



National Science Resources Center

THE NATIONAL ACADEMIES  Smithsonian Institution



2008 NATIONAL SCIENCE RESOURCES CENTER PROFESSIONAL DEVELOPMENT OPPORTUNITIES FOR TEACHERS OF SCIENCE

Supporting the Professional Growth of Teachers



Smithsonian Science Education Academies for Teachers

July 6–11, 2008: *Energy and Motion*

July 6–11, 2008: *Biodiversity*

July 20–25, 2008: *Ecological Field Studies*

July 20–25, 2008: *Electricity and Magnetism*

Earn graduate credits for these academies



Additional courses that can be provided in your school district



“The important thing is not to stop questioning.” —Albert Einstein

National Science Resources Center

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The **National Science Resources Center** was established in 1985 by the **Smithsonian Institution** and the **National Academies** to improve the learning and teaching of science for all students in the United States and throughout the world. The prestige and credibility of these two world-renowned institutions provide the NSRC with access to research, scientific expertise, and resources to inform our work. They provide the NSRC with the unique opportunity to catalyze the reform of science education with leaders representing school districts, academic institutions, businesses, museums, foundations, government agencies, scientific and engineering societies, publishers of education resources, and nonprofit organizations working to improve K–16 science education.

The NSRC advances the missions of its parent institutions by expanding and extending their important work in the following ways:

- Translating their research, resources, and best practices into products and services which are disseminated to leaders working to improve K–16 science education;
- Building leadership capacity, especially within the science and engineering communities, to leverage change at the school district and state levels; and
- Educating a broad constituency of leaders about the important work of both institutions in science education.

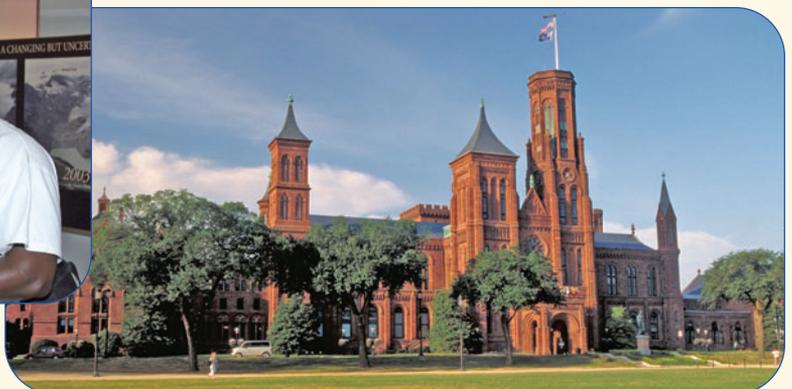
The National Academies are composed of three academies—the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine—and their operating arm, the National Research Council. These institutions work outside the framework of government to ensure independent advice to the nation on matters of science, technology, and medicine.



The Smithsonian Institution was established in 1846 with a mission of increasing and diffusing knowledge. For more than 160 years, the Smithsonian has used its unique, publicly accessible collections, research, and staff to inform, educate, and inspire a diverse public. In doing this, it has become one of the most widely recognized institutions in the world for both its contributions to science and its unparalleled ability to make its research and collections accessible to people of all ages.



Attendees study an exhibit at the Marian Koshland Science Museum of the National Academy of Sciences.



Smithsonian Institution Castle

Table of Contents

Smithsonian Science Education Academies for Teachers* 2–7



July 6–11, 2008: *Energy and Motion*, Washington, D.C. 4



July 6–11, 2008: *Biodiversity*, Washington, D.C. 5



July 20–25, 2008: *Ecological Field Studies*, Front Royal, Virginia 6



July 20–25, 2008: *Electricity and Magnetism*, Washington, D.C. 7

How to Register for Smithsonian Science Education

Academies for Teachers 8

Other courses available from the Professional

Development Center of the NSRC 9

**Winner, 2006 Smithsonian Education Innovation Award*



2008

National Science Resources Center Professional Development Opportunities for Teachers of Science *Supporting the Professional Growth of Teachers*



The National Science Resources Center's Professional Development Center offers courses, academies and short workshops that help teachers and their professional development providers gain conceptual understanding and pedagogical knowledge to teach science effectively. Teachers at all levels of experience—from beginner to expert—will benefit from the range of course offered by the center.

Smithsonian Science Education Academies for Teachers

As part of the world's premier museum and research complex, the NSRC uses its special access to the scientists, curators, and educators at the Institution to create a series of unique learning experiences—the *Smithsonian Science Education Academies for Teachers*. Many Academy sessions will be held at the museums and research centers of the Smithsonian and other museums, laboratories, and facilities in or near Washington, D.C.

Each of the four Academies is unique in both its approach and science specific content. Refer to the descriptions of the individual Academies on pages 4 through 7 of this catalog for details. Three graduate credits are available for each of the Academies.

Register online at the NSRC Web site (www.nsrconline.org). Or, if you prefer, complete the form at the back of this catalog and return it by mail or fax to the NSRC, or contact the Professional Development Center directly at (202) 633-2970.

Each academy includes:

- Hotel accommodations* for Sunday through Thursday nights;
- A Sunday evening dinner and Academy orientation;
- Daily breakfast and lunch (Monday through Friday);
- Special Thursday night celebration dinner or event;
- Transport to and from the daily events (when appropriate); and
- All materials and tuition.

**One additional person—spouse, friend, child—may stay in the participant’s room at no additional cost. Participants from the same area may choose to share a room to defray expenses. Arrangements may be made through the hotel to add a third person in the room for an additional fee.*

Academies do not include:

- Travel to and from the hotel from your point of arrival in Washington;**
- Parking fees;
- Evening meals Monday through Wednesday; or
- Registration for the graduate credit program and graduate credits.

***For the Ecological Field Studies Academy in Front Royal, Virginia, limited transportation will be available to and from the airport. Contact the Professional Development Center, nsrcpdcenter@si.edu, for details.*

The L’Enfant Plaza Hotel ...

... is a first-class hotel at 480 L’Enfant Plaza, SW, Washington, D.C. The hotel is a short walk from the National Mall, with its many museums and monuments. It is conveniently located atop the L’Enfant Plaza station on the Washington Metro (subway) serving the Yellow, Green, Blue, and Orange lines.

The NSRC has obtained a reduced room rate (included in the registration fee) to participants during the weeks of the academies. This special rate will also apply for the weekends before and after the academies, if you choose to extend your stay.

Bring your spouse, family, or friend. Each room can accommodate two persons with no extra charge. Participants are responsible for incidentals and charges for additional guests (over two). Include on the registration form the names of people who will not be attending the academy but who will stay in your room. Space is limited.

At this stage please do not contact the hotel directly. For more information on the L’Enfant Plaza Hotel, visit <http://www.lenfantplazahotel.com/about-us.cfm>.



Smithsonian Science Education Academy for Teachers

Energy and Motion

July 6–11, 2008

Washington, D.C.

The *Energy and Motion Academy* consists of a series of unique experiences designed to enhance teacher understanding of fundamental physics concepts and teaching approaches that relate to energy and Newton's Laws of Motion. Each day you will participate in hands-on content sessions on energy and motion concepts, and interact with scientists, curators, and museum educators during specially designed visits to museums, laboratories, and libraries.

Course Location

Smithsonian National Air and Space Museum, Washington, D.C. and its Udvar-Hazy Center, Chantilly, Virginia; Smithsonian National Museum of American History, Washington, D.C.; NASA Goddard Space Flight Center, Greenbelt, Maryland; Library of Congress, Washington, D.C.

Contact Time

Approximately 36 hours

Who Should Attend

Physical science teachers (grades 5–10)

Course Objectives

By completing this course, you will:

- Increase your understanding of key concepts of energy and motion;
- Experience and learn pedagogical approaches that facilitate a hands-on, inquiry approach to teaching about energy and motion;
- Expand your awareness of how increased knowledge of energy and motion principles have led to technological innovation and development;
- Increase your knowledge of the history of development of physical science concepts and teaching;
- Broaden your awareness of the social impact of science in our lives;
- Gain special access to, and understanding of, the scientific and educational resources of the Smithsonian Institution's collections and scientists; and
- Form rich connections through dialogue and shared experiences with a cadre of scientists and educators from around the country.

Course Fee

\$1,950, covers course materials, hotel accommodations near the National Mall, breakfast and lunch daily, a Sunday evening dinner and orientation, a special Thursday academy banquet, and local travel related to academy sessions (excluding transit to and from the airport or station). A discount of \$500 is available if you choose not to stay in the academy hotel.

College Credits

You can earn 3 college credits by taking this academy. For details on earning college credit, please contact the NSRC Professional Development Center at (202) 633-2970, or nsrcpdcenter@si.edu.



Smithsonian Science Education Academy for Teachers

Biodiversity

July 6–11, 2008

Washington, D.C.



The *Biodiversity* Academy consists of a series of exciting experiences designed to introduce you to a variety of earth's living organisms and to enhance your understanding of the concepts central to the nature and origins of biodiversity. Each day you will participate in sessions in which you will interact with Smithsonian scientists, curators, and museum educators as you explore aspects of this topic. Many sessions provide inquiry-driven hands-on experiences that can be translated to your classroom or local museum resources.

Course Location

The Smithsonian Institution: National Museum of Natural History, Washington, D.C.; National Zoological Park, Washington, D.C.; and the Smithsonian Environmental Research Center, Edgewater, Maryland

Contact Time

Approximately 36 hours

Who Should Attend

Middle school and high school (grades 6–12) life and earth science teachers

Course Objectives

By completing this course, you will:

- Develop your appreciation and knowledge of the variety of organisms that have evolved on Earth
- Improve your understanding of key concepts that relate to the origins and nature of biodiversity;
- Discuss and experience the nature of the work of scientists who study the diversity of life on our planet;
- Increase your awareness of some major threats to biodiversity;
- Explore the variety of life as you access the museum collections and other scientific and educational resources of the Smithsonian;
- Experience pedagogical techniques that facilitate a hands-on, inquiry approach in teaching about biodiversity; and
- Form rich connections through dialogue and shared experiences with a cadre of life scientists and educators from across the country.

Course Fee

\$1,950 covers course materials, hotel accommodations near the National Mall, all breakfasts and lunches, a Sunday evening dinner and orientation, a special Thursday academy banquet, and local travel related to academy sessions (excluding transit to and from the airport or station). A hotel discount of \$500 is available if you elect not to stay in the academy hotel.

College Credits

You can earn 3 college credits by taking this academy. For details on earning college credit, please contact the NSRC Professional Development Center at (202) 633-2970, or nsrpdcenter@si.edu.



Smithsonian Science Education Academy for Teachers

Ecological Field Studies

July 20–25, 2008

National Zoological Park Conservation and Research Center (CRC) Front Royal, Virginia



FRONT ROYAL ACCOMMODATIONS

Front Royal, home to the Smithsonian Conservation and Research Center, is a small town nestled in the scenic Shenandoah Valley, in close proximity to the Shenandoah National Park, many Civil War battlefields, and the famous Skyline Drive. The Academy hotel is the comfortable Hampton Inn in Front Royal, VA. Conveniently situated off Interstate 81, the hotel has ample parking.

Bring your spouse, family, or friend. Each room can accommodate an Academy participant and one additional person at no extra charge. Participants may arrange for a third person to stay in the room, but are responsible for incidentals and charges for the additional guest. Include on the registration form the names of people who will not be attending the academy, but who will stay in your room. Space is limited.

Please do not contact the hotel directly.

During the *Ecological Field Studies* Academy, you will discover what is required to create a world-class field studies program at your school. Each day you hone your field studies expertise while working in the field at the National Zoo's Conservation and Research Center. Center experts and experienced educators who regularly use these techniques in their own research and fieldwork will help you develop the skills you require to develop student-appropriate mapping, data-collection, interpretation and research projects.

Course Location

Smithsonian Conservation and Research Center, Front Royal, Virginia. Note that most of this Academy takes place outdoors and will require you to walk and work in the field under a variety of weather conditions.

Contact time

Approximately 40 hours

Who Should Attend

Middle school and high school (grades 6–12) life science teachers

Course Objectives

By completing this course, you will:

Conduct work that will enable you to develop an ecology program at your school:

- Develop your understanding of key concepts that relate to ecology and biodiversity;
- Learn techniques in the collection and classification of organisms;
- Improve your skills in the observation, mapping, and measurement of ecosystems;
- Experience how to interpret data collected in the field;
- Improve your understanding and experience the nature of the work of Smithsonian scientists who study life on our planet;
- Develop your understanding of field techniques that can readily be transferred to your school or district field studies resource;
- Begin to plan a field studies program for your school;
- Form rich connections through dialogue and shared experiences with a cadre of life scientists and educators from across the country; and
- Enjoy special access to the scientific and educational resources of the Smithsonian Institution.

Course Fees

\$1,650, covers course registration, handbooks, materials, accommodations at a Front Royal hotel, all meals, and transport to study locations. A hotel discount of \$500 is available if you choose not to stay in the academy hotel. Limited transportation arrangements from and to Reagan National and Dulles International airports will be available to non-local participants. (Front Royal is about 70 miles from Washington D.C.)

College Credits

You can earn 3 college credits by taking this academy. For details on earning college credit, please contact the NSRC Professional Development Center at (202) 633-2970, or nsrcpdcenter@si.edu.



Smithsonian Science Education Academy for Teachers *Electricity and Magnetism*

July 20–25, 2008

Washington, D.C.



The *Electricity and Magnetism* Academy uses the NSRC's unique access to the resources of the Smithsonian Institution and other museums, laboratories, libraries, and industrial facilities in the Washington and Baltimore metropolitan areas. The Academy has been designed to further teachers' understanding of the relationship between electricity and magnetism, electromagnetism, and the historical context in which knowledge of these topics was developed. Each day you will participate in hands-on content sessions on concepts of electricity and magnetism, and interact with scientists, curators, museum educators, and engineers as you explore the science and technology that relates to these topics.

Course Location

Include the National Museum of American History, Washington, D.C.; the Library of Congress, Washington, D.C.; the National Institute of Standards and Technology, Gaithersburg, Maryland; the Historical Electronics Museum, Linthicum, Maryland; Baltimore Gas and Electric Company, Baltimore, Maryland; and BP Solar, Frederick, Maryland

Contact time

Approximately 36 hours

Who Should Attend

Physical science teachers (grades 5–10)

Course Objectives

By completing this course, you will:

- Use hands-on inquiry to develop your understanding of key concepts that relate to electricity and electrical systems;
- Develop your historical knowledge of the work of scientists and inventors;
- Experience visits to laboratories and electrical facilities that will improve your understanding of the work of scientists, engineers, and other professionals in fields related to electrical energy;
- Enjoy special access to the scientific and educational resources of the Smithsonian Institution and the Library of Congress;
- Experience and learn pedagogical approaches that facilitate a hands-on, inquiry approach in teaching about electricity and magnetism;
- Visit industrial and research facilities that will enhance your understanding of the generation and distribution of electricity;
- Increase your knowledge of the career opportunities available to your students; and
- Form rich connections through dialogue and shared experiences with a cadre of scientists and educators from throughout the country.

Course Fees:

\$1,950 covers course design, hotel accommodations near the National Mall, all breakfasts and lunches, a Sunday evening reception and orientation, a special Academy banquet, and all local travel (excluding transit to and from the airport or station). See registration form for further details.

College Credits

You can earn 3 college credits by taking this academy. For details on earning college credit, please contact the NSRC Professional Development Center at (202) 633-2970, or nsrcpdcenter@si.edu.

2008 Smithsonian Science Education Academies for Teachers Registration Form

(Use this form only if you choose not to complete the online registration form at www.nsrconline.org.)

Name _____

School/School District _____

Home Address _____

City/State/Zip _____

Phone _____ Fax _____ E-mail _____

We are requesting your home address to facilitate communication during summer vacation from school. All further contact from the NSRC will be through e-mail unless you specify otherwise by circling "Address," "Phone," or "Fax," above.

Please include the following people in my room registration only (space-available basis):

(I understand there will be a minimal charge at the hotel for the second additional person or rollaway bed.)

#1 _____ Age _____

#2 _____ Age _____

Do you have special mobility, dietary, or other needs? If so, identify those needs here:

	Energy and Motion July 6–11	Biodiversity July 6–11	Ecological Field Studies July 20–25	Electricity and Magnetism July 20–25
Course fee	1,950	1,950	1,650	1,950
Discounts (check only those that apply):				
<input type="checkbox"/> Early-bird registration (deadline, April 30, 2008)	-100	-100	-100	-100
<input type="checkbox"/> Hotel (for those who choose not to stay at the academy hotel)	-500	-500	-500	-500
TOTAL	_____	_____	_____	_____

Detach this form and send it, along with your check, purchase order, or credit card information, to:

NSRC Professional Development Center
901 D Street, SW, Suite 704-B
Washington, DC 20024

You may also fax the completed form to 202.287.2070, ATTN: PD Center, and remit payment separately.

Make all checks and purchase orders payable to "National Science Resources Center." Call about deducting scholarships from the registration fee (202.633.2967 or .2970.)

Reserve your place at an Academy with a \$200 deposit (**non-refundable**). Registrants who pay in full by April 30 are eligible for an early-bird discount.

Credit card information: Visa MasterCard

Name on card _____

Card number _____ Expiration date _____

The NSRC will accept reservations on a space-available basis. When we receive your registration and payment, we will notify you if space is available.

Other NSRC Professional Development Courses

The Professional Development Center welcomes the opportunity to develop working relationships with you school district, math-science partnership, professional association, or corporate professional development initiative, and to customize its services to the unique needs of school districts and educational coalitions. You identify the course or courses that meet specific needs of your teachers, your school, or your district. You choose the location for the training. The NSRC will arrange combinations of courses or develop programs that fit into your professional development event.

Most professional development courses offered through the NSRC focus on the NSRC’s research-based, inquiry-centered science curricula: Science and Technology for Children® (STC) for students through grade six, and Science and Technology Concepts for Middle Schools™ (STC/MS™) for students in grades six through nine. A summary of courses offered by the NSRC’s Professional Development Center is provided in the table below.

Course	Audience	Description	Price
Level 1–Introductory			
STC & STC/MS Curriculum Showcase (5 hours)	Administrators, science content specialists, and teachers new to STC or STC/MS (up to 30 teachers and administrators)	<ul style="list-style-type: none"> • Introduction: “Why Use Inquiry?” An overview of the philosophy and goals of the STC Program • Hands-on experience with typical investigations used in STC Program curricula. Evidence of effectiveness of the STC Program 	\$2,500
Implementation Courses for Individual STC Units (6 hours)	Teachers (grades 1–6) new to STC (up to 20 elementary teachers)	Prepare teachers unfamiliar with STC to implement an STC unit in their classrooms. Each course is specific to one unit and guides teachers through all lessons. (Can be extended to 12 hours to include more science content for an additional fee.)	\$1,800
Implementation Courses for Specific STC/MS Modules (3 days, 18 hours)	Teachers (grades 6-9) new to STC/MS (up to 20 middle school teachers)	Prepare teachers unfamiliar with STC/MS to implement an STC/MS unit in their classrooms. Each course is specific to one unit and guides teachers through all lessons. (Can be extended one day to include more science content for an additional fee.)	\$5,400
Level 2–Intermediate			
Level 2 Implementation Courses for Specific STC/MS Modules (3 days, 18 hours)	Teachers who have at least one year teaching experience with the module (up to 20 middle school teachers who use STC/MS)	Focus on content and pedagogy instruction for current users of STC/MS	\$5,400
Short courses that support the inquiry approach to learning and teaching science	Teachers and teacher-leaders who are engaged in organizing or teaching inquiry-based science curricula (up to 30 teachers)	One-day courses that focus on specific areas of science education, such as: <ul style="list-style-type: none"> • Following conceptual strands in a K–9 science curriculum—STC and STC/MS • Showcasing STC and STC/MS curriculum materials • Using notebooks in inquiry science • Using probeware in grades six through nine science classrooms • Understanding the nature of inquiry science 	\$1,800
Level 3–Advanced			
STC/MS 3-day curriculum implementation courses—Train the trainers	Teachers and teacher-leaders with good presentation skills and more than two years’ experience teaching an STC/MS module (up to 20 middle school teachers/teacher-leaders experienced in using STC/MS)	Prepare education professionals to deliver the implementation courses or train them as NSRC-certified consultants	\$5,400

Courses are conducted on a fee-for-service basis by an NSRC-trained or -authorized consultant. Some of our consultants have been involved in the development of the curricula; others are seasoned classroom science teachers.

How to Request Workshops

Contact the Professional Development Center at nsrcpdcenter@si.edu or call 202.633.2970.



THE NSRC IS AN ORGANIZATION OF:

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

 **Smithsonian
Institution**



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