ABSTRACT
Developing a Student-Driven STEM and Computer Science Curriculum for Rural Students

Sonoma State University is partnering with six **rural** LEAs in northern California to propose an early-phase EIR grant titled *Learning by Making* (*LbyM*). *LbyM* will conduct field-initiated innovations in STEM with a focus on computer science **(AP3)**. *LbyM* partnerships will provide students access to industry partners, work-based learning opportunities, and college and career awareness activities. *LbyM* demonstrates a rationale **(AP1)** that strategies and interventions will improve outcomes for rural and high-need students. Furthermore, *LbyM* offers personalized learning with an instructional design that centers on student-driven projects. (**Invitational Priority 1**)

In two implementation phases, *LbyM* will serve at least 800 9th grade students in rural and high-need schools in northern California. High-need schools are those with more than 50% of enrolled students identified as socioeconomically disadvantaged students as defined by the California Board of Education.

Partner organizations include Lake and Mendocino County Offices of Education, CTE Foundation Sonoma, Center for Environmental Inquiry, and school districts in Mendocino, Lake, and Sonoma counties WestEd will conduct the external evaluation. Project objectives: 1) Expand local partnerships to develop STEM and computer science pathways that provide access to work-based learning experiences; 2) Implement scalable professional development program to improve instructor competencies to deliver innovative STEM and computer science curriculum, and 3) Develop and implement curriculum designed to enhance students' math and science proficiency and readiness for STEM and computer science careers. Expected outcomes include increased numbers of qualified STEM and computer science teachers in rural and high-need areas and increased numbers of STEM and computer science professionals from rural and high-need groups. *LbyM* provides a computational-thinking based science core curriculum that teaches skills in coding, electronics, data acquisition and analysis, constructing explanations and making simple models. An impact study by WestEd revealed in 2017 that pilot implementation led to higher scores on math and science tests compared to non-target students.