynamic, interactive geometry software package, to discover and explore properties of triangles.

Physical Science

Circuit City: (5 • **60 minutes** • Oct, Mar) Using batteries, bulbs, wires, motors, and propellers, students will construct simple, series, and parallel circuits. They will also have a hair-raising experience with static electricity.

CSI Solutions: (5 & 7 • **60 minutes** • Nov, Mar) Scotty Bassett's dog is missing! Students will use chromatography and sifting to separate mixtures; use indicators to make solutions and identify a mystery substance; and examine hair and fiber samples with microscopes as they analyze evidence in a simulated crime scene investigation.

Do You See What I See?: (4 • **60 minutes** • Sept, Apr, May) Students will investigate and explore ways that light can be reflected, refracted, and diffracted by various objects.

NEW! Let There Be Light! (8 • **60 minutes** • Sept, Apr, May) Students explore properties of light using lasers, lenses, mirrors, ropes and their bodies! They discover how light waves are refracted, reflected and transmitted and how our eyes convert light into images.

Magnets and Motions: (1 & 3 • **60 minutes** • Nov, Mar) Students will predict, sort, test, and classify objects as being magnetic or non-magnetic. Using toys and fun hands-on activities, students will investigate properties of magnetism and demonstrate how the poles of magnets attract and repel.

NEW! May the Force Be With You: (4 & 8 • **60 minutes** • Sept, Dec, Mar) **NEW!** Students will investigate how simple machines, including levers, pulleys, and inclined planes, reduce the amount of force needed to do work.

Push Me, Pull Me: (K-2 • **60 minutes** • Nov, Apr, May) Students will experiment with force and motion using toys. They will investigate gravity, direction, and speed as they produce linear, zigzag, and circular motions.

"Sound"-sational: (4 • **60 minutes** • Oct) Students will learn about sound waves and how loudness and pitch may be manipulated. They will also use teamwork to construct their own musical instruments and play a song.

What's the Matter?: (2 • **60 minutes** • Sept, Dec, Apr) Students will investigate three states of matter: solid, liquid, and gas. They will observe, describe, and compare physical properties of solids and liquids and they will combine solids and liquids to create mixtures and solutions.

Technology

Computer Graphics I: (1- 2 • **60 minutes** • Any month) Young children learn to use a computer, mouse, and KidPix toolbox to draw lines, shapes, colors, and patterns. They will also use the paint bucket, paintbrush, stamps, and eraser tools.

Computer Graphics II: (3-12 • **60 minutes** • Any month) Unleash the power of Microsoft Word's computer graphics program! Draw customized lines and shapes; apply fill effects using color, gradient, texture and pattern; and create callouts with text boxes, 3-D effects, shadow effects and more.

Environmental Education

****STEP (Science Technology Enrichment Program**

(Grades K-12 • Full day • Any month)

The Science and Technology Enrichment Program (STEP) is a cooperative effort between Washington Savannah River Company, Silver Bluff Audubon Center, and the Ruth Patrick Science Education Center. Two field trip locations for STEP include the Savannah River Site and the Silver Bluff Audubon Center. At each location, STEP students utilize classroom and outdoor laboratories to conduct scientific investigations on topics such as water ecology, soils, wildlife, forestry, archaeology, navigation and more. For program information and a STEP reservation request form, please visit the STEP website at: **http://rpsec.usca.edu/step/**

Please indicate if you need any special services, assistance, or accommodations to participate in our programs by contacting Deborah McMurtrie at DeborahMc@usca.edu or 803-641-2834.