

ABSTRACT NARRATIVE

Project Title: Computer Science Opportunities, Development, and Education in Rural Schools (CODERS)

Type of Grant Requested: Early Phase

Absolute Priorities: AP 1: Demonstrate a Rationale; AP 2: Field-Initiated Innovations—Promoting STEM Education, With a Particular Focus on Computer Science.

Competitive Preference: Expanding Opportunities in Computer Science for Underserved Populations

Total Number of Students to Be Served: 13,500

Grade Levels to Be Served: 3-8, High-Need Rural Schools

Students: Rural students in southern Missouri designated Small, Rural School Achievement (SRSA), Rural Low-Income Schools (RLIS), or both, or have a Title I designation, thus, have a significant portion of high-needs students, a locale code of 31, 32, 33, 41, 42, or 43, or a combination of those. These students are disadvantaged financially and lack access to improve achievement due to their distance from programming, and resources of the district.

Project Description: The CODERS Project involves 150 teachers and 13,500 students in grades 3- 8. The CODERS Project includes a three-year field trial and impact study of teacher and student programming. Computer Science and Critical Thinking course modules engage students and teachers in high-quality curriculum to support learning for rural students and teachers in Computer Science, provide technology, and develop a YouTube channel to support student engagement beyond the life of the grant.

Project Objectives/Expected Outcomes: Increase student achievement, knowledge of Computer Science, attitudes, career interest, and efficacy; develop teachers' content knowledge and efficacy for teaching Computer Science project-based learning; provide students with academic supports to foster success in schools.

Special Project Features: High-quality curriculum modules with integrated computer science kits and writing supports; computer science tools, called CODERS kits, that include CanaKit Raspberry Pi 4 starter kits, keyboards and mice, and SunFounder Raspberry Pi Smart Video Robot Cars.

Partner Organizations: Center for Writing in College, Career, and Community, Missouri State University, Ava, Bradleyville, Crane, Logan-Rogersville, Mansfield, Marshfield, Nixa, Osceola, Skyline, Springfield/Delaware, Warsaw, and West Plains School Districts