OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Ecological and Physical Science Study Center (EPSSC)
P.O. Box 2008
Oak Ridge, Tennessee 37831-6266

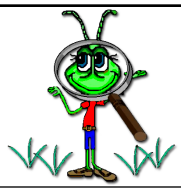
Dear Educator:

The ORNL Ecological and Physical Sciences Study Center (EPSSC) is pleased to offer science enrichment opportunities to you and your students. The cost of a one-hour class is $55.00 and $85.00 for a two-hour class.

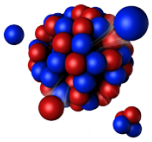
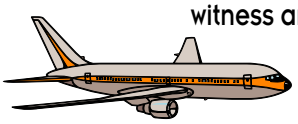
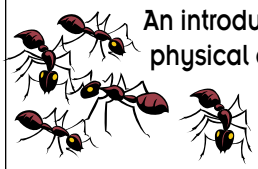
Enclosed is a listing of the available programs and a program request form. You may fax your requests to 865-241-6776, mail them to the address above or email them to beyersdorfvg@ornl.gov. Please call 241-9515 if you need additional information or have any questions regarding the EPSSC.

We look forward to serving you as your students investigate science and math using this valuable resource.

ORNL 2005-G03328/asg



Oak Ridge National Laboratory
Ecological and Physical Sciences Study Center
P.O. Box 2008, Oak Ridge, Tennessee 37831-6266
Gail Beyersdorf (865) 241-9515

Program Name	Description	Hours		Grades			
The cost of a one-hour class is $55.00 and the cost for a two-hour class $85.00 (Maximum Group Size: 30)		1 hr	2 hrs	K-2	3-5	6-8	9-12
Butterfly Bonanza!	Students will learn about butterfly anatomy, life cycle, habitats, and monarch migration. Microscopic examination, migration plotting, and a butterfly survival game are among the activities featured in this program. 		X	X	X	X	
Chemistry: It's Elemental	 Through hands-on modeling techniques, students will learn about matter, atoms, elements, mixtures and compounds.	X	X	X	X		
Electricity	Students do activities that teach concepts relating to static electricity and direct current. The static electricity section works best during cold months when heaters are running. 	X	X		X	X	
Flight and Hovercraft	Students make and experiment with a different kind of simple paper airplane, make their own simple model hovercraft and witness an air-jet rocket demonstration. Students also learn why real airplanes fly and observe other tricks with moving air. 	X	X	X	X	X	
Fun with Fossils	Learn about fossils and historical geology, identifying fossils in limestone hand specimens, and making a fossil mold. In addition to these activities, the 2-hour program includes wet sifting of fossil-laden clay from a local site.	X	X	X	X		
Geology Rocks	Students will learn about the layers of the earth, their composition, depth, temperatures, and their relation to minerals. Activities include testing 15 types of rocks.		X		X	X	
Habitat Hunters	Students will learn how to look for small animals, their signs, and their homes. Different habitats (fields, rock piles, trees, the ground, buildings, etc.) will be explored. Held at Freels Bend Cabin during the spring, summer, and fall. 		X		X	X	X
Insects: Friend or Foe	 An introduction to the common orders of insects, their physical characteristics, and incredible adaptability. Field activities involve collecting insects for identification and observation.	X	X		X		
Light and Sound	Explore reflections, shadows, and how light travels. Observe a demonstration of a laser. Investigate vibrations and explore how sound waves travel. Demonstration of a sound-level meter.	X	X		X	X	

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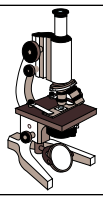
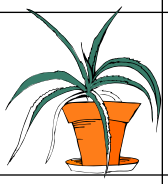
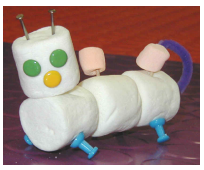
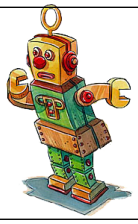
Magnetism	Students do activities that teach concepts relating to magnetism.	X		X	X		
Measuring Weighs	Students will learn the how and why of measuring (standards). They will compare the weights of various materials, including sand, rice, and beans. They will also perform tasks related to estimation and sorting. 	X	X	X			
Our Microscopic World	 An introduction to the importance of microorganisms. A projection microscope and a stereoscope are available, along with student microscopes to provide students with a close-up view of various microscopic organisms.		X		X	X	X
Plant Adaptations	An introduction to plant physiology. Students examine the anatomy of plants and learn how they are adapted to specific habitats. Offered spring, summer, and fall.		X		X	X	X
Plants, Pollinators, and Seeds	An investigation of the plants in the area with an emphasis on how they are pollinated and how seeds are dispersed. Seeds will be collected, analyzed, and classified. Fall only. 		X		X	X	X
Reebops	 Students learn how genetic traits are passed from parent to offspring by constructing baby REEBOPS. These little creatures have seven pairs of chromosomes that determine their characteristics.	X	X			X	X
Robomania	Students operate a variety of educational robots and explore the mechanical programming aspects of robots through hands-on activities. Robotic sensors are compared to the human body and senses; i.e., arms, ears, eyes. 	X	X	X	X	X	X
Science Sleuths	Students will use investigative techniques to solve the mystery of the disappearing bear.		X		X		
Sensible Science	 Through activities relating to the five senses, students explore how they respond to their environment. They also investigate how wild animals depend on their senses for survival and how robots use sensors to "see" where they are going.	X	X	X	X		
Simple Machines	This presentation includes a discussion of energy and the types of energy and provides hands-on experimentation within inclined planes, levers, wheels, springs, and compound machines. **Program not available at Freels Bend Cabin.**		X		X	X	
Skins and Skulls	Students will be making comparisons of animal skulls. In addition to creating a food web, they will be exploring different types of food eaters, including herbivores, carnivores, omnivores, and insectivores.	X	X		X	X	X

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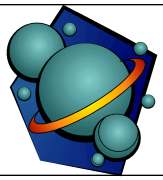
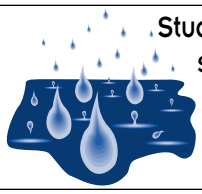
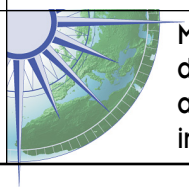
Spaced Out!	Discover how the earth, sun, and moon cause day and night, years, tides, and eclipses. Also, prepare to be astounded by the relative sizes and distances of our planets! 		X	X	X		
What Weather!	 Study cloud types, temperature, air pressure, wind speed and direction, rainfall, humidity, and the meaning of highs, lows, and fronts. The relationship between health and weather is explored.	X	X		X	X	
Wheels and Motion	Using the scientific method, students experiment with toy cars and rolling cans to investigate varying inclines, gravity motion, and friction. 	X	X		X	X	
Where Am I?	 Make a compass, construct a simple map, and devise and follow a compass trail. A large, open area is needed outdoors or indoors during inclement weather.	X	X		X	X	

Ecological and Physical Sciences Study Center Request Form

Requestor's Name: _____ Home Phone: _____ E-mail:_____

School/Org. Name: _____ School/Org. Phone: _____ Fax: _____

*School/Org. Street Address: _____ City: _____ State: _____ Zip: _____

County: _____ Preferred billing method (circle one) Fax / U. S. Mail / E-mail

Prior to completing the next section, refer to the program descriptions for limitations (e.g. class size, program length, availability etc.).

Program Name	**Duration** 1 hour $ 2 hours $	**Requested Date**	**Requested Time**	**Requested Location**	**# of Students****	**Grade Level**	*For Office Use Only* Cost / Instructor / Inv. #
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Fax Request Form to: (865) 241-6776 or Mail Request Form to:
Oak Ridge National Laboratory
Ecological and Physical Sciences Study Center
P. O. Box 2008
Building 4500N, MS-6266
Oak Ridge, Tennessee 37831-6266
Email: beyersdorfvg@ornl.gov

Any special instructions: _____

_____

* Billing address if different from above:

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