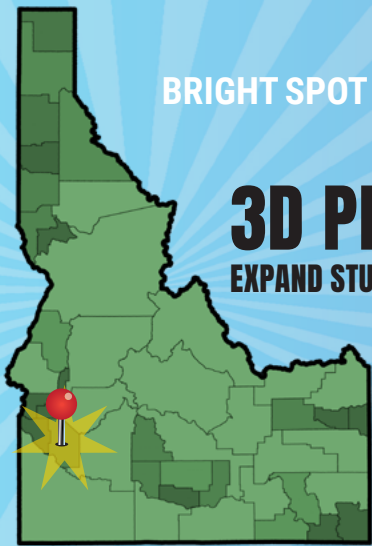


BRIGHT SPOT

# 3D PRINTING PROJECTS

EXPAND STUDENTS' ENGINEERING SKILLS—AT ANY AGE



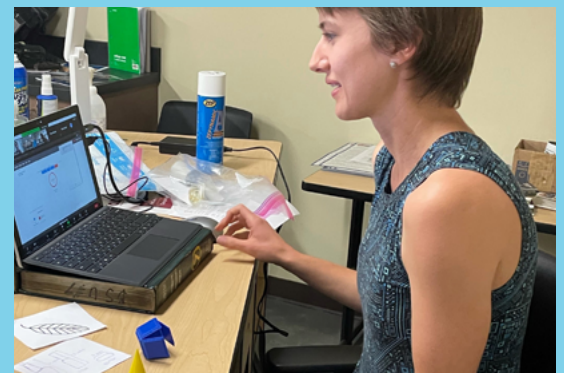
Idaho Exhibition of Ideas (IDX) is a 3D design and fabrication program for students in grades 5 through 9. Student teams develop solutions to relevant local problems and apply 3D technology to create usable products. In this multi-week, in-class or afterschool program, students use 3D design software and printers to practice design, iteration, and rapid prototyping skills. Teams develop their own websites to communicate their prototyping process and present their solution and website at a regional showcase during which volunteer STEM professionals from local businesses and learning institutions judge their work to compete for prizes. Through this program, students develop STEM knowledge and skills needed for critical and creative thinking, problem solving, innovation, and collaboration. The program encourages students to think locally about a problem and empowers them to develop solutions, while the team-based component supports collaboration and the exchange of ideas and experience.

Educators learn about this program and how to implement it in their teaching environments through i-STEM Summer Institutes, a professional development workshop provided statewide by Idaho STEM Action Center. i-STEM offers over thirty relevant STEM topic strands, including 3D design and fabrication at six regional colleges and universities in Idaho. Idaho STEM Action Center's fully integrated program which begins with preparing educators and follows through with student skill building, is an opportunity for students to gain knowledge of workforce-relevant skills through hands-on, project-based learning.

## 3D PRINTING BUILDS WORKFORCE RELEVANT SKILLS

The 3D Design and Fabrication workshop at the Summer 2021 i-STEM Professional Institute held virtually from College of Western Idaho included two educators from the Idaho State Correctional Center (ISCC). While prison residents will not participate in the IDX competition, they are learning skills that are important to finding employment when they leave prison.

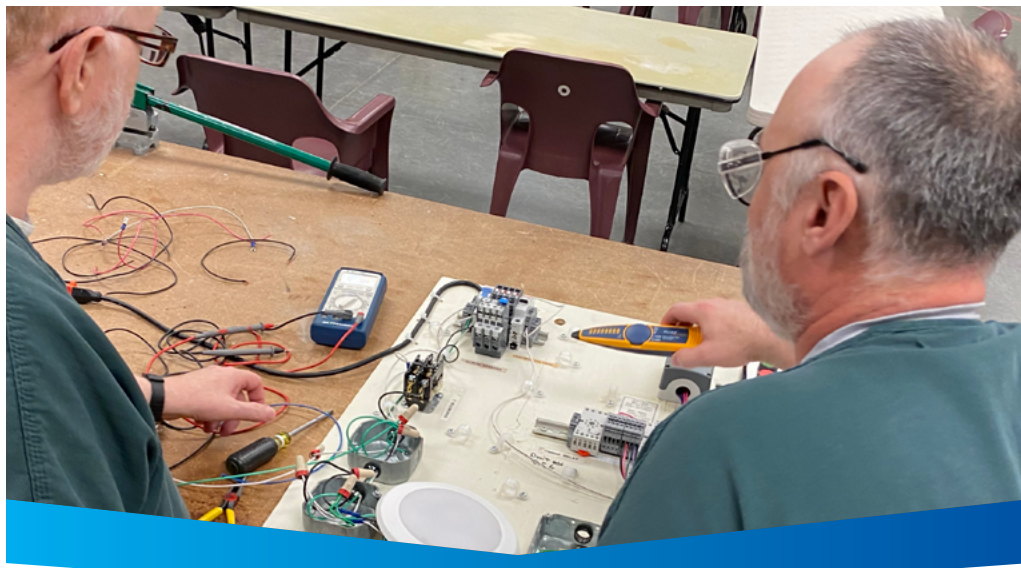
Residents of ISCC can better themselves through obtaining education. Some seek their High School Equivalency Diploma (GED) while others fill their time learning all they can in one of the computer learning labs. After residents obtain their GED and learn basic computer skills the door to vocational trades opens. This provides residents a light at the end of the tunnel. Many residents leave with new skills to add to their toolbox.



**STEM is about *more* than Science, Technology, Engineering, and Math. It's about engaging with the world through creativity, collaboration, and innovation.**

**And STEM skills give Idahoans a competitive edge in the workplace; preparing them for high-paying, high-demand careers in agriculture, healthcare, computer science, and more.**

**STEM...Helping build a prosperous Idaho!**



The two educators have proposed a new class which will introduce ISCC residents to the exciting world of 3D printing. The educators took part in the i-STEM institute to learn about 3D printing. Their new class will not just 3D print objects, but will also build a 3D printer out of e-waste (i.e., old computers). The computer instructor's class will use computer aided drafting software to design the housing and workings of the printer and the other educator's class will use the plans from the computer class to build the printer and both classes will become acquainted with Arduino.

Arduino is an open source (free to use) programmable logic circuit platform used for many different objects. This reusable, reprogrammable circuit is the brains behind the build. Each of the students will try their hand at programming in the C++ programming language. This is the heart of the ISCC STEM program; along with the mathematics and science involved in the electrical portions of the curriculum.

STEM is for everyone. The educator commented on the i-STEM 3D printing workshop, "This class opened my eyes to this wonderful and exciting new world. A world with no limits. The only limit is your imagination. This is the future of manufacturing, construction, and innovation. I want to tell the world about how some of the residents of ISCC are finding new and extremely exciting ways to explore a bright and prosperous future because of the resources offered by Idaho STEM Action Center."

## Building STEM through:

### EDUCATOR ACCESS

to STEM professional development throughout Idaho.

### WORKFORCE DEVELOPMENT

focused partnerships with industry and universities.

### STUDENT STEM COMPETITIONS

and camp support.

### Our Partners



# STEM IS EVERYWHERE AND FOR EVERYONE!



### GET INVOLVED TODAY!

Your participation is essential for Idaho's success! There are many ways for you to engage with STEM education. Mentor. Volunteer. Donate. Partner. Help us build a path to prosperity for all Idahoans.

### LEARN MORE

To learn more about the STEM Action Center's strategies, success stories, and positive impacts in your community, email: [admin@stem.idaho.gov](mailto:admin@stem.idaho.gov) or visit [stem.idaho.gov](http://stem.idaho.gov).



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