



Think Make Create

LABS

The Makerspace Playbook

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TMC ON THE MOVE: NATIONAL SPOTLIGHT

TMC Labs were highlighted at the National Association of Extension 4-H Youth Development Professionals (NAE4-HYDP) conference held in Boise, Idaho in October of 2024.

1,200 attendees from all over the nation were able to visit the exhibit booth hosted by Idaho Out-of-School Network (ION) staff Anna, Amy, and Henry as well as Nebraska's Beyond School Bells staff member Alana.

At the booth, visitors were able to learn more about the Think Make Create Labs program, resources available to educators, and different professional development opportunities. They even got a chance to build binary bracelets, providing a hands-on look at what TMC curriculum offers. Booth visitors were thrilled to learn more about resources available to them to help them teach STEM education, specifically, ION's TMC Activity Guide. Their responses overall were very excited as many of them "teach STEM, but don't know anything about it."

~ Claire Sponseller, Area Extension Educator, University of Idaho Extension 4-H



Spotlight On: Scottsbluff County, NE

A new TMC Lab—a collaboration between Nebraska Children and Families Foundation (NCFE) and University of Nebraska-Lincoln Extension—will make a meaningful impact by bringing STEM opportunities to Scottsbluff County's youth, in a very rural part of Nebraska. With its mobility and focus on hands-on learning, the lab can engage students in rural areas with activities they might not otherwise experience, like makerspace projects, engineering challenges, environmental science, and other STEM-based education.

Through a grant from NCFE, UNL Extension hired a full-time Extension Assistant dedicated to managing the TMC Lab and delivering these STEM activities to multiple schools. This position ensures consistency and gives students a great chance to deepen their STEM skills and curiosity. The initiative could be a powerful model for other regions aiming to address resource limitations in after-school programs. The partnership between NCFE and UNL Extension will continue to be an important piece in supporting rural afterschool school programs with high quality STEM programming.

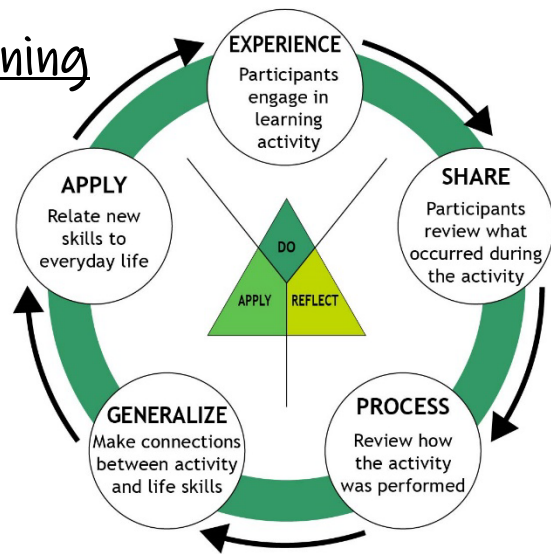
Beyond School Bells, an initiative of the Nebraska Children and Families Foundation, is dedicated to expanding high-quality afterschool and summer learning opportunities for young people across Nebraska. By partnering with schools, nonprofits, and local communities, Beyond School Bells works to create engaging, hands-on learning experiences that extend beyond the traditional school day, focusing on STEM, arts, health, and life skills. Through initiatives like the TMC Lab, Beyond School Bells is committed to ensuring that students in rural and underserved areas have access to enriching programs that foster creativity, curiosity, and lifelong learning.

~Alana Pearson, Community Support, Beyond School Bells

Put it Into Practice: Experiential Learning

The experiential learning model, first published by educational theorist David Kolb in 1984, describes learning by doing. 4-H simplified the 5-step model into “do, reflect, apply.” You can use the experiential learning model to create memorable and impactful learning. It’s especially effective with hands-on activities.

During the *experience* step, youth *do* a STEM activity and you introduce learning content (vocabulary, concepts and/or skills). In the following steps, youth reflect on their experience and what they learned. They apply this experience and their learning by making connections to their lives and futures. This process helps cement the learning and make it relevant to youth. These steps can be followed in order, or scattered throughout the activity. ~Amy Post, ION



Give It A Try: Catapults

Catapults are a great activity to teach with the experiential learning model. I begin the experience, or *do* section, by having the kids play with a catapult. We discuss how the catapult works, its component parts, and the concepts of potential and kinetic energy.

- I lay out materials: craft sticks, rubber bands, bottle caps and hot glue guns. I provide pom poms or pony beads for projectiles. Then, I simply tell the kids to make a catapult. It’s amazing what they come up with!

Once the catapults are done, we often have a contest to see which one shoots the projectile furthest or highest. Then we *reflect* on the experience by discussing the different designs and why we think they performed the way they did. This connects back to the discussion we had at the beginning of the activity.

Lastly, I give the kids time to redesign their catapults to make them shoot further or higher. This lets them *apply* what they learned during the activity and completes the experiential learning cycle.

~Amy Post, TMC Coordinator, Idaho Out-of-School Network

Tips and Tricks: Planning to Use the Experiential Learning Model

Plan to incorporate the experiential learning model into your STEM activities by:

DO: Let kids create and problem-solve as much as possible. Don’t give step-by-step instructions.

REFLECT: Plan reflection questions ahead of time. After they create, ask kids how they made their projects and about their process. What worked? What didn’t? What would they change?

APPLY: Talk about where their projects or what they learned are found in the real world and/or in different careers.

APPLY: Plan time for tinkering at the end. After kids reflect on their project and how they made them, ask them to change their project to make it better or get a different outcome. ~Amy Post, ION

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