

# STUDENTS AND TEACHERS AS RESEARCH SCIENTISTS



STARS



## Educational Philosophy

In order to foster a functional understanding of science and to develop a facility for the processes of inquiry and discovery so that they may be accurately conveyed and effectively used, the teacher and student must experience the scientific enterprise in its totality under the leadership and modeling of experienced and successful research mentors.

## Mission Statement

The mission of the STARS program is to enhance the understanding and augment the application of the philosophy and processes of science and mathematics for teachers and their students through expertly guided, real life experiences in inquiry and discovery.

## Goals

The goals of the STARS program are to:

- Foster in teachers and students an understanding of the philosophy, nature, and ethics of science and the dynamics of the scientific enterprise, including the methodology, aims, and the nature of the scientist;
- Mentor teachers in the preparation and evaluation of laboratory-based curriculum projects stimulated by real research experience;
- Upgrade the skills of teachers in developing and implementing curriculum materials using the learning cycle (spiral), inquiry and cooperative instructional strategies;
- Introduce teachers to the concepts, paradigms and processes of action research;
- Enhance content knowledge of current topics in mathematics, science, and related fields;
- Provide experiences in scientific research design, experimentation and evaluation through the explorations of one or more scientific problems;
- Instruct participants in technical writing and oral presentation of scientific papers;
- Increase knowledge of the variety of career opportunities in science and technology and the breadth and depth of their applications in the workplace;
- Allow participants to practice basic laboratory technologies in an open-ended, problem solving environment and to learn the operation of a variety of technical equipment;
- Provide participants with assistance and support for continued work on independent research projects and curriculum development and implementation;
- Facilitate the development of social skills appropriate for professional and intellectual interactions, cooperation and leadership;
- Provide participants with the opportunity to interact with peers of similar academic and career interests, reinforcing their goals and achievements; and
- Establish an electronic network between teachers, students, and researchers for continued support and professional development.

*Solutia-National Science Foundation STARS Program  
A Partnership Promoting Understanding of the Processes of Science Through Participation*