

## *University of Arkansas at Fayetteville: Mathematics and Science Together (MAST) Partnership*

The Mathematics and Science Together (MAST) partnership seeks to provide a working team of teacher leaders in the 6-8 grade band a rich collection of instructional materials from which they may draw. These activities eventually will benefit all teachers in each partner school. Fifty-three teachers from six partner districts, representing 12 local middle schools and 5 junior high schools, were recruited to participate in the three-year project (2013-2016). The districts are Bentonville Public Schools, Fayetteville Public Schools, Prairie Grove Public Schools, Rogers Public Schools, Siloam Springs Public Schools, and Springdale Public Schools. Content delivery will occur in two school-year meetings and an 8-day summer workshop each year. The workshop model was developed and implemented at the 7-12 level over the past four years as part of the National Science Foundation-funded College Ready in Mathematics and Physics MSP. This model pairs teams of mathematics and science teachers from the same school and grade level to investigate the connected nature of the two subjects and to create integrated activities that they can use in their classroom.

The project's goals are:

- To improve teachers' content knowledge and pedagogical content knowledge with respect to the mathematics, science, and engineering practices that comprise the grades 6-8 curriculum in the Common Core State Standards for Mathematics (CCSSM), the Next Generation Science Standards (NGSS), and the connections between them;
- To increase student achievement in mathematics and science;
- To strengthen teacher practice by emphasizing and exploring student-centered methods of instruction and project-based methods of exploration.

These goals will be achieved through in-depth professional development workshops, conducted by researchers in the fields of mathematics and science education. The significant overlap in the practices of CCSSM and NGSS will be emphasized and reinforced, as these workshops will provide teachers the rich opportunity to be immersed in exploration regarding the mathematics of CCSSM and the science and engineering of the NGSS and investigate innovative methods of instruction, utilizing collaborative student work to enhance teacher practice.

The partnership evaluation plan includes pre- and post-assessments of teachers' content knowledge and PCK, student achievement data, and classroom observation data using RTOP. The results and overall impact of this partnership will be extensive for all partners. School partners will benefit as teachers improve both their overall content knowledge of mathematics and science topics taught in the grades 6-8 band as well as their instructional practice. University faculty participation will enhance their relationships with and understandings of local school districts and teachers as well as inform the overall structure of mathematics and science content courses for future teachers and professional development of middle grades teachers.