Michigan Teaching Excellence Program (MITEP) is a multi-year program of teacher leadership development that empowers middle-grade science teachers to lead their schools and districts through the process of systematically improving science teaching and learning. The project uses Earth Systems Science (ESS) content and inquiry-based instructional practices to emphasize themes that unite all sciences and mathematics. MITEP includes both summer and academic-year components, and uses a variety of on-site, residential, field, distance, and in-service delivery methods. Components promote leadership skills, collaboration, urban place-based inquiry, access to cutting-edge data and materials, technology, engagement of diverse learners, study of key scientific concepts that cross disciplinary boundaries, and pedagogical innovations. The project will also implement and test lessons and units that challenge students and prepare them for further science study. Teachers receive stipends and credit as incentive for participating in the project and testing its approach to reform.

The project is based on the premise that successful reform depends on the full involvement of teachers who have the skills to lead their colleagues through the process of developing and implementing new instructional approaches. MITEP teacher-leaders and research university faculty are full partners in the process. Teacher-leaders are at the forefront of their schools’ and districts’ efforts to evaluate, design, implement, and test new inquiry-based instructional programs. They assist with planning professional development activities and providing ongoing assistance to colleagues. MITEP teacher-leaders help develop common pacing schedules and course assessments. They assist with planning professional development activities and providing ongoing assistance to colleagues. MITEP teacher-leaders are encouraged to disseminate information about the project through presentations at state and national conferences, to submit papers for publication.

Teacher-led reform is strongly supported by the administration of the core school district partner as an innovative way to generate enthusiasm for curricular and instructional change. To encourage development of leadership skills, school administrators give teacher-leaders progressively increased responsibility for strengthening curriculum, improving instructional strategies, and designing assessments. District administrators are providing the resources required for teachers’ success in implementing and coordinating the project by assisting with the selection of teachers with exceptional leadership qualities for participation in MITEP, assisting in the design of professional development activities that meet the needs of teachers and their students, providing flexibility in teachers’ schedules, utilizing middle-grade teachers’ expertise in the dissemination of information to primary and high-school teachers, recognizing, rewarding, and encouraging teachers who serve as leaders; fostering growth of a teacher network; and creating a district-wide atmosphere that nurtures teacher-led reform efforts.

Intellectual Merit: The ultimate goal of MITEP is to improve the quality of K-12 students’ science learning by increasing access to, participation in, and successful completion of challenging courses and curricula. MITEP focuses on 8th-grade earth science, typically the first full science course taken by students. Middle school earth science teachers are in an ideal position to conceptualize and lead longitudinal curriculum reform efforts because they have the perspective necessary to ensure that children’s science education is appropriately scaffolded from the primary through the high school grades. MITEP is a potential model for nationwide science education reform because the evaluation results will provide data needed to demonstrate that teachers who have access to high-quality curricular materials, are skilled in inquiry-based instruction, and have collegial and collaborative relationships with content-area and pedagogical experts can be successful in leading change that results in improved student outcomes. Although this project focuses on earth science, the results of evaluation will serve to inform efforts in other disciplines because the basic structure of the project is not discipline-specific.

Broader Impacts: Over the five project years, three cohorts of GRPS teachers (45-60 total) as well as 50-65 other teachers who are not cohort members will be trained by MITEP. In year three, scale-up activities will begin as teachers associated with the Kalamazoo Area Mathematics and Science Center will join the GRPS teachers, forming a “double” cohort. Upon completion of the project, MITEP teachers will impact over 2,000 predominantly minority, middle-grade students each year.MITEP focuses on urban educational reform to address achievement gaps that exist in urban and predominantly minority or low-income school districts. Results will be disseminated widely through the Michigan Earth Science Teachers Association, the Michigan Science Teachers Association, and the National Science Teachers Association, and the National Science Foundation’s dissemination network.