

2008-2009 Improving Teacher Quality State Grants Awards (No Child Left Behind Act 2001)

-College of William and Mary-

SURN Lesson Study, Leadership, and Literacy in Mathematics

Project Director: Dr. Marguerite Mason
Amount: \$185,000.00
Abstract: SURN Lesson Study, Leadership and Literacy in mathematics will provide professional development in content, pedagogy, and leadership to instructional leadership teams of 90 teachers, principle and central office administrators in 18 middle schools including nine from high-poverty divisions. School teams will participate in collaborative Lesson Study to increase administrator and teacher leadership capacity and student performance in mathematics. In Lesson Study, teams will systematically examine their practice by working together to plan, teach, observe and critique lessons, then revise and re-teach them while observing the impact on student learning. The professional development model features a three-day summer academy, follow-up leadership team meetings during the academic year, site-based Lesson Study involving approximately 173 teachers, and a Lesson Fair to disseminate products to an additional 300 middle school educators in Virginia. Thirteen other divisions belonging to the School-University Research Network will benefit through an intensive fall workshop offered to mathematics and special education teachers from SURN middle schools.

-George Mason University-

Algebraic Connections and Technology in Middle Grades Mathematics

Project Director: Dr. Jennifer Suh
Amount: \$73,000.00
Abstract: The goal of A.C.T. Now: Algebraic Connections and Technology in Middle Grades Mathematics is to provide professional development using research-based instructional practices to develop algebraic thinking and effective uses of technology in middle grades mathematics (grades 3-8). The project will recruit 50 teachers from at-risk elementary and middle schools in the Fairfax County Public Schools for the A.C.T. Now Summer Institute. Two mathematics specialists (K-8) will be recruited to collaborate with the university mathematicians and mentor the teachers. The two week summer institute and the four meetings throughout the academic year will offer a total of 50 contact hours offering teachers graduate credits (3 credits), resources such as course texts, tool kits, and support to design and disseminate their professional learning.

-James Madison University-
Partnerships for Realizing Improvements in Science and Math (PRISM)2

Project Director: Mr. Dominic Swayne
Amount: \$210,000.00
Abstract: *Partnerships for Realizing Improvements in Science and Math 2* (PRISM 2) will provide elementary and middle grades (grades 6 and 8) personnel of the Charlottesville, Harrisonburg, Rockingham and Page County schools with a unique Science, Technology and Math (STM) development and mentoring program in Earth and Physical Science and the use of Vernier LabQuest technology for SOL/STM instruction. In-service and pre-service teacher mentoring pairs, along with principals, assistant principals and educational leadership interns, will implement new STM instructional strategies and examine teacher induction and retention issues. Over a 15 month period 4 workshops, 30 mentor pairs, one summit and an interactive technology learning site will be disseminated using curriculum, expertise and resources of the James Madison University College's of Education, College of Science and Math, and the College of Graduate and Outreach Programs. There will be a total of 79 participants in this program over a total of 15 months through the fall semester 2009.

-Lynchburg College-
Enhancing Content Knowledge and Recruiting Future Teachers

Project Director: Dr. Roger Jones
Amount: \$100,000.00
Abstract: The Central Virginia Regional Consortium (Amherst County, Appomattox County, Bedford County, Campbell County, Lynchburg City Schools, and Lynchburg College) requests support for a multi-dimensional project responding to identified critical needs within our region. The primary areas of emphasis are the provision of content coursework for secondary school teachers, the development of a curriculum and instruction course sequence that will be coordinated with preparing teachers for national Board Certification, training for middle school teachers to enhance mathematics instruction, the design and implementation of a program to train professionals, the implementation of a "Teachers for Tomorrow" program to prepare high school students for careers in teaching, and a plan for sustainability.

-Old Dominion University-
Integrating Assessment and Literacy Instruction for Powerful Learning

Project Director: Dr. Jack Robinson
Amount: \$110,074.00
Abstract: The project builds on and expands the collaborative work Old Dominion University and Norfolk Public Schools have been engaged in over the past two and a half years in support of the district's goal of developing

"powerful literacy" for all its students. Forty teachers will participate in a summer workshop followed by year long professional development as members of "learning teams" to enhance their ability to integrate a deeper understanding of teaching reading and writing to learn skills integrated with assessment for learning skills and the authentic use of these skills in inquiry oriented units of instruction in science to enhance student learning.

-Old Dominion University-

MarineTech: STEM Preparation through Marine Science/Engineering Projects

Project Director: Dr. Alok Verma

Amount: \$120,000.00

Abstract: Old Dominion University (ODU) and Longwood University are working collaboratively in this teacher education project, *MarineTech*, to integrate an innovative underwater robotics curriculum into science, technology, engineering and mathematics (STEM) courses in the racially diverse and economically disadvantaged Southside, Central, and Eastern Virginia school divisions. The project targets 40 math, science, and technology education teachers in grades six through twelve, each of whom receive 40 hours of summer professional development and 40 hours of follow-up training and support. Teachers will work an additional 40 hours in working with their students to build underwater robot, Sea Perch. More than 1,200 students will derive benefits from the learning experience of the teachers. The project addresses the urgent need to enhance students' interest and performance in STEM courses, while fostering skills that are important prerequisites for STEM careers, particularly in marine engineering. In the near term, project will incorporate activities and resources so that teachers can incorporate these activities to meet the Virginia SOL. Over the long term, the project will help to inspire and prepare a new generation of engineers and technical personnel.

-Old Dominion University-

Middle School Mathematics Pedagogical Content Knowledge and Assessment Training

Project Director: Dr. Steve Myran

Amount: \$194,153.00

Abstract: The purpose of the project is to actively engage middle school mathematics teachers and department chairs in research-based training in mathematics content, pedagogy and classroom assessment literacy. This training differs from traditional efforts by being contextualized for their unique settings and is designed to integrate directly with their daily practice. To ensure that the funded efforts dovetail with the division's current work, our project is being carefully interwoven with an ongoing tri-weekly assessment initiative. The existing program trains teachers in writing and evaluating quality assessment items and in data-driven decision making. These combined efforts are designed to provide participants with pragmatic, actionable strategies and resources. In

this way, our approach addresses educators' need to develop and refine their professional knowledge and skills to work collaboratively to plan, try out, evaluate and share their experiences with other educators. This interactive model represents an approach to school/university collaboration that better utilizes the strengths of university and public school personnel and links progress to student performance. The goals of the project are to (1) build a stronger mathematics educators community with the school division; (2) equip teachers with interactive resources and processes to promote professionalism and sustain growth; (3) improve teacher quality; (4) improve instructional leadership; and (5) improve student performance, will directly impact 60 teachers and indirectly all middle school math teachers in the division.

-Radford University-

Pittsylvania/Danville – Radford Initiative for Science and Mathematics (PRISM)

Project Director: Dr. Walter Jaronski

Amount: \$130,000.00

Abstract: The central purpose of this proposed project is to improve elementary and middle school students' science and mathematics literacy and SOL achievement by improving teachers' elementary and middle science and mathematics instruction, including teachers' understanding of how to teach literacy across the disciplines. Inquiry-based science, mathematics, and reading curriculum materials, strategies, and assessments will be incorporated that align with Virginia's Science and Mathematics Standards of Learning. Project coursework will consist of a three-credit hour graduate elementary and middle science course in Danville and a three-credit hour graduate mathematics course in Pittsylvania County. The program is designed for 48 participants in Southside and Southwest Virginia. Leadership development will be emphasized for teachers and principals through mentoring workshops and dissemination sessions.

-Sweet Briar College-

Inquiry Approaches to math and Science: Grades 3-8

Project Director: Dr. Jill Nelson Granger

Amount: \$200,063.00

Abstract: Central Virginia 3rd – 8th grade teachers will be engaged in using inquiry-based learning to support math and science instruction. Our goal is to present teachers with professionally relevant content using an inquiry-based teaching strategy that will engage diverse learners and will generate enthusiasm of learning among teachers and students. The project supports summer courses as well as an academic year agenda of workshops that extend content. In-class support is provided to aid teachers with planning, implementing and assessing inquiry lessons. Continuing education and graduate credit options are available. Maximum attendance will be 318 (note: assuming maximum of 16 participants in

all 12 AY workshops, all 6 summer courses, and both EDUC courses) in on-campus programs, with the estimated number of unique participants around 150.

-University of Virginia-
Space Science for Teachers

Project Director: Dr. Edward Murphy

Amount: \$46,570.00

Abstract: The Department of Astronomy and the Curry School of Education at the University of Virginia are collaborating with school divisions in Central and Southwest Virginia to develop and offer the Space Science for Teachers professional development class during the 2008-2009 academic year. The course will cover all astronomy, space science, and nature of science SOLs for grades 4-9. Participants will learn how to address the Virginia Science SOLs using hands-on, inquiry based approaches to space science instruction. The participants will also develop skills and pedagogical approaches to using innovative technologies in the classroom, such as an inflatable planetarium, astronomy planetarium software, and computer-driven telescopes. The class will be taught as a blend of face-to-face meetings in Central and Southwest Virginia and online lessons and assignments using an online course management system.