

SCIENCE MUSEUM OF MINNESOTA

ENGINEERING RESIDENCY, GRADES K-2

MITTEN MAKERS SESSION

Students use the Engineering Design Process (Ask, Imagine, Plan, Create, Improve) to design a mitten that is warm, water resistant and flexible. Pairs of experimenters conduct tests with a variety of fabrics to gather information of the properties of the fabrics and evaluate the test results. Then they design a “best” mitten that meets all criteria and share the process and decisions that led to their design.

Program Length: Please allow 1 hour each for initial setup and final teardown.

Allow for at least 10 minutes to reset between classes or 15 minutes if changing classrooms.

Audience Size: Up to 30 students

Preparation: Science Museum Instructor brings all needed equipment and materials. This program requires at least 1 table for instruction materials and access to water. Materials can be moved from room to room or taught in a designated space.

Science Learning Goals

- Engineers use math, science, and creative thinking to design solutions to problems.
- Engineers repeatedly ask, imagine, plan, create and improve their solutions to problems.
- Engineers test and observe solutions to see how well they solve a given problem.

Vocabulary Introduced:

- Engineering
- Technology

Standards

MN Academic Standard Strand

Program supports Minnesota Academic Standards and Next Generation Science Standards, including disciplinary core ideas, science and engineering practices and crosscutting concepts. More details available upon request.

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ENGINEERING RESIDENCY, GRADES K-2

BRIDGE BUILDERS SESSION

Students apply the Engineering Design Process (Ask, Imagine, Plan, Create, Improve) to solve the problem of building a bridge that can span a roadway and/or support the weight of a model car. Teams of two experiment with the properties of the blocks and of bridges, share their best solutions, and then build their final bridge based on class recommendations of what make a bridge wide enough and strong enough.

Program Length: Please allow 1 hour each for initial setup and final teardown.
Allow for at least 10 minutes to reset between classes

Audience Size: Up to 30 students

Preparation: Science Museum Instructor brings all needed equipment and materials.
This program requires at least 2 tables for instruction materials, tables for students and access to water.
It is best to try to leave program in a designated space rather than moving from room to room.

Science Learning Goals

- Engineers use math, science, and creative thinking to design solutions to problems.
- Engineers repeatedly ask, imagine, plan, create and improve their solutions to problems.
- Engineers test and observe solutions to see how well they solve a given problem.

Vocabulary Introduced:

- Engineering
- Technology

Standards

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