Promoting Effective Teaching in Science Learning through Engineering Design [SLED]

The Science Learning through Engineering Design (SLED) Partnership is a large, multi-year university school partnership that includes the participation of over 250 Indiana elementary/intermediate preservice and inservice school teachers, 3,000 students, 25 Purdue STEM faculty and educational researchers. Since 2010 the SLED Partnership has successfully demonstrated improved science achievement among grade 3-6 learners by developing Indiana’s first integrated, engineering design-based approach to elementary/intermediate school science. SLED extends research to test hypotheses of whether authentic engineering learning tasks are more likely to interest elementary/intermediate students, lead to deeper levels of science engagement and improved achievement, and advance teacher understanding of a broader range of engineering practice. For the past five years, SLED has offered intensive, sustainable teacher professional development to over 150 Indiana teachers on teaching science through authentic, inquiry-based, multidisciplinary design projects; a cyber-enabled community of engineering design educators accessing a library of 35 classroom-tested, design-based curricular materials to support teaching science in grades 3-6; formal integration of engineering design-based curriculum in grades 3-6 with over 35 partner schools and 12 Master teachers; and tested resources for addressing challenges of supporting integrative engineering design curriculum in rural schools.