

Problem Solvers for Good: Making the World a Better Place Through Engineering

The American Society of Mechanical Engineers (ASME) and Discovery Education are engaging K–12 students in some of the biggest challenges of today and inspiring them to use the principles of engineering and problem-solving to improve their future and humankind. Join us as we challenge students to channel their passion and unique interests into an in-demand career in engineering with standards-aligned resources designed for all learners and communities.

ASME helps the global engineering community develop solutions to real-world challenges. Founded in 1880, it is a non-profit professional organization that enables collaboration, knowledge sharing and skill development across all engineering disciplines, while promoting the vital role of the engineer in society. ASME codes and standards, publications, conferences, continuing education, and professional development programs provide a foundation for advancing technical knowledge and for a safer world.

About the Video Series

Throughout *Problem Solvers for Good: Making the World a Better Place Through Engineering*, a three-part Video Topic Series, students will explore first-hand the innovation and iteration that comes with the engineering design process. Each episode in the series highlights an innovative and important project that acts as a solution to a global problem. Using the United Nations Sustainability Goals as a foundation, the series is tied together with themes of innovation and improvement, and it leads students through the continuous cycle of problem solving as they pursue questions such as: What challenge are we trying to solve? How can we design a solution? How do we know this is the right solution for the people being affected?

CLASSROOM USE

Each video in this three-part Topic Series is accompanied by a classroom activity. The activities, which are 45–60 minutes in length, are designed to bring students into the engineering design process. Using the videos as inspiration, students will work through the various steps of designing solutions while developing an understanding of the social, ethical, and environmental impacts engineering can have in solving global problems.

Each activity is presented in five sections: Engage, Learn, Apply, Challenge, and Reflect.

- During the Engage section, students will be guided through an opening WebQuest activity that introduces them to the video’s main concepts.
- They will then view the video and learn these concepts more fully in the Learn section. They will learn about the engineering design cycle and the specific steps in which they will engage.
- The Apply section provides students with the opportunity to apply their learnings to a unique situation.
- During the Challenge section, students will take the engineering design process a step further, incorporating innovation and the iteration process.
- Finally, students will reflect on and summarize their learning during the Reflect section.

Each video and accompanying activity focus on engineering for social good but can be completed in any order.

VIDEO & ACTIVITY OVERVIEWS

Video & Activity 1: Building the Road to Cleaner Water

After exploring a local water crisis and its relation to overall global water supply, students will learn about Caminos de Agua’s Aquadapt design aimed at solving the problem of water scarcity. They will then work together using design thinking to develop technological innovations that could positively impact those affected by this problem.

Video & Activity 2: Solar Power Up!

The second video introduces students to the Himalayan Rock Stove and the use of open-source designs as a springboard for innovation aimed at social good and environmental impact. Students will mimic the process of utilizing open-source designs by building a pizza box solar oven before working on innovating the design for further benefit.

Video & Activity 3: Soilless Farming

Students will again follow the engineering design process as they learn about the challenging effects of traditional farming practices on the environment and how businesses like Re-Nuble are working to provide solutions. Students will explore hydroponic farming before designing a small-scale hydroponics solution for individual people or families.