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The Vermont Science Initiative Summer 2018

The Vermont Science Initiative (VSI) is a recognized leader of science, technology, engineering and math (STEM) professional development (PD) in New England. Our research-based and experience-tested programs balance STEM content with STEM pedagogy. Through authentic science and engineering challenges, program participants build knowledge of core ideas and crosscutting concepts while practicing scientific thinking and engineering design processes. Math is applied through pattern description and predictive analysis. Technology is both a means (e.g., using technology to gather data) and an end (e.g., creating a technology to solve a problem). Alignment with the Next Generation Science Standards (NGSS) has been and continues to be high. While we are proud of our accomplishments, there is more that needs to be done. The vision of our proposed programs is to (1) strengthen leadership capacity among Vermont teachers by continuing to build a cadre of teacher leaders, and (2) position Vermont at the national vanguard of science education.

Goals.

After completing the Advanced Leadership program, VSI-trained teacher-leaders will:

- Use advanced pedagogy and 3D learning to implement the NGSS in classroom teaching.
- Propagate science literacy by delivering web-based PD in districts across Vermont.
- Possess enhanced science content knowledge.
- Utilize expanded pedagogical content knowledge, skills and confidence.

As a result of this program, Vermont will:

- Enjoy a stronger cadre of science teacher leaders.
- Be among a group of states at the vanguard of science professional development.

Activities and Key Features.

Through a multi-day summer institute at Lyndon State College (LSC), the proposed Advanced Leadership program will train motivated, science-oriented, teacher-leaders to facilitate Next Generation Science Exemplar System 3-D Learning Part II (NGSX 3DL II) modules in their home districts. Program participants will engage in 40 hours of training and support including a residential summer institute. Participants will then convene and facilitate a 3-day VSI-supported study group of 12-20 additional teachers in their home SD/SU. They will be able to run additional study groups at their own discretion. The program will utilize the newly developed NGSX 3DL II program, which adds new learning modules to the previously developed and highly successful NGSX 3DL I module.

The evaluation will include a pre- and post-instruction assessment instrument focused on science and pedagogical content knowledge, and a self-report survey of anticipated changes in teaching practice.

Partners will include Vermont districts and supervisory unions, Lyndon State College, NGSX, and PEER Associates.