



OUT-OF-SCHOOL SETTINGS | GRADES 3-5

Music to My Ears: An Acoustical Engineering Challenge

Unit Overview

In this unit, India and Jacob; a fictional, world-traveling brother and sister duo; visit Mongolia to help direct and amplify sound at the Naadam Festival. India and Jacob guide kids through the engineering activities as they learn more about shapes and materials that reflect or absorb sound. Kids use what they know about sound, vibrations, and acoustical engineering to design acoustic devices that can project sound from a speaker so that everyone at the festival can hear.

Engineering Application/Unit Goals

Kids will use each step of the Engineering Design Process as they become acoustical engineers and design acoustic devices to amplify sound. Acoustical engineers use their knowledge of sound and vibrations to create a range of technologies, from concert halls to earplugs. In this unit, kids explore how different shapes and materials affect the volume of a sound and apply that knowledge to engineer acoustic devices to amplify music played from a speaker.

Engineering Adventures engages learners in grades 3-5 in fun, creative problem solving. Eleven hands-on units are low-cost and flexible to meet the time and budget constraints of out-of-school settings, including afterschool and summer camp. Each unit centers on meaningful, open-ended problems with a global context. Learners find out more about the role engineering plays in their lives and the world around them as they're introduced to real engineering challenges and asked to design solutions with an engineering design process. Throughout each unit, kids learn to collaborate, communicate, solve problems, and share their solutions with their peers.



Unit Map

Prep Adventure 1: What is Engineering?

Kids engineer a tower and are introduced to the Engineering Design Process as a problem-solving tool.

Prep Adventure 2: What is Technology?

Kids explore the idea that they, as engineers, can design and improve technology.

Adventure 1: Sounds Good

Kids explore sound and compare how it travels through the air and solid materials.

Adventure 2: Can You Hear Me Now?

Kids investigate how different materials absorb and reflect sound.

Adventure 3: Shape Up!

Kids use kazoo's to explore how different shapes can increase the volume of a sound.

Adventure 4: Creating an Acoustic Device

Groups apply what they know about acoustical engineering to engineer an acoustic device that can amplify music in several locations.

Adventure 5: Improving an Acoustic Device

Kids improve their acoustic devices to amplify music to an additional location.

Adventure 6: Engineering Showcase

Kids share the acoustic devices they engineered and explain how they used the Engineering Design Process.

Ready to create a generation of problem solvers? Contact sales@mos.org