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EiE

Outbreak Alert!: Engineering a Pandemic Response

Unit Overview

In a world where we are more connected than ever, diseases can spread rapidly! Youth participating in this unit become biomedical engineers as they explore how to prepare for outbreaks of highly contagious diseases. They use the Engineering Design Process to design an antiviral to stop a newly discovered virus from infecting a model cell.

Engineering Application/Unit Goals

In this unit, youth will be introduced to engineering and the Engineering Design Process as they work together to engineer a solution to a biomedical engineering challenge. Biomedical engineers use their knowledge of biology and medicine to solve healthcare-related problems and to improve the healthcare field. Youth will explore how diseases can spread, engineer an antiviral for a contagious virus, create public service announcements to inform the public, and consider what steps they should take to prevent an outbreak from becoming a pandemic.

Engineering Everywhere inspires learners in grades 6-8 to shape the world around them. Our twelve hands-on units were tested in afterschool, summer camp, and out-of-school time settings, and they are proven to engage learners in innovative problem solving. Each unit begins with a Special Report video, which sets the context for the engineering design challenge and explores problems like food scarcity, prosthetics, and disease control. As learners work through our design challenges, they'll sharpen 21st century skills like critical thinking, teamwork, and communication, preparing them for success in school and in life.

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Unit Map

Prep Activity 1: What is Engineering?

Youth are introduced to engineering as they work in teams to engineer a quarantine box that prevents UV glow powder from escaping.

Prep Activity 2: What is Technology?

Youth play a Technology Trivia game that guides them to think about the breadth of technology.

Activity 1: Spreading Germs

Youth investigate how bacteria and viruses can spread from one person to another.

Activity 2: Going Antiviral

Youth learn about their biomedical engineering challenge and investigate the virus causing the mock outbreak.

Activity 3: The Best Defense

Youth engineer an antiviral to prevent the virus model from attaching to the cell model.

Activity 4: Informing the Public

Youth make public service announcements to inform the public about how to stay healthy in the outbreak.

Activity 5: Mutants Attack!

Youth engineer a new antiviral to prevent the newly mutated virus model from attaching to the cell model.

Activity 6: Engineering Showcase

Youth communicate their work to visitors.

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

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