2022-2023
Educator Program Guide

PROGRAMS FOR EDUCATORS

- **MUSEUM FIELD TRIPS**
- **FAMILY ENGINEERING NIGHTS**
- **VIRTUAL ENGINEERING WORKSHOPS**
- **WORKSHOPS AT YOUR LOCATION**

To schedule, visit **tinyurl.com/the-works-groups**

Reservations are required. Reserve early to ensure your first choice of dates. Have questions about scheduling? Call 952.888.4262, ext. 215, or email groups@theworks.org.

Subsidies are available on a first-come, first-served basis for groups demonstrating financial need.

We've hosted many programs with the Works Museum and have continued to be pleased with content of program and booking staff...Thanks for the quality STEAM programming!

- Educator

MUSEUM FIELD TRIPS

Explore the museum floor's interactive activities designed to create connections to real-life engineering fields.

Length: One hour. (Museum only)
Cost: $7.00/student. (Price does not include an optional workshop; see pages 5-7 for workshop descriptions and cost.)

It was an amazing experience! The students and teachers all LOVED the activity, and we were very impressed with the facilitators. They were very engaging and kept the instructions and explanations short and simple, yet got students thinking.

- Educator

FAMILY ENGINEERING NIGHTS

Family Engineering Nights are ideal as stand-alone events or in addition to a family event, open house, or science fair. We provide engineering activities for parents and kids to do together, all supplies needed, and expert trainers. You provide space and volunteers to help facilitate activities.

Each package includes:

- A team engineering challenge that gets families engaged together in a creative way
- Intriguing and fun individual engineering challenges
- At least one take-home project

Length: 2 hours, plus set-up, clean-up, and volunteer orientation
Cost: $300-$2100, based on number of attendees
Size: Minimum of 75 & maximum of 600 attendees (adults and children)

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WORKSHOPS AT YOUR LOCATION AND OURS

Engage your students with a workshop at the Museum or bring one to your location (see pages 5-7). All workshops introduce the Engineering Design Process through hands-on activities - and most include a take-home project.

Workshops support the Minnesota K-12 Academic Standards in Science; see details at theworks.org.

- ♦ ***Can be brought to your location***
- ⊕ ***Can be taught in a live virtual format (synchronous)***
- ■ ***Available as a pre-recorded video workshop (asynchronous)***

Length:

- 30 minutes
- 60 minutes
- 90 minutes

Cost:

- Workshops at The Works: $8.50-$11.50/student. Museum visit can be added for $5/student.
- Workshops at your location: $11.50-$13.50/student + travel fee.
- Virtual or Video Workshops: $8-$12.50/student. Individually packaged materials can be added for $1/student.

We live an hour away from The Works museum, and participating in the virtual format is a great option for us to participate in your workshops without the long bus ride.

- Educator

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WORKSHOP TOPICS BY GRADE

PRE K

60-minute workshops

Start Your Engineers Preschoolers will read a story, explore with materials and tools, and create a project.

Two topics are available:

- **Wind** ♦ ⊕ Float objects in wind tubes and construct a sail car.
- **Bridges** ♦ Engineer a bridge and create a bridge-building kit to take home.

GRADES K-2

30-minute workshops

- **Kaleidoscopes** Investigate light reflection with mirrors. Build a unique and colorful kaleidoscope to take home.
- **NEW! Fling Flyers** Become an aerospace engineer, and engineer your own aircraft catapult launching system similar to the ones found on the Navy's aircraft carriers. When the plane is ready to go, send it flying! *Great fit with kindergarten and second grade standards.*

60-minute workshops

- **Circuit Explore** ♦ ⊕ Learn about the flow of electricity and hook up different circuits to create a light to take home. *Great fit with first grade standards.*
- **Engineer with K'Nex** ♦ Explore with our K'Nex building pieces. Practice sorting them and putting them together, then complete a building challenge. *Great fit with second grade standards.*
- **Light and Kaleidoscopes** ♦ ⊕ ■ Experiment with reflecting and absorbing of light. Build and engineer a colorful kaleidoscope to take home.
- **Mini-Catapults** ♦ ⊕ ■ Practice the Engineering Design Process and use a hot-glue gun to construct a small catapult. Find out how far you can fling an object. *Great fit with second grade standards.*
- **Test Engineers** Test different tools and materials, and use what you learn to figure out what tool works best with what material. Solve the mystery tool challenge. *Great fit with first and second grade standards.*

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GRADES K-2

60-minute workshops continued

- **What Floats Your Boat?** Explore buoyancy with different materials, then build your own boat. Evaluate and improve your design, just like a real engineer! *Great fit with second grade standards.*

90-minute workshops

- **NEW! Dwellings** ♦ Learn how Dakota, Hmong, Mexican, Ojibwe, and Somali communities have traditionally engineered their homes. Investigate building techniques, experiment with materials, then design and create your own mini-dwelling. *Great fit with second and fourth grade standards.*

GRADES 3-6

30-minute workshops

- **Kaleidoscopes** Investigate light reflection with mirrors. Build a unique and colorful kaleidoscope to take home.
- **NEW! Fling Flyers** Become an aerospace engineer, and engineer your own aircraft catapult launching system similar to the ones found on the Navy's aircraft carriers. When the plane is ready to go, send it flying! *A great fit with fifth grade standards.*

60-minute workshops

- **Feel the Noise** Start with vibrations and the science of sound. Explore how instruments change pitch. With a hammer and nails, construct an ear harp to take home. *Great fit with third grade standards.*
- **Light and Kaleidoscopes** ♦ Examine how light travels, changes direction, and is refracted. Build and engineer a colorful kaleidoscope to take home. *Great fit with third and sixth grade standards.*
- **Mini-Catapults** ♦ ⊕ Practice the Engineering Design Process and use a hot-glue gun to construct a small catapult. Find out how far you can fling an object. *Great fit with fourth grade standards.*
- **Circuit Power** ♦ ⊕ How does electricity work? Experiment with the components of simple circuits: power, loads, wires, and switches. Test out ways that motors can be used, wire a circuit, and build your own motor-powered fan or wiggle bot to take home**.**
  Great fit with fourth grade standards.

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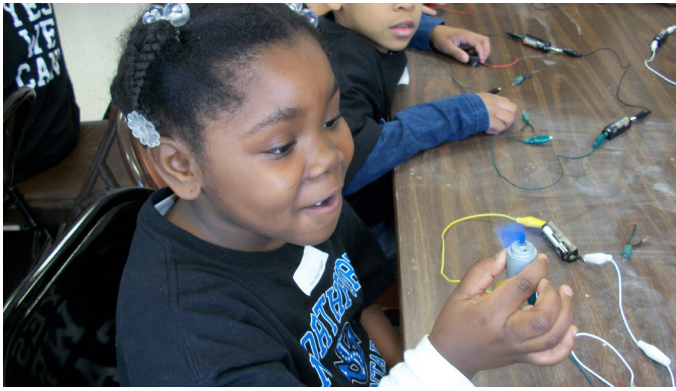
60-minute workshops continued

- **NEW! Environmental Engineering** ♦ Discover how engineers work to reduce erosion in the environment. Build a hillside out of dirt, then design an erosion mitigation plan using rocks, fabrics, wood, sand, and other materials. Test your design in a rain shower, then see if you can improve it. *A great fit with fourth grade standards. This workshop was developed in partnership with our friends and engineers at Barr Engineering.* *****A non-carpeted floor is recommended for this workshop, and access to water is required.***

90-minute workshops

- **NEW! Dwellings** ♦ Learn how Dakota, Hmong, Mexican, Ojibwe, and Somali communities have traditionally engineered their homes. Investigate building techniques, experiment with materials, then design and create your own mini-dwelling. *Great fit with second and fourth grade standards.*
- **Maze Engineering** ♦ ⊕ Use the Engineering Design Process to design and construct your own maze, pinball, or pachinko game. Experiment with changes in speed and direction and the effects of gravity and friction. Uses hot-glue guns. *Great fit with fifth and sixth grade standards.*
- **Pasta Bridges** ♦ Work in teams using pasta, hot glue, and the Engineering Design Process to build the strongest bridge you can. Test how much weight it can hold before it breaks. *Great fit with fourth and sixth grade standards.*



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