

Northeast Coop and Harding University: 3rd – 5th Integrated Mathematics and Science Initiative of NE Arkansas

The Northeast Arkansas Education Cooperative has partnered with Harding University and 13 high-need member school districts for a three-year 3rd-5th Grade Integrated Mathematics and Science project. This project is designed to address the classroom teachers' needs to teach both math and science in a manner that motivates young children and meets the Arkansas Common Core Standards and the new Next Generation Science Standards. Teachers and administrators surveyed indicated a high need for intensive professional development for integrated math and science content knowledge.

THREE YEAR(2013-2016) GOAL I: Forty-two (42) third, fourth, and fifth grade math and science teachers in the 13 Northeast Arkansas member School Districts will deepen their content knowledge of Arkansas Mathematics Common Core Standards and Next Generation Science Standards, using integrated lessons, technology tools, and project learning activities into their classroom instruction over a three-year period.

Year I (2013-2014) Objective 1: The Northeast Arkansas Education Cooperative's Planning Team and an Assessment Team will conduct a series of project integrated math and science planning activities necessary to prepare the groundwork for an effective research-based MSP integrated math/science project with a quasi-experimental evaluation design by April 30, 2014.

Year I (2013-2014) Objective 2: Forty-two (42) mathematics and science teachers from 13 School Districts will gain greater content knowledge in integrated math and science through involvement in 12 days of professional development and pre/post-test assessment of math and science content knowledge during 2013-2014.

Year 1 (2013-2014) started with six intensive planning sessions by a team of mathematics and science consultants from Harding University and ASU-Jonesboro to design specific integrated math and science teacher training activities that are hands-on and/or kit-based (AIMS, FOSS, GEMS, DSM kits) that were able to be aligned and correlated with the 3-5 Common Core Math and Next Generation Science Standards.

In February and April, 2014, the 42 3rd-5th grade math and science teachers attended two introductory Saturday workshops, which orientated them and actively engaged them in integrated math and science and introduced them to appropriate iPad apps to be used in the 2014 Summer Institute instruction. The 42 MSP participants attended a ten-day Summer 2014 Integrated Math/Science Institute (June 9-13 and June 16-20).

PROJECT EVALUATION

During the first six months the team reviewed all of the possible nationally recognized math and science teacher content knowledge tests approved by the MSP/USED. There is no integrated math and science assessment available. So, after careful research and examination of test items, the Planning/Assessment Team agreed that the following tests would be used to measure teacher content knowledge over the three year period. The consensus of the Planning Team was that the project would utilize the LMT: Elementary Functions, Patterns and Algebra test, and the DTAMS: Middle Grade Science tests over the three-year period to determine the possible significant gains by the 3rd-5th grade MSP participants.

A quasi-experimental design to measure teacher content knowledge was implemented with a control group of 3rd-5th grade teachers established from schools in a nearby regional education cooperative, Wilbur D. Mills Education Cooperative.

All of the pre-tests and post-test (1) were completed during the spring and summer, 2014. In addition, a university training consultant made one site visit to each teacher's classroom in the spring, 2014 to conduct an RTOP observation to establish baseline data on implementation in the classroom setting.