



Think Make Create

LABS

# The Makerspace Playbook

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## TMC ON THE MOVE

Summer is the ideal time to take advantage of our mobile makerspaces. Learning doesn't have to always take place in the classroom. When you are planning to use a new and/or outdoor space, take a few things into consideration:

- Is there shade or do you need to set-up your own? I love these water bags for weight and my extra-large canopy.
- Are there workspaces or can you bring tables?
- Is electricity needed? If so, is that available? We often have our folding solar panel and battery pack with us.
- Is there room for the kids to have some physical play? Take advantage of the space while you have it!
- Can you bring the trailer and can you easily access it during the program?

You may also want to think about bringing a pop-up trash can and liners (you can never have enough trash collection) and a collapsible wagon (I love my double decker) to help haul supplies. Click on the links to some of my favorites!

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



## Spotlight on You: Bright Knight Afterschool

When we received our TMC lab in November of 2020, we knew we wanted to also serve kids outside of our school district. The pandemic slowed down our efforts, but we are back in full swing! We were able to take our TMC Lab to Camp Catch-Up, a program through Nebraska Children and Families Foundation in early June. Camp Catch-Up brings together siblings separated by foster care or adoption. These kids come to camp to spend quality time with their siblings they don't live with.

We knew we wanted to use the TMC Lab to help enhance sibling bonds so we needed to choose a project that would focus on teamwork and communication. We decided on an activity called "Family Cars." Campers were able to use the engineering and design process to help them create a design and build a car out of junk. They used cardboard, duct tape, hot glue, paint and other random items such as pom poms, balloons, paper towel rolls, and more. Everything is always better when there is competition, so we made different awards for the following: best body style, best paint job, most creative, and best use of materials. Campers also were able to physically race their cars at the closing assembly.

It was amazing to see how campers were engaged and worked together with their siblings. Campers were really motivated by the outcome and many were able to take their car home with them. This is a project we plan to implement into our after school program.

*~ Alana Pearson, Oakland-Craig Bright Knights Afterschool Program Director*

# Give It A Try: Code Your Sidewalk

Drawing with sidewalk chalk is a favorite activity for many children. It provides an opportunity to be creative while enjoying the great outdoors. Additionally, there are opportunities to engage youth in learning through the use of sidewalk chalk this summer.

One way is through using sidewalk chalk to teach coding. Coding is simply utilizing a series of symbols to communicate instructions. Youth can create their own code, making sure that the same symbol is consistently used for a specific instruction. Youth can then teach each other to read the code and complete various games.

For an example lesson check out this from learning resources: <https://www.learningresources.com/blog/coding-sidewalk-chalk>



~Christine Wood, SDSU Extension 4-H STEM Field Specialist

## Put it Into Practice

Learning from making and tinkering is relatively new to our STEM learning landscape. Luckily, we have resources like those from the Exploratorium to help us teach and learn through making and tinkering. One resource that has been helpful is the Learning Dimensions of Making and Tinkering. This framework can be used to notice and support youth learning through these activities. The framework is broken into 5 dimensions of learning:

1. Initiative and Intentionality
2. Problem Solving and Critical Thinking
3. Conceptual Understanding
4. Creativity and Self-Expression
5. Social and Emotional Engagement

These dimensions do not develop individually, they are often intertwined. As youth become more intentional in the making, they also may become more emotionally engaged in what they are doing and exhibit more creativity. At the same time, in the course of troubleshooting, they may experience a wide range of emotions ranging from frustration to pride and self-confidence. Check out the framework here: <https://go.unl.edu/thr6>.

Use the framework to guide how you design and facilitate making and tinkering experiences. Take time to think about how you can encourage these dimensions of learning.

~Julie Boyle and Sandra Frerichs, Nebraska Extension

## Tips and Tricks

Making and tinkering can offer many valuable learning experiences for our youth. Youth can learn valuable life skills such as teamwork, self-expression and creativity, making observations, developing solutions, and receiving feedback. Making and tinkering also fosters problem-solving and critical thinking. So, what does this look like in our programs? We can watch for several things to see if our youth are learning important problem solving and critical thinking skills:

1. Troubleshooting through repetition
2. Dissecting problems into smaller components
3. Seeking ideas, materials, and tools to solve problems
4. Developing multiple solutions

You can learn more about learning from making and tinkering and find great projects to try by visiting the Exploratorium website at <https://www.exploratorium.edu/tinkering>

~Julie Boyle and Sandra Frerichs, Nebraska Extension

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