



REQUEST FOR PROPOSAL

This request for proposal seeks a highly qualified company to evaluate the program goals as identified herein for the Mickelson ExxonMobil Teachers Academy program. Responses are due to the National Science Teachers Association (NSTA) by January 31, 2014, and a selection will be made by February 17, 2014. The scope of work includes a two-year contract that will evaluate (1) onsite hands-on summer teacher academies for approximately 600 teachers at three different locations; (2) an online blended component involving an e-learning portal that includes self-directed web modules, web seminars, and tools that facilitate online community discussion, badges, reflection, and learning (pre and post Academy); and (3) classroom observations to examine teacher practice pre and post Academy. A validated classroom teacher observation protocol must be used to conduct said observations and should draw upon accepted frameworks and rubrics from the Danielson Group as well as the intertwining of the three dimensions in the Next Generation Science Standards. The funding allocation will not exceed \$170,000 per year. Deliverables will include a comprehensive and agreed upon evaluation plan with formative and summative components, a timeline, interim reports, and a final report at the conclusion of the period of performance. Several onsite meetings will be required at the early stages of planning, midway through the execution of the plan, and to present the final report at the conclusion of the annual program.

NSTA, Math Solutions, and the ExxonMobil Foundation have collaborated to provide an innovative five-day professional learning program that helps 3rd, 4th and 5th grade teachers implement research-based instructional strategies to engage students in science and mathematics inquiry learning. Since 2005, the Mickelson ExxonMobil Teachers Academy has worked with close to 3,100 teachers and school leaders to help reinforce the teaching of science and mathematics inquiry to elementary teachers, impacting an estimated 175,000 students. The objective of the Mickelson ExxonMobil Teachers Academy is to make a significant contribution to students' science and mathematics education. The Mickelson ExxonMobil Teachers Academy shows teachers how to combine mathematics and science concepts into everyday lessons. This integrated model has resulted in a dramatic improvement in the way teachers understand mathematics and science, and most importantly, how to teach these concepts in concert with one another to elementary school students. The overall goal is to influence teacher practice and promote teacher change.

The Academy goals are to

- deepen participants' understanding of mathematics and science content in the areas of data and statistics, measurement, force, and motion;
- understand how children learn and apply that knowledge to classroom instruction; and
- increase participants' knowledge and use of instructional strategies to influence teacher change and support student learning and academic achievement.

After the Academy, participants will be able to

- apply knowledge about how students learn to make sound instructional decisions regarding content and classroom organization by
 - creating classrooms that are student-centered and focus on students' understanding of content rather than memorization;
 - using a learning cycle, such as the 5E model, that supports what research says about how learning occurs; and
 - utilizing hands-on experiences as aids in building student understanding;

- use inquiry-based instruction/science and engineering practices to support students' achievement in mathematics and science;
- implement science and mathematics notebooks for the purpose of deepening content knowledge and in support of literacy goals;
- engage in a year-long blended model of professional learning through a variety of online experiences; and
- modify teaching practices to include increased science and engineering teaching strategies within their elementary classroom.

Founded in 1944, the National Science Teachers Association is the world's largest organization dedicated to promoting "excellence and innovation in science teaching and learning for all." NSTA's 60,000 members — representing science educators, science supervisors, informal science educators, administrators, scientists, and leaders in business, industry, and government — allow NSTA to be the "keeper of the conversation" on science education within the United States. NSTA reaches nearly half a million science educators and policymakers each week with its online products and services.

Research shows that elementary professional learning programs must provide opportunities for teachers to learn how to help students develop an understanding and the skills necessary to function as problem-solvers in a scientific and technological world. Elementary school students learn science and mathematics best when involved in first-hand explorations and investigations where inquiry/process skills are nurtured, instruction builds directly on the student's conceptual framework, content is organized on the basis of broad conceptual themes, and communication skills are an integral part of instruction. NSTA offers teachers experiences that enable the use of hands-on activities to promote skill development and appropriate methods to promote positive attitudes toward science and mathematics.

The national standards document — *Next Generation Science Standards* — describes the skills that all students need to achieve science literacy. Moving that vision into the classroom depends on teachers' knowledge and skills. Research has shown significant positive correlation between improved student learning and increased teacher content knowledge acquired through high-quality professional learning tools, resources, and experiences. Unfortunately, many elementary-level teacher preparation programs often fail to provide science content knowledge to the degree necessary for educators to confidently teach these subjects.

Mission Statement

The Mickelson ExxonMobil Teachers Academy for teachers of grades 3-5 is dedicated to increasing students' learning and appreciation of mathematics and science by

- enhancing teachers' mathematics and science content knowledge;
- demonstrating the relationship between scientific inquiry and mathematical problem solving;
- helping teachers use the tools of mathematics to build understanding of and connections to science concepts;
- encouraging teachers to examine current teaching practices; and
- modeling best practices in teaching and learning that teachers can use in their classrooms.

Curriculum

Each Academy session has been designed so that science content is the driving force and mathematics is the tool for learning science. The Academy uses current mathematics and science standards to define grade appropriate content for the week. Science concepts, such as motions and forces, action/reaction, Newton's first, second and third laws, fall within the Disciplinary Core Ideas in Physical Science of the *Next Generation Science Standards*. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers.

The Next Generation Science Standards

The eight essential elements for science and engineering practices are being infused in the curriculum of the Mickelson ExxonMobil Teacher Academy. In the winter of 2013, the Mickelson ExxonMobil Teacher Academy's faculty began to incorporate the science and engineering practices which are imbedded in the *Next Generation Science Standards*. These practices include asking questions and defining problems; developing and using models; planning and carrying out investigations; analyzing and interpreting data; using mathematics and computational thinking; constructing explanation and designing solutions; engaging in argument from evidence; and obtaining, evaluating and communicating information. The goal is to provide teachers with opportunities to immerse themselves in these practices and to explore the skills needed to teach elementary school students.

The Common Core Standards — Mathematics

The mathematics curriculum of the Mickelson ExxonMobil Teachers Academy is aligned to and promotes the Common Core State Standards for Mathematical Practice. The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers know what they need to do to help them.

All of the experiences in the Academy are designed to help students ***make sense of problems and persevere in solving them*** (mathematical practice #1). Instructors model expectations for mathematically proficient students when they pose questions and ask teachers to explain to themselves the meaning of a problem and look for entry points to its solution. They are asked to analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem to gain insight into its solution. They monitor and evaluate their progress and change course if necessary.

Participants gain a deep understanding of mathematical practice #2, which is to ***reason abstractly and quantitatively***. Throughout the experiences of the Academy, participants are required to make sense of the quantities and their relationships in problem situations. They must bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process to probe into the referents for the symbols involved.

The third practice, ***construct viable arguments and critique the reasoning of others***, is a keystone of the Academy experience. Participants are asked to make conjectures and build a logical progression of statements to explore the truth of their conjectures. They analyze situations by breaking them into cases, and recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. Because of the nature of the experiences during the Academy, participants must reason inductively about data, making plausible arguments that take into account the context from which the data arose. The Academy instructors work diligently on creating a learning environment that supports and promotes participants listening or reading the arguments of others, deciding whether they make sense, and asking useful questions to clarify or improve the arguments. The Academy participants carefully consider the characteristics of such an environment and collaboratively examine ways to create this kind of environment in their classrooms.

Throughout the Academy experience, participants collect data and represent it in tables and graphs. They build expertise in seeing these representations as ways to mathematically model the natural phenomenon. By the end of the Academy, participants can apply what they know and are comfortable making assumptions and approximations to simplify a complicated situation. This is directly linked to practice 4, ***models with mathematics***.

The fifth mathematical practice, ***use appropriate tools strategically***, is applied throughout the Academy. Participants are asked to consider the available tools when solving a problem. These tools might include pencil and paper, concrete models, ruler, protractor, calculator, or physical materials. They repeatedly must make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations.

During the Academy, participants practice making claims and providing evidence for those claims. They are expected to communicate precisely to others using clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, specify units of measure, and label axes to clarify the correspondence with quantities in a problem. This exemplifies mathematical practice 6, ***attend to precision***.

The seventh mathematical practice is ***look for and make use of structure***. Participants in the Academy repeatedly use this practice as they look closely to discern a pattern or structure in the experiments and experiences of the week.

The last practice, ***look for and express regularity in repeated reasoning***, is addressed in the Academy as participants maintain oversight of processes as they investigate problems while attending to the details. They continually evaluate the reasonableness of their intermediate results and look both for general methods and for shortcuts that can explain their claims.

The Common Core Standards -- Reading

The curriculum of the Mickelson ExxonMobil Teachers Academy is aligned to and promotes the Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science and Technical Subjects.

The Common Core Standards for English Language Arts and Literacy in History/Social Studies, Science and Technical Subjects (the Standards) are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of K-12 standards to help ensure that all students are college and career ready in literacy by the end of high school.

The Mickelson ExxonMobil Teachers Academy Curriculum focuses mainly on the ***Reading Standards for Informational Text grades 3 -5 Integration of Knowledge and Ideas Area*** in the capacity as supporting the lessons. The English/Language Arts Standards are supporting standards for the main focus centered on the science and mathematics practice. In this area the Academy curricula support teachers with their ability to

- use information gained from illustrations (e.g. maps, photographs) and the words in a text to demonstrate understanding of the text (e.g. where, when, why, and how key events occur). [grade 3]
- interpret information presented visually, orally or quantitatively (e.g. in charts, graphs, diagrams, timelines, animations or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. Help teachers to refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. [grade 4]
- draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. Explain the relationship or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text. [grade 5]

Expectations of Participants

The expectation is that teachers will gain more content knowledge and add to their instructional strategies “toolbox” to implement in their classrooms. Teachers for 2 of the 3 Academies attend as part of a school or district team, and as such, develop a plan for sharing what they have learned in their school and/or district.

Each participant is expected to attend all sessions, complete all assignments, and actively be engaged in each meeting. Teacher participants are asked to make daily journal entries to process the course experiences, identify pedagogical and content concerns, and formulate questions. Each teacher is required to display a level professional behavior at all times.

Powerful professional learning is continuous and ongoing.; Research states that a blended model of face-to-face and on-line learning is most effective; therefore, all participants continue their learning by completing the NSTA Force and Motion SciPack and participating in [NSTA Learning Center](#) web seminars.

RFP Response

This request for proposal seeks a highly qualified company to evaluate the program goals. To be considered for this program contract, please respond to the following questions:

1. Company Background:

- 1.1. When was your business established? Provide a brief description of your company's history. Include a breakdown of the overall number of employees and organizational structure of the company.
- 1.2. Has your organization been cited and/or fined for failure to comply with any national regulations in the past five years? If so, please indicate violation and fine.
- 1.3. Has your company, including any franchises, filed bankruptcy within the past five years?
- 1.4. Are you an equal opportunity employer?
- 1.5. What percentage of your core business is derived from the science education field?
- 1.6. Describe your top 5 most significant collaborations and the organizations that you served as a third party evaluator as related to the opportunity requested herein.
- 1.7. Submit a list of 3 reference accounts. At the appropriate time we will ask to contact one or more references and to pay a site visit.
- 1.8. What do you believe distinguishes you from your colleagues in the field of evaluation? Be specific and identify those colleagues as you differentiate your skills, services, and expertise.
- 1.9. What strategies, methodology, and model do you propose to complete the program evaluation and across what timeframe? Please draw from the literature to justify the models and methods you propose.
- 1.10. Describe a prior evaluation "speed bump" and how you resolved the challenge (e.g., participant attrition, access to student data, district/administrator turnover or change in the level of support, etc.).
- 1.11. Describe existing strategic partnerships you have with other vendors and how these partners add to your product's functionality and/or scalability.

2. Knowledge – Science Education Evaluation

- 2.1. Name the research projects, if any, your organization is currently participating/conducting.
- 2.2. How familiar is your company with the *Next Generation Science Standards*?
- 2.3. Provide a sample project implementation plan, including a timeline with major milestones. Estimate the timescales for implementation based on the information you have of NSTA and the Mickelson ExxonMobil Teacher Academy.

3. Program Implementation

- 3.1. What training/support protocols and systems do you provide or recommend for program implementation?
- 3.2. Explain how your staff/team envisions working with NSTA staff members and the districts in which the data will be captured for the evaluation.
- 3.3. Provide an estimated 3-year evaluation plan schedule.

4. **Budget Outline**

- 4.1. Provide detailed itemized pricing for implementation and evaluation, to include protocol or instrument development if necessary (or if using established instruments). Clearly break down cost for initial design implementation, annual reoccurring cost associated with evaluation, etc.
- 4.2. Provide a copy of your company's standard contract.

Key Dates

Below are the key dates that will outline our selection process for a third-party evaluator. These will be adhered to as specified to ensure an equitable opportunity for all organizations competing for this opportunity.

Dates	Action
Friday, January 31, 2014	RFP responses due to NSTA
Monday, February 17, 2014	Decision date for chosen evaluator, with notifications sent to all those who submitted a proposal
Week of March 3, 2014	Meeting with NSTA to discuss outlined scope of work for 2014 Mickelson ExxonMobil Teacher Academies
Spring 2014	Obtain IRB approval for specified school districts for 2014 – 2015 academic year
Monday, May 5, 2014	Begin to distribute pre-Academy surveys to all registered participants
June 15 – June 20, 2014	Mickelson ExxonMobil Teachers Academy – Houston, TX
July 8 – July 13, 2014	Mickelson ExxonMobil Teachers Academy – Denver/Pittsburgh
July 20 – July 25, 2014	Mickelson ExxonMobil Teachers Academy – Send My Teacher, Jersey City, NJ
Fall 2014-Spring 2015	Collect data from school districts.

Directions:

Final submissions for proposals are due Monday, December 20, 2013. Please submit all proposals to:

National Science Teachers Association
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