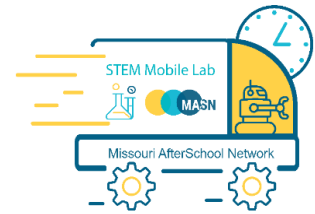# STEM Mobile Lab

Professional Development

Professional development, mentoring, and co-facilitation by the STEM Mobile Lab Educator – is a fantastic new opportunity to bring an experienced STEM Educator to your program to help your staff implement better STEM education. While the youth in your program are enjoying the hands-on STEM activities, your staff will experience training, modeling, and mentoring by the STEM Educator. A single Professional Development offering is included within the 3-5 consecutive days of the STEM Mobile Lab experience or available through additional professional development reservation.

Professional Development - Contact Information
Organization Name: Site or Building Name:

Site Address:

City: State: Zip:

Phone Number:

Professional Contact Name: Email Address:

Professional Development Training title:
(Please see below: Professional Development, options)

Date, Time & Location
Date: Time:

Number of participants expected (maximum, 25):

Will the professional Development take place at the above-listed location? ☐ Yes   ☐ No

In no, please list the training location:

Expectations & Requirements
☐ MASN Mobile STEM Lab Educator will bring training supplies for the selected professional development experience.
☐ By design, professional development selection is to support the program week of the STEM Mobile Lab on-site efforts.
☐ The host program is responsible for room arrangement, inviting participants, and addressing any participant's needs, such as refreshments.

Setup
☐ Please allow 30 minutes prior to the scheduled professional development session for preparation and setup.
☐ Only one Mobile STEM Lab Educator will arrive at the site. We welcome site-level team members to assist with the unloading and setup of the Mobile STEM Lab Professional Development.
☐ Learning environment will depend on the selected training. Overall learning space to include seating and available table space for each participant along with open space for hands-on STEM Learning, as needed.

STEM Mobile Lab Professional Development, options: (please select one)

- **STEM Playlists:** All these great STEM resources… and how do we stay on topic? STEM Playlists that build upon a topic are crafted to challenge your afterschool students to dig deeper into science, technology, engineering, and math. Help youth explore what it means to think like a scientist. Join us to walk through the process of building a STEM Playlist. Explore how to match learning standards to activities while designing a plan to progressively introduce a sequence of learning activities. (1.5 hours)

STEM Mobile Lab: Options are training specific to the STEM Mobile Lab playlist for staff replication.

- **Sphero:** Sphero is a programmable educational-based robot that is easy to interact with and works well with all grades. Participants will learn just what a robot is and gain an introduction to Sphero. Participants will construct an obstacle course and play several games to test just how far they can take Sphero. (2 hours)
- **Rigamajig:** Just what is a Rigamajig? What can you do with a Rigamajig? Exploring the Rigamajig activity will help answer those questions. Rigamajig is a hands-on kit that helps students explore, build, and engineer using the power of play. Participants will gain knowledge to replicate the learning session with youth members. (2 hours)

- **Forensics:** Work as forensics investigators and use techniques of forensic science to analyze evidence left behind at a crime scene. Use deductive reasoning to evaluate evidence such as: fingerprints, chromatography, fibers, smells, liquids, and powders to determine the criminal's identity. Participants will gain knowledge to replicate the learning session playlist with middle school-age youth. (2 hours)

- **Replication Introduction:** Let's learn the basics of Sphero robotics, Rigamajig, and Forensics. In this training, you will go through the basic understanding of the STEM Mobile lab for staff replications. We will introduce Sphero to learn how to connect, control and basic programming. We will learn what Rigamajig is and explore some ways to incorporate it into your program. Lastly, we will introduce forensics to gain an understanding of the techniques of fingerprinting and chromatography. Participants will gain knowledge to replicate the learning session with youth members. (2 hours)

ACRES: Training builds knowledge and skills so afterschool professionals can confidently facilitate STEM experiences for youth. Training objectives are to build skills with afterschool professionals to then be applied to outside curricula resources.

- **Asking Purposeful Questions:** Engineering has become a staple of STEM programming for youth. How can we confidently bring engineering into our programming and support youth as they engage in problem-solving? In this module, participants gain first-hand experience with engineering by solving a design problem. They examine the components of the engineering design process and discuss ways to model the process with youth. Participants use the STEM Mobile Lab Rigamajig, for related content. (2 hours)
- **Facilitating Science Practices:** How can we make sure that our 'hands-on' science experiences for youth are also 'minds on?' In this module, participants learn how to support youth as they engage in science practices to learn science ideas, including planning and conducting investigations around testable questions. They'll talk about the similarities and differences of questioning in science versus questioning in engineering contexts. Participants are introduced to approaches for supporting youth as they explore science through a series of connected investigations. They examine the role science practices play in helping youth connect and make sense of their developing science ideas. (2 hours)
- **Make Math Engaging:** Are you looking for fun ways to help youth build number sense and problem-solving skills? Math can take on new meaning when integrated into daily routines in our afterschool programs. In this module, afterschool educators will explore and practice strategies for making math engaging and

accessible. Participants will build on their practice of asking purposeful questions and explore strategies for making math engaging, accessible, and connected to the world around us. (2 hours)

- **Nurturing STEM Identity and Making Career Connections:** How do you help youth recognize their connection to and role in STEM? How do you help youth learn about STEM careers? Participants experience several easy-to-implement strategies, including a photo elicitation activity that can help youth form STEM identities, and then learn how to conduct related activities with youth. (2 hours)

- **Elevating Youth Voice and Choice:** How often do youth in your program get to choose what they're investigating or designing, the materials they might use and/or how they engage with the work? In this module, participants try out strategies for elevating youth voice and choice and apply the ideas as they redesign a STEM activity to incorporate a greater variety of youth input. (2 hours)

Afterschool Math Plus Curriculum: Options are training specific to the curricula designed for staff replication.

- **Jump Rope Math:** Students learn how to gather and represent data through bar graphs, line graphs, scatter graphs, and Venn diagrams while jumping rope and getting exercise. (2 hours)

- **Build Environment:** Provides an opportunity for students to learn about scale, measurement and their immediate environment to create a blueprint and a charrette depicting an "ideal community." (2 hours)

- **ArtMath:** Students experience the elegance of math, explore the connections between art and math, and use math (tessellations, patterns, symmetry) to create their own art. (2 hours)

- **MusicMath:** Students learn about fractions as they use whole, half, quarter and eighth notes to create musical compositions. (2 hours)

*After-School Math PLUS also provides activity modifications for youth with disabilities, which can be implemented in inclusive settings.

Please share confirmation with appropriate afterschool team members.

Signature: _____   Date: _____

Email the completed document back to:
Richard Irwin, STEM Mobile Lab Educator rirwin@missouri.edu
and/or
Beth Rasa Edwards, Associate Director of Quality Rasab@missouri.edu.