NATIONAL LASER MIDDLE SCHOOL SCIENCE EDUCATION PLANNING SYMPOSIUM

December 1–5, 2004

SYMPOSIUM OVERVIEW, APPLICATION INSTRUCTIONS, AND APPLICATION FORM

National Science Resources Center

THE NATIONAL ACADEMIES Smithsonian Institution

CONTENTS

NATIONAL LASER
MIDDLE SCHOOL SCIENCE EDUCATION PLANNING SYMPOSIUM

Dates: Wednesday, December 1–Sunday, December 5, 2004

Location: Georgia Institute of Technology (Georgia Tech University)
Global Learning Center
Atlanta, Georgia

Application Fees and Deadlines:
Space is limited. A maximum of 30 national and international teams will be accepted for participation in the Symposium. Early applications will receive priority review, and accepted teams can register at the discounted rate shown in the table below.

Fee	Postmark date	Acceptance date	Payment date*
$600/team member	September 1, 2004	September 15, 2004	October 15, 2004
$700/team member	October 8, 2004	October 15, 2004	November 15, 2004

*Registration fees are nonrefundable and due according to the schedule in the table. Make purchase orders and checks payable to "National Science Resources Center."

For More Information:

Mandy Monk
National Science Resources Center
The LASER Center
National LASER Middle School
Science Education Planning Symposium
901 D Street, SW, Suite 704B
Washington, DC 20024

Telephone: 202-287-7312
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OVERVIEW OF THE SYMPOSIUM

Program Description

The National Middle School Science Education Planning Symposium to be conducted by the National Science Resources Center (NSRC) is designed for school districts that meet at least one of the following criteria:

- Have made progress in implementing an exemplary inquiry-centered elementary science curriculum in their school system; *or*
- Are committed to implementing middle school science education reform; *or*
- Have attended an NSRC strategic planning institute

The Symposium will be held December 1–5, 2004, at the Georgia Institute of Technology (Georgia Tech University), Atlanta, Georgia. The Symposium is residential in nature. Directions will be provided. *For more details on the Symposium, see the NSRC Web site, www.nsrconline.org.*

Participants will explore emerging models for—and current research on—middle school science education reform, and will apply those models and research to their strategic planning effort. Through a 3_-day program of interactive workshops and discussions, leadership teams will:

- Address issues related to middle school science learning and teaching
- Explore with educational leaders the current research on how middle school students learn and develop
- Examine exemplary inquiry-centered middle school science curricula that help improve classroom learning and teaching
- Address the five elements of reform—curriculum, professional development, materials support, assessment, and administrative and community support—through the lens of middle school science, and focus on one or two of these elements during strategic planning
- Receive technical assistance in the strategic planning process
- Network with others involved in middle school science education reform

Application Instructions

How to Apply. We welcome all school districts to apply to the National LASER Middle School Science Education Planning Symposium, particularly those that have an elementary plan in place and may have attended an NSRC strategic planning institute in the past. To be considered for the National LASER Middle School Science Education Planning Symposium, please complete the application that follows these instructions. Applications must be received by ***October 8, 2004,*** to be considered for this Symposium. Please submit **six copies** of the application, at least one copy of which is printed on one side only, to the following (If you fax a copy, mail five copies to follow.):

National Science Resources Center
The LASER Center
National LASER Middle School
Science Education Planning Symposium
901 D Street, SW, Suite 704B
Washington, DC 20024

Telephone: 202-287-7312
Fax: 202-287-2070
E-mail: monkm@si.edu

Leadership Team Composition. Districts that wish to apply for participation must identify a four- to six-person leadership team. Team members must demonstrate that they collectively have the skills, commitment, and credibility to lead middle school science education reform in their community. The team will be expected to have met as a team prior to the Symposium.

Each team *must* include the following four members:

1. A district administrator who is charged with leadership for curriculum and instruction and who has fiscal decisionmaking responsibilities
2. An experienced middle school science teacher with demonstrated leadership skills
3. An elementary teacher leader in science
4. A scientist from a local corporation, college or university, museum, or federal research facility or an influential member of the community who will champion middle school science education reform

In addition, the team could include as many as two of the following members, depending on the capacity-building and implementation needs of the district's reform movement:

1. A middle school principal
2. A science education materials support manager
3. A professional development or assessment leader
4. An additional secondary school teacher from either the middle school or high school level

Application and Payment. Space is limited. A maximum of 30 national and international teams will be accepted for participation in the Symposium. Early applications will receive priority review, and accepted teams can register at the discounted rate shown in the table below.

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Continental breakfast and full lunch each day plus one evening meal are included for each participant. Leadership teams should make their own reservations at the special rate of approximately $125 per person per night, tax included. Information on obtaining reservations will be included with notification of acceptance. Participants are responsible for all transportation expenses.

Registration and an opening reception will take place concurrently from 5:00–7:00 p.m. on Wednesday, December 1.

Application Review Process. A screening committee will review applications to identify those school districts that have the greatest potential of benefiting from the Symposium. The following criteria will be used to select leadership teams:

- Background and leadership experience of the team members
- Evidence of commitment to middle school science education reform
- Student populations under-represented in science and technology
- Level of progress made in implementing an exemplary inquiry-centered science curriculum at the elementary level
- Participation in a previous NSRC strategic planning institute

For More Information. *See the NSRC Web site, www.nsrconline.org, for more information about the Symposium or the application process,* or for additional copies of this application. Direct inquiries regarding the application process to Mandy Monk, LASER Program Assistant, NSRC, at 202-287-7312 or monkm@si.edu.

APPLICATION COVER PAGE

Name of School District/Consortium Team _____

City, State _____

Team Members

First, select the four mandatory members. Then select as many as two of the optional members depending on the capacity-building and implementation needs of the district's reform movement:

The participation of the Superintendent of Schools has proven critical to the success of past teams. If the superintendent is not able to be part of your team, include a letter of support providing the following:

- Reason(s) for not attending
- Explanation of how he/she will support science education reform
- Rationale used to select a designee

	Position	Name	School District	School
Mandatory Members	District Administrator			
	Middle School Teacher			
	Elementary Master Teacher-Leader			
	Community Scientist or Leader			
Optional Members	Middle School Principal			
	Science Education Materials Support Manager			
	Professional Development or Assessment Leader			
	Additional Secondary School Teacher			

Please designate one of the mandatory team members as your team leader. This person will serve as the NSRC's primary point of contact with the team.

SECTION 1:
STUDENT DEMOGRAPHICS

If your team represents a consortium of school districts, please duplicate this page and complete a separate page for each school district in your consortium.

Legal Name of School District _____

A. Grade Levels and Schools in Your School District

1. Please circle grade levels served by your district. K 1 2 3 4 5 6 7 8 9 10 11 12

2. How many schools in your district are considered middle schools? _____

B. Student Enrollment

1. How many students in your school district are in middle school? _____

2. What is the total number of students in grades K–8? _____

C. Students Eligible to Receive Federally Subsidized Free or Reduced-Price Lunch ***(If at least 50% of the students are eligible for free or reduced-price lunch, you are eligible to apply for a Hewlett-Packard Science Leadership Grant. The HP application form is available on the NSRC Web site, www.nsrconline.org.)***

1. How many middle school students in your school district are eligible to receive free or reduced-price lunch? _____

2. What percentage of middle school students in your school district are eligible to receive free or reduced-price lunch? (C.1 ÷ B.1) _____

D. Number of Middle School Science Teachers

1. How many teachers in your school district are assigned to teach science in middle school? _____

E. Race/Ethnicity of Middle School Students

	African American (not of Hispanic origin)	American Indian or Alaska Native	Asian American or Pacific Islander	Hispanic	Caucasion (not of Hispanic origin)	Other (Foreign/ Unknown)	Total
1. Number of students by race/ethnicity							
2. Percentage of students by race/ethnicity (Divide line 1 by total number of K-8 students [B1, above])							100%

F. Characterize Your District ☐ Urban ☐ Suburban ☐ Rural

SECTION 2:
LEADERSHIP TEAM DEMOGRAPHICS

Legal Name of School District_____

Race/Ethnicity of Leadership Team

We are pleased that your school district/consortium is applying for participation in this National LASER Middle School Science Education Planning Symposium. The LASER Center gathers data for the development of a statistical profile of those that benefit from this opportunity.

Your voluntary submission of this information would be greatly appreciated, but it is not required. Should you choose not to provide this information, please check the box below marked "Decline to Provide." We ask that you sign and return the form either way as part of your application.

Race/Ethnicity of Persons Participating in Strategic Planning Institute

	African American (not of Hispanic origin)		American Indian or Alaska Native		Asian American or Pacific Islander		Hispanic		Caucasian (not of Hispanic origin)		Other (Foreign/ Unknown)	
	#Male	#Female	#Male	#Female	#Male	#Female	#Male	#Female	#Male	#Female	#Male	#Female
Team Members												

Please complete the following even if you decline to provide the information requested above.

Name of school district team: _____

Name of person providing information: _____

Position of person providing information: _____

Signature: _____

[ ] Decline to Provide. Please check here if you do not wish to provide information requested above.

SECTION 3:
CURRENT MIDDLE SCHOOL SCIENCE PROGRAM

Sections 3 and 4 *provide two methods of self-assessment of the current status of the science education program in your district. Section 3 is a narrative description, and section 4 provides rubrics to guide your assessment. The information will help both you and Symposium planners better understand the current state of science education in your district, including needs for improvement.*

If your team represents a consortium of school districts, please duplicate Sections 3 and 4 and complete a separate Section 3 and 4 for each school district in your consortium.

Legal Name of School District_____

1. List specific title(s) of science curriculum materials currently being used in your school district at each middle school grade level.

- Identify textbook series by publisher (e.g. Harcourt Brace, McGraw-Hill).
- Identify hands-on science units by program name and unit(s) at each grade level (e.g. FOSS "Human Brain and Senses"). The addendum, on the last page of this application, is a chart of unit titles for selected NSF-supported curriculum projects. Refer to the chart as you complete this section.
- Please indicate the level of use according to the following scale.

1 = used by 0-20% of teachers at the indicated grade level
2 = used by 20-40% of teachers at the indicated grade level
3 = used by 40-60% of teachers at the indicated grade level
4 = used by 60-80% of teachers at the indicated grade level
5= used by 80-100% of teachers at the indicated grade level

Grade	FOSS		STC/MS		SEPUP		Other	
	Unit	Level of Use	Unit	Level of Use	Unit	Level of Use	Unit	Level of Use
5								
6								
7								
8								

SECTION 3:
CURRENT MIDDLE SCHOOL SCIENCE PROGRAM—CONTINUED

Legal Name of School District_____

2. Describe how your district currently does the following:

- Selects and/or develops middle school science curriculum materials

- Provides professional development in science to middle school teachers and administrators

- Supplies middle school teachers with science apparatus and supplies

- Assesses student learning in middle school science

- Develops administrative and community support for new instructional programs

- Indicate the amount of time per week that middle school students are currently required to take science in your district.

  _____minutes_____times per week

SECTION 4:
RUBRICS FOR SCIENCE EDUCATION REFORM (ELEMENTARY SCHOOL)

Legal Name of School District:_____

For each rubric below, check the stage that best describes your school district's elementary school science program.

Levels of Curriculum Reform

	Level 0	No NSF-supported science education curriculum materials being used to provide a hands on, inquiry-centered approach to teaching and learning.
	Level 1	Some (any) NSF-supported hands-on, inquiry-centered science curriculum materials based on individual school (or) teacher decision.
	Level 2	District piloting NSF-supported hands-on, inquiry-centered science curriculum units/program(s) in part of system.
	Level 3	District-wide plan exists to introduce NSF-supported hands-on, inquiry-centered science curriculum into entire system and/or early stage of implementation.
	Level 4	Considerable progress in implementing NSF-supported hands-on, inquiry-centered science curriculum in entire system.
	Level 5	System-wide implementation of NSF-supported hands-on, inquiry-centered science program.

Levels of Professional Development

	Level 0	No plan or evidence of professional development for supporting the implementation of a hands-on, inquiry-centered science program.
	Level 1	Professional development program limited to introduction of hands-on, inquiry-centered science curriculum materials to some teachers.
	Level 2	A plan for professional development for all teacher and/or beginning of development of teacher leaders exist. Evidence of other activities (workshops, museums, and/or college connections).
	Level 3	Implementation of first-level workshops for most or all teachers in district. A plan for advanced professional development for all teachers. Evidence of systematic connection between district activities andopportunities at other institutions (museums, colleges, etc.). Ongoing classroom support for up to one-half of teachers in district.
	Level 4	Implementation of first-level activities for all teachers and provision for advanced professional development for all teachers. Evidence of systematic connection between district activities and opportunities at other institutions (museums, colleges, etc.). Ongoing classroom support for most teachers.
	Level 5	Funded, coherent, continuous system for professional development articulated with developmental needs of all teachers, curriculum implementations, assessment, and other professonial activities.

Levels of Student Assessment

	Level 0	No change, no plan for change.
	Level 1	Studying issue, planning, changes driven by outside forces (new state mandates).
	Level 2	Some use of alternative assessment strategies in individual schools, or by teachers using hands-on, inquiry-centered curriculum materials. Policy of acquiring curriculum materials that incorporate active assessment strategies.
	Level 3	Systematic professional development on assessment and/or teachers developing active assessments.
	Level 4	Initiating system-wide implementation of active assessment tied to grading practices and substituting for traditional, test-based grading.
	Level 5	Complete implementation of district-wide active science assessment and/or new science assessment is part of larger district-wide assessment plan

Levels of Development of Effective Materials Support System

	Level 0	No plans for a materials support system.
	Level 1	Recognized need for a materials support system for science, determined by school-based or individual teacher responsibility, or began planning for center launched, but plans aborted.
	Level 2	Temporary system with ordering and refurbishing of materials and supplies for pilot classrooms or schools, or planning stage for district-wide system.
	Level 3	Beginning to implement system-wide materials support system, but current system only partial; insufficient staffing, funding, etc.
	Level 4	Established district-wide materials support system
	Level 5	Intergrated district-wide math/science materials and in-service center, a functioning "teacher center."

Levels of Administrative and Community Support

	Level 0	No stakeholders from the community, including scientists or engineers, are working with the district for the sole purpose of supporting the science program.
	Level 1	Some stakeholders (scientists, engineers, parents, etc.) have been identified and individual relationships initiated between them and teachers or principals in some schools. Their purpose may vary, or their involvement may be short-term or event-specific.
	Level 2	Through a formal structure, district seeks to coordinate existing disparate efforts or to involve new institutions as partners to support hands-on, inquiry-centered science programs.
	Level 3	Partial plan for district/corporate/university partnerships created; first steps initiated.
	Level 4	District develops comprehensive plan with partners to secure community support and financial assistance for systemic reform.
	Level 5	Funded, coherent, continuous program being maintained and periodically evaluated.

SECTION 4—CONTINUED:
RUBRICS FOR SCIENCE EDUCATION REFORM (MIDDLE SCHOOL)

Legal Name of School District:_____

For each rubric below, check the stage that best describes your school district's middle school science program.

Levels of Curriculum Reform

	Level 0	No NSF-supported science education curriculum materials being used to provide a hands on, inquiry-centered approach to teaching and learning.
	Level 1	Some (any) NSF-supported hands-on, inquiry-centered science curriculum materials based on individual school (or) teacher decision.
	Level 2	District piloting NSF-supported hands-on, inquiry-centered science curriculum units/program(s) in part of system.
	Level 3	District-wide plan exists to introduce NSF-supported hands-on, inquiry-centered science curriculum into entire system and/or early stage of implementation.
	Level 4	Considerable progress in implementing NSF-supported hands-on, inquiry-centered science curriculum in entire system.
	Level 5	System-wide implementation of NSF-supported hands-on, inquiry-centered science program.

Levels of Professional Development

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	Level 1	Professional development program limited to introduction of hands-on, inquiry-centered science curriculum materials to some teachers.
	Level 2	A plan for professional development for all teacher and/or beginning of development of teacher leaders exist. Evidence of other activities (workshops, museums, and/or college connections).
	Level 3	Implementation of first-level workshops for most or all teachers in district. A plan for advanced professional development for all teachers. Evidence of systematic connection between district activities andopportunities at other institutions (museums, colleges, etc.). Ongoing classroom support for up to one-half of teachers in district.
	Level 4	Implementation of first-level activities for all teachers and provision for advanced professional development for all teachers. Evidence of systematic connection between district activities and opportunities at other institutions (museums, colleges, etc.). Ongoing classroom support for most teachers.
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	Level 2	Through a formal structure, district seeks to coordinate existing disparate efforts or to involve new institutions as partners to support hands-on, inquiry-centered science programs.
	Level 3	Partial plan for district/corporate/university partnerships created; first steps initiated.
	Level 4	District develops comprehensive plan with partners to secure community support and financial assistance for systemic reform.
	Level 5	Funded, coherent, continuous program being maintained and periodically evaluated.

SECTION 5:
MIDDLE SCHOOL SCIENCE PROGRAM NEEDS AND PLANS FOR IMPROVEMENT

If your team represents a consortium of school districts, please duplicate Section 5 and complete a *separate* Section 5 for each school district in your consortium.

Legal Name of School District:_____

Draw upon the self-assessment from sections 3 and 4 to describe:

1. The current strengths and weaknesses of your middle school science education program.

2. Your goals for strengthening your middle school science program over the next five years.

3. What you hope to learn at this Symposium to help you achieve your goals.

SECTION 6:
LEADERSHIP TEAM

Make a separate copy of the form on the following page for each team member. Then complete the forms, add the appropriate information on each team member's education and experience, and return them with your application.

Each leadership team *must* include the following four members:

1. A district administrator who is charged with leadership for curriculum and instruction and who has fiscal decisionmaking responsibilities
2. An experienced middle school science teacher with demonstrated leadership skills
3. An elementary teacher leader in science
4. A scientist from a local corporation, college or university, museum, or federal research facility or an influential member of the community who will champion middle school science education reform

In addition, the team could include as many as two of the following members, depending on the capacity-building and implementation needs of the district's reform movement:

5. A middle school principal
6. A science education materials support manager
7. A professional development or assessment leader
8. An additional secondary school teacher from either the middle school or high school level

Return completed forms to:

National Science Resources Center
The LASER Center
National LASER Middle School
Science Education Planning Symposium
901 D Street, SW, Suite 704B
Washington, DC 20024

Telephone: 202-287-7312
Fax: 202-287-2070
E-mail: monkm@si.edu

Team Member

Legal Name of School District: _____

Mandatory Member Optional Member

Name: _____

Position: _____

School, Department, or Program: _____

School District, Company, or Organization: _____

Work Address: _____

City: _____ State: _____ Zip Code: _____

Work Telephone: _____ Fax: _____

E-mail: _____

Alternative contact information:

Home Address: _____

City: _____ State: _____ Zip Code: _____

Home Telephone: _____

A. Education and Experience

As outlined below, summarize your experience on a separate sheet of paper. **Do not exceed two (2) pages, typed.** You may attach a professional resume instead. Do not include a cover page or any extra materials.

1. **Formal Education.** Institution, type of degree, major, minor, and dates degrees were granted.

2. **Employment Experience.** Please include teaching and other assignments that will provide an accurate portrayal of your experience.

3. **Professional Activities.** Examples: (1) membership in professional organizations, (2) publications, (3) research interests, or (4) grants awarded.

4. **Related Activities.** Examples: (1) outreach to the community, (2) liaison with local/regional businesses, (3) involvement with special youth programs, or (4) other collaborations or involvement in team efforts.

Please answer the following two questions on a separate sheet of paper and return and return your response with your application.

B. What do you anticipate your role will be in implementing the plan your team will develop at the Symposium?

C. How do you expect the school district to benefit from your participation in this Symposium?

Signature: _____

SECTION 7:
TEAM SURVEY

Legal Name of School District:_____

How did you learn about this **LASER Middle School Science Education Implementation Symposium?**

_____Announcement from the NSRC

_____Announcement from Regional LASER partner

_____Recommendation of _____

_____Other? (Please specify) _____

ADDENDUM:
SELECTED NSF-SUPPORTED MIDDLE SCHOOL CURRICULUM PROGRAMS

Use this chart in filling out the FOSS, STC/MS, and SEPUP columns in the table on page 4.

FOSS Middle School Program Modules

Planetary Science	Human Brain and Senses	Earth History	Electronics
Diversity of Life	Weather and Water	Populations and Ecosystems	

STC/MS Middle School Program Modules

Properties of Matter	Human Body Systems	Catastrophic Events	Energy, Machines, and Motion
Organisms—From Macro to Micro	Earth in Space	Light	Electrical Energy and Circuit Design

SEPUP Middle School Program Modules

Chemical Survey/ Solutions and Pollution	Determining Threshold Limits	Risk Comparison	Investigating Groundwater: The Fruitvale Story
Toxic Waste: A Teaching Simulation	Plastics in Our Lives	Investigating Chemical Processes: Your Island Factory	Chemicals in Foods: Additives
The Waste Heirarchy	Investigating Hazardous Materials	Household Chemicals	Environmental Health Risks
Water Usage and Safety	Materials Science	Energy Use	Environmental Impact
Studying People Scientifically	Body Works	Micro-Life	Our Genes, Our Selves
Ecology	Evolution	Tools and Ideas	