

2020 GetConnected Afterschool Conference

ENGINEERING MINDSET

[Crossing the Finish Line with NASA STEM STARS](#) (21:23 minutes)

“NASA STEM Stars” is a webchat series connecting students with engineers, scientist and innovators. Students interact first-hand with STEM role models to learn about their inspiring careers, missions, and topics. This session will introduce participants to the virtual program, and how NASA’s Next Gen STEM content leverages hands on activities to enhance STEM literacy and help to build a vibrant and diverse next generation STEM workforce. Crossing the Finish Line with NASA STEM STARS

David Alexander, NASA

Jennifer Hudgins, NASA

Handouts

[NASA Education Specialist Contact Information](#)

[NASA STEM Stars Ed Resources](#)

[Shape Your Flight NASA Activity](#)

Learning Objectives

- 1) Discover how NASA inspires students with STEM role models and their captivating journeys to the agency.
- 2) Explore STEM lessons that are simple and inexpensive to implement through interactive demonstrations and real time hands-on activities.

[Engineering at Mars Base Camp \(LIVE SESSION\)](#) (1:19:21 minutes)

When you register for this workshop, you will receive a Mars Basecamp kit that includes curriculum and supplies for four inspiring engineering activities that are perfect for afterschool programs. The activities in Mars Base Camp teach kids ages 8-14 STEM skills like mechanical engineering, physics, computer science, and agriculture. In this workshop, you will learn all about what is happening on Mars this year, how to use the Mars Base Camp kit, and strategies for developing an engineering mindset.

Saundra Frerichs, Nebraska 4-H Youth Development

Handouts

[2020 Mars Base Camp Facilitator Guide](#)

[2020 Mars Base Camp Facilitator es](#)

[2020 Mars Base Camp Youth Guide](#)

[2020 Mars Base Camp Youth Guide es](#)

Learning Objectives

- 1) Learn how you can use the Mars Base Camp kit to engage students in design, mechanical engineering, computer science and agriculture.

[Engineering Mindsets: Our Everyday Life Fuels Implementation](#) (20:06 minutes)

Providing afterschool staff with knowledge and tools to engage youth in STEM, particularly the engineering mindset, is essential. Participants will be able to apply the engineering process to a variety of situations and effectively learn how to communicate and utilize this process with the youth they serve. Engineering and Our Everyday Lives: Engaging Today's Youth

Nik Stevenson, University of Nebraska Omaha STEM TRAIL Center

Handouts

[Building Bridges – Lesson Outline](#)

[Presentation Slides](#)

Learning Objectives

- 1) Participants will learn what the engineering process is and how it can be applied to a variety of situations.
- 2) Participants will learn about ways to foster an engineering mindset for youth in afterschool programming.

[Engineering with NASA's BEST](#) (14:57 minutes)

During the session, you will learn about NASA's BEST (beginning engineering science & technology) curriculum. Lessons use every day objects to complete engineering challenges. You will even learn about an online component that students could use virtually. Engineering with NASA's BEST

Pam Petersen, NASA Nebraska Space Ambassador

Handouts

[NASAs BEST Activity Guide K-2](#)

[NASAs BEST Activity Guide 3-5](#)

[NASAs BEST Activity Guide 6-8](#)

[NASA's Digital Badging](#)

Learning Objectives

- 1) Participants will learn beginning engineering design through NASA's BEST curriculum.
- 2) Participants will learn about NASA's digital badging to use with students.

[NASA Education Resources](#) (18:42 minutes)

Nebraska Space Grant has invested in a small, passionate group of K-12 educators that have hands-on experience with NASA education curriculum. Learn about the Nebraska Space Ambassadors Space Camp Model, navigate NASA web resources, and learn about the latest X-planes. Resources and activities are suited for classrooms, STEM programs, afterschool clubs, and summer programs. NASA Education Resources

Tammy Blobaum, Nebraska City Public Schools & Nebraska Space Grant

Handouts

[NASA Space Grant Opportunities](#)

Learning Objectives

- 1) Participants will learn about Nebraska Space Ambassadors professional development opportunities.
- 2) Participants will learn how to locate activities for programs and classrooms using NASA web resources.

[NASA Engineering Activities for Classroom and Afterschool](#) (13:58 minutes)

Incorporate NASA engineering activities and challenges into your classroom curriculum (aligned with Nebraska standards) and afterschool programs. Fun, real world activities for all grade levels. NASA Engineering Activities for Classroom and Afterschool

Terresa Greenleaf-Littsen, Walthill Public School

Handouts

[Spacecraft Structures – A Lesson in Engineering](#)

[Light but Strong – A Lesson in Engineering](#)

[Eggstronaut Recovery Vehicle](#)

[Soft Landing – Leader Notes](#)

[Engineering is Out of This World](#) - PowerPoint

Learning Objectives

- 1) Activities that incorporate engineering design concepts using NASA activities.
- 2) Activities that enhance current curriculum.

[Sensational Science: Engaging Students in Inquiry and Engineering with PBS KIDS](#) (50:57 minutes)

Participants will learn where to find high-quality, trusted resources for educators on PBS LearningMedia, an online library of FREE media and learning materials for students of all ages. We'll dive into particular resources for K-2 students by walking through materials and activity guides from "Sensational Science Camp with Ruff Ruffman". Sensational Science: Engaging Students in Inquiry and Engineering with PBS KIDS

Sarah Noordermeer, NET - Nebraska's PBS & NPR Station

Melanie Eirich, NET - Nebraska's PBS & NPR Station

Handouts

[All handouts combined](#)

Learning Objectives

- 1) Learn how to engage students in the engineering design process with digital content and hands-on experiences.
- 2) Learn about free learning materials available from PBS and NET.

[The Construction and Coding of LEGO WeDo 2.0 Robots](#) (31:13 minutes)

Looking for a session that is fun and educational? The LEGO WeDo 2.0 Kit is a great way to learn how to assemble and build robots that are engaging and challenging for youth! In this session, the presenter will engineer two LEGO WeDo 2.0 Robots through a step-by-step process and code the robots to perform specific tasks. The Construction and Coding of LEGO WeDo 2.0 Robots

Mirissa Scholting, Nebraska Extension in Douglas-Sarpy Counties

Learning Objectives

- 1) Participants will learn how to assemble a selected robotic projects from the LEGO WeDo 2.0 Kit
- 2) Participants will learn how to code the robots from the selected projects built as well as how to modify the coding in order to change the performance of the robots

[The Wrong Theory Protocol: A Tool for Building Empathy in the Design Process](#) (14:26 minutes)

Design thinking is a human-centered process for understanding users' needs and designing thoughtful solutions. In this session, you will learn about the Wrong Theory Protocol, a fun, easy, effective, and on-demand strategy that can be taught alongside the design thinking process to support students in designing empathetic and creative solutions. The Wrong Theory Protocol: A Tool for Building Empathy in the Design Process

Erin Ingram, University of Nebraska-Lincoln

Handouts

[Wrong Theory Protocol Facilitation Guide](#)

Learning Objectives

- 1) Gain the necessary competencies to implement the Wrong Theory Protocol in conjunction with a Design Thinking lesson
- 2) Provide justification for why social-emotional skill development is essential to an effective engineering education program

[TMC Labs – A Nebraska Platform for Engaging Youth and Community in Hands-On STEM Learning](#) (14:44 minutes)

During this session, participants will learn about the Think, Make, Create (TMC) Labs, a mobile STEM learning platform developed by Beyond School Bells, in use in communities across the state. The session will also cover the TMC mini, the newest addition to the TMC family, a multi-media platform designed for in program use. TMC Labs

Jeff Cole, Beyond School Bells

Max Cuppens, Beyond School Bells

Learning Objectives

- 1) Participants will learn about how TMC Labs and TMC minis can support their afterschool program
- 2) Participants will learn how they can get their own TMC Lab or mini

[Wearable Technology](#) (20:19 minutes)

Learn how to engage your youth with engineering and electricity with these hands-on easy to understand Wear Tec activities. Participants will gain an understanding of how to incorporate the engineering design process and series and parallel circuits. Wearable Technology

Melissa Mracek, Nebraska Extension

Handouts

[Badge Template Handout](#)

[Wear Tec Worksheet – activity 2](#)

[Wear Tec Worksheet – card activity](#)

Learning Objectives

- 1) How to build a parallel and series circuits using copper tape and LED lights.
- 2) How to incorporate the engineering design process while using craft materials.

