



Think Make Create

LABS

# The Makerspace Playbook

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## MAKING CAREER CONNECTIONS: DETECTIVES

Detectives work to uncover evidence and search for clues. They use keen observation skills and critical thinking to solve crimes or find missing people.

Detectives can work in a variety of locations and settings. They may also work as private investigators where they assist in putting together clues to solve puzzles. Detectives work in local police stations where they visit crime scenes and interview people to aid in solving cases.

Detectives use forensic science to aid them in their work. Forensic science applies chemistry, biology, and physics to analyze clues. Forensics include fingerprints, DNA, Hair, footprints, handwriting, and so much more. Electronic data is also a type of forensics that can be utilized in solving mysteries.

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



## Science Walks Engage Community in STEM

A truly successful program is defined by a string of events in my eyes. A student approaches the Think Make Create (TMC) Lab with trepidation, anxiety, and an overwhelming desire to distance themselves from being the center of anyone's attention. The challenge begins: engage, but don't overwhelm the student. Create enough space for the participant to engage, but not to put pressure on them to do, or even succeed. As the instructor, making a mistake in front of your students can be a powerful tool for reaching these students. Obfuscating the fact that your mistake was an intentional effort to inspire them is a learned trait.

The moment trepidation, hesitation and anxiety evolve into pure curiosity and discovery is the moment you know that this program is a true success, no matter the number on your attendance counter.

I see this occur often during our library's "Science Walk" programs. I'll park the TMC Lab at a popular trail nexus and set up a mobile science center with binoculars, microscopes, sample collection tools and more. Visitors will engage, often out of pure curiosity, and are delighted to learn that they can take some of these items with them out on the trail to enhance their experience. These are programs where parents can learn right alongside their children, to be able to experience things they don't see every day. After the program wraps for the day, we can report the findings of the day's community scientists to the organizations that host us to help identify the health of the local ecosystem.

Democratizing science helps pull STEM out of the lab and into our everyday lives, inspires curiosity, and gives us all a new perspective on the world around us.

~ Brenden Bobby, Exploration Coordinator for Experiential & STEM Learning, The Library at Sandpoint (Idaho)

# Give It A Try: Forensics

Forensic science activities combine a variety of STEM fields together into an engaging project based learning opportunity. Youth learn observation and teamwork as they develop knowledge. Activities can be done alone, or they can be paired together to solve a mystery.

Consider activities like fingerprinting (<http://www.cyberbee.com/whodunnit/fp.html>), calculating height based on footprints (<http://www.cyberbee.com/whodunnit/foot.html>); teeth impressions (<http://www.cyberbee.com/whodunnit/teeth.html>); tool impressions (this can be done similarly to teeth); or powder analysis (<http://www.cyberbee.com/whodunnit/powder.html>).



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

## Put it Into Practice: Family/Community Events

Community events offer a unique opportunity to showcase the Think, Make Create trailers to a wider audience. As the South Dakota Afterschool Network traveled across the state we learned a lot regarding best practices for these events. OST programs don't need to be reminded about the importance of flexibility, but this is especially the case when facilitating community events. Having a combination of standalone activities (Legos, K'nex, Ozobots) and a focused activity (those based on TMC curriculum) can make all the difference. This balance meets the needs of a diverse group of learners and accommodates families so they may socialize and make the connections that make community events worth the effort. In addition, encouraging near peer interaction can be a powerful way to achieve buy-in and empower older students to teach their younger peers a new skill. As more and more emphasis is placed on community and family events, finding a balance with programming and encouraging student interaction can help lead to a successful event.

~ Jeff Sebern, Director of Programs, South Dakota Afterschool Network

## Tips and Tricks: Transition to School Year Programming

As we transition from summer programming to the school year, here are a few ideas to help manage the stress and prepare well for the next school year:

- Intentionally manage your time between office tasks (hiring and recruiting staff, enrolling students, program planning, etc.) and tasks that keep you moving (rearranging classrooms or makerspaces, outdoor projects, etc.).
- Shift your thinking from finding ways to keep students engaged during long summer days to providing outlets for creativity and social interaction. Your students have been in school all day and their needs are going to shift.
- Believe in yourself, your staff, and your students. As everyone transitions to a new routine, a sense of belief will ensure your plans are successful.

~ Jeff Sebern, Director of Programs, South Dakota Afterschool Network

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