

Summary of Work: This project will train and support 40 grade K-8 teacher-leaders from five school districts and one private school over three years in science content and skills related to ecological literacy and field investigations to build science literacy. The goal of this proposal is to build the capacity of participating schools to transform their teaching practices and increase science content knowledge such that they achieve genuine science literacy for all students through environmental topics and field investigations in order to strengthen overall interest and participation in Science, Technology, Engineering and Mathematics.

- Objectives**
- 1. Train, advise, and support up to 40 teacher-leaders to build science literacy as envisioned in the NH Frameworks for Science Literacy and the proposed NH Science Competencies through environmental topics and field investigations in their schools.**
 - 2. To significantly deepen the content knowledge around three environmental themes (which will incorporate the seven crosscutting concepts of: patterns; cause and effect; scale and proportion and quantity; systems and systems models; energy and matter; structure and function; stability and change) and the use of the science and engineering practice skills through the use of inquiry, field investigations and science notebooks.**
 - 3. To provide up to 40 teachers in year two and three who work in the districts but are not teacher leaders an introduction to the value of inquiry and field investigations and activities from Project Learning Tree, Project WET and Project WILD based on the environmental themes.**
 - 4. To disseminate state-wide school distribution of science literature focusing on concepts presented in this project and the NH Science Frameworks for fourth and fifth graders.**

Participating teacher-leaders will be guided through a process of identifying meaningful inquiry science experiences at each of their grade levels around three major themes common found in the NH Science Frameworks: ecosystems and habitats; water and watersheds; weather, atmosphere and climate. Participants will learn to incorporate appropriate science and engineering practices into these experiences. Use of science notebooks will be integral to the experience and provide a way for teachers to learn to use them as assessment tools. Specific professional development experiences will focus on peer-to-peer teaching and coaching skills.

Participating teacher-leaders (as well as other teachers in the district in year 2 and 3) will receive intensive training and support from the following prominent national environmental curriculum programs: Project Learning Tree, Project WET, Project WILD and the GLOBE materials. In addition participants will deepen their knowledge of long-term scientific data that is being collected locally, in order to incorporate current science method and research into districts curricula. Interested schools will also be offered training in Project HOME's schoolyard habitat enhancement program. Lastly, the project will include participants developing relevant science content for two issues per year of Discover Wild Times and help support reading in the content area.

Partners in this proposal- New Hampshire Project Learning Tree, Project WET (Department of Environmental Services), Project WILD (NH Fish and Game Department), Project HOME, GLOBE and USDA Forest Service Conservation Education, UNH Cooperative Extension Forestry and Wildlife and Hubbard Brook Research Foundation- and have a proven record for providing effective professional development for schools and teachers in the state. Each program has of tenure of 13-50 years operating in the state and collectively have trained well over 20,000 teachers. The two newest partners UNH Cooperative Extension Forestry and Wildlife and the Hubbard Brook Research Foundation bring experience in STEM research and application to the group. Plymouth State University is our higher education partner and will be represented by the coordinator of secondary science education.

Evaluation: Evaluation will be ongoing and both formative and summative. An outside evaluator will be contracted to oversee the evaluation plan, analyze documentation and carry out the summative evaluation. As part of the evaluation plan, the project will use the Concern Based Adoption Model, interviews, a review of final products, content assessments and surveys. The program partners possess a strong history and ethic for formative and summative evaluation and use appropriate tools including pre and post content assessment, target assessment, end of session program evaluation surveys and periodic feedback sessions.

