



**The Michigan After-School Partnership Invites You To
Become a Skilled After-School STEM Professional**

Michigan Project LIFTOFF



Building Capacity for High-Quality STEM* Programming in After-School Settings

*Focusing on the academic needs of children in
Kindergarten through 8th Grade after-school and out-of-school settings*

Participants in this voluntary training program will:

- *become part of a professional network for after-school STEM in Michigan*
- *learn how to incorporate informal STEM education into their program*
- *receive training and materials in STEM programming for their site*
- *increase staff confidence and comfort in presenting STEM activities to youth*
- *increase youth interest and enjoyment of STEM subject areas*
- *learn how to encourage parent participation to assist in youth experiences in STEM*

***STEM = Science, Technology, Engineering, and Mathematics**

***Project LIFTOFF is made possible by the generous support of the Noyce Foundation and Charles S Mott Foundation
For more info contact Marta Larson, Michigan After-School Partnership 734-769-2447 mlarson@uwmich.org***

MASP has received funding (Project LIFTOFF) to offer a one-year (2012-13) series of workshops in informal STEM in the after-school setting:

- Pilot project targeting after-school and out-of-school programs in the Saginaw, Detroit, and Grand Rapids
- Workshops in this training series are at no cost to the participants.
- Materials, parking, and snacks will be provided.
- Participating sites are expected to commit to the full year of the project. Training is expected to begin in July or August, 2012 and end in June, 2013.
- Project LIFTOFF workshops targeting students in grades K-8.
- Teams of three are encouraged; teams often include site coordinators, teachers, aides, and volunteers.
- Team members do not have to be highly skilled in STEM subject areas.
- All team members must commit to the full year of the project.

Project LIFTOFF will provide:

- Half-day face-to-face workshops (about one per month)
- Links for site staff to participation in webinars for additional learning (one per month)
- 2-3 short projects for additional understanding
- 1-2 observations of site staff implementing STEM activities with feedback provided
- At least one site visit by MASP STEM Consultant
- Telephone consultation as needed with MASP STEM Consultant
- Several books of hands-on inquiry-based STEM activities

Participating sites must commit to:

- Attending all workshops (one per month)
- Participating in assigned webinars (one per month)
- Working on 2- 3 short projects at their site (1 hour each)
- Implementing activities with youth at their site (at least once a week)
- Deepening their communication with school-day staff about STEM subjects
- Assist with administration of project evaluation

Evaluation: Pre and Post testing of student attitudes and interest in STEM subjects and staff comfort and confidence in presenting STEM activities

For more information about Project LIFTOFF, visit the MASP website to view a more detailed version of this flyer, or contact the MASP STEM Consultant:

Marta Larson, STEM Consultant

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Email: mlarson@uwmich.org

Web: www.Mlafterschool.org

To apply to be included, please visit the following website: <http://fluidsurveys.com/s/Liftoff/>

Please share this opportunity with your colleagues.

Project LIFTOFF

Description of Programs

Training for Project LIFTOFF will include **selected high-quality STEM models** that are highly accessible to after-school programs. These programs feature little to no cost, and do not require staff to be highly trained in STEM subject areas.

Models selected for training are screened to assure that they give educators, parents and children (grades preK-8) an opportunity to work together to develop hands-on understanding of STEM subject areas. Educators gain confidence in their ability to lead STEM activities with youth, parents become more involved in their children's education, and children gain interest and excitement about STEM subjects. Both children and adults contribute to the process as they learn from each other.

Selected models will combine the best in youth development, STEM education, and parent involvement. They create opportunities for parents, educators, and students to work to encourage children to talk and think about math and science; encourage risk taking, persistence, and intellectual self-esteem; and use materials commonly found around the house to make mathematical and scientific games. The emphasis is on collaboration, confidence building, and cultural inclusion. **Many of the activities feature a cross-curriculum emphasis on building literacy skills.** Many of the materials are available in Spanish, Hmong, Arabic, Polish, Russian, Japanese, Chinese, and other languages.

Selected models focus on the process of thinking rather than finding any one right answer. They value alternative strategies for thinking about problems, and create an awareness that mathematical and scientific thinking leads to many types of well-paying jobs.

The selected models support a problem-solving approach, with students and families working together in groups, using active learning methods, and incorporating a broad STEM curriculum presented in a variety of contexts. Participants will learn to encourage parents and students to develop confidence in thinking and exploration skills (even when working with unfamiliar concepts in STEM subjects), see connections between students' everyday experiences and mathematical and scientific thinking, and increase parent advocacy skills.

The selected models address the problem of underrepresentation of females and children of color in STEM fields by directly working to change students' and parents' concepts of who is represented in STEM fields and what those workers are doing as part of their careers.

Previous participants have commented that the project "built confidence and familiarity with math and science and increased student ability to vocalize strategies. These activities taught students to break down problems into steps and use manipulatives to solve them."

Participating schools report their amazement at the changes in student confidence and skills in STEM that often result from successful involvement in these programs. Schools that have implemented these programs report that they have been able to involve even the most hard-to-reach families in helping their children increase their success in math and science.

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Project LIFTOFF

Alignment with State and National Standards

- a. Content Standards: Models utilized in the training are aligned with the Michigan Common Core Standards in Mathematics, and the Michigan Curriculum Framework benchmarks, including activities in patterns, relationships, and functions; geometry and measurement; data analysis and statistics; probability and discrete mathematics. Models utilized in the training are aligned with the Michigan Curriculum Framework benchmarks in Science, including activities such as constructing new scientific and personal knowledge, and reflecting on scientific knowledge. A majority of the content is physical science, in which children can predict, observe, and repeat their explorations.
- b. Teaching and Learning Standards: Connections to the world beyond the classroom are a substantial part of these programs through the context of the activities, inclusion of conversation with nontraditional career role models, and extensive discussion of families' own culturally congruent experiences. Activities are designed to elicit reflection, promote higher order thinking skills and deep knowledge. Participants use content standards and student assessment information to plan classes.
- c. Assessment Standards: These programs align well with the seven assessment standards in the Michigan Curriculum Framework, including helping students organize information and consider alternatives, enhancing in-depth understanding, and ability to transfer skills.
- d. Professional Development Standards: This project promotes high standards of achievement for all students, including high content expectations, original classroom research, reflective homework assignments, mastering new technology, understanding key ideas from social science research, mastering new content concepts and revisiting concepts that may have been difficult for them when they were in school. The learning process fits adults' varied learning styles, respects their prior knowledge, is discovery-based, and links participant-constructed ideas to well-known theories and knowledge bases.
- e. National Afterschool Alliance Core Competencies: This project promotes the best in youth development, empowering after-school staff to work as learners along with their students in a co-inquiry approach. The selected programs address STEM subjects in the core knowledge content areas of child/youth growth and development, learning environment and curriculum, interactions with children and youth, youth engagement, cultural competency and responsiveness, family, school and community relationships, safety and wellness, program planning and development and professional development and leadership.
- f. Equal Educational Opportunity: This project promotes equity by creating opportunities for after-school staff to consider the reasons why females and children of color are so underrepresented in the STEM workforce and to develop strategies to overcome the barriers that prevent children from considering careers in STEM fields. Activities in the selected programs encourage students to learn about skills, tasks, and activities that are components of STEM careers, interact with role models who are currently working in STEM careers, and determine which STEM careers might be of interest.