



Mass STEM Week Engineering Design Challenge



For Massachusetts STEM Week 2023, the Museum of Science’s PreK-12 STEM Education Division will offer an Engineering Design Challenge for the 3-5 grade band that is a modified version of the EiE Unit: Designing Plant Packages.

Goal: Students will apply their knowledge of the basic needs of plants as they engineer a package to help keep a plant safe and healthy during transport.

Challenge: In this three-day challenge, students will consider the basic needs of plants (sunlight, air, water, and nutrients) and ways to protect the plant. Students will explore materials to determine what could be used in their design before they create, test, and improve their plant packages. The unit connects to the United Nations Sustainable Development Goal (UN SDG) 12 (ensure sustainable consumption and production patterns), as students consider how edible plants get to grocery stores and how packaging design can reduce food waste.

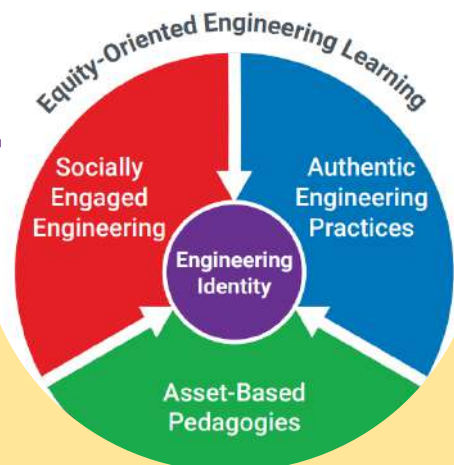
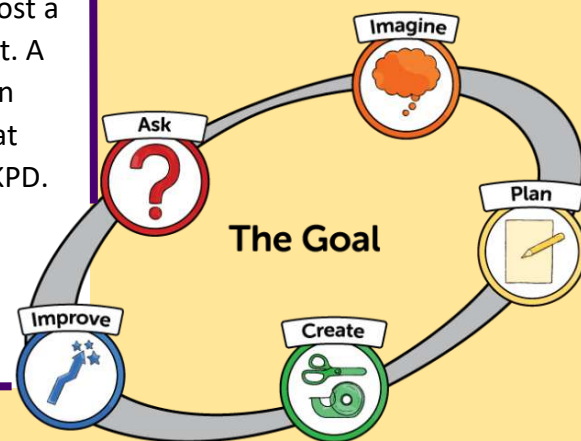
Materials Needed: pipe cleaners, cups (8oz or smaller), masking tape, rolls of paper towel, transparency sheets, Manila folders, wax paper (6”x 6” pieces), straws, cotton balls, 2-liter plastic bottles (one per group), half-gallon empty cardboard juice cartons (one per group), Play dough, a safe light source (daylight, lamps, flashlight), pipettes or eye droppers, scissors, single-hole punches, staplers.

Professional Development: On Thursday, September 28th, the Museum will host a live virtual professional development session for educators to explore the unit. A webinar recording will be available for future use. Previous STEM Week design challenge units and extension materials will be available for free to teachers at learn.eie.org. To sign up for the webinar, please visit <https://bit.ly/STEMWEEKPD>.

The Engineering Design Process



The Engineering Design Process is a practical approach to problem solving that applies to all subjects. As children apply the Engineering Design Process, they develop collaboration, communication, and critical thinking skills.



Three decades of research and development inform the Equity-Oriented Engineering Learning model. A set of design principles anchor our curricular materials. Students address problems that are relevant to their lives and communities.

They tap their strengths and experiences, think creatively, engage in engineering practices, use multiple modes of communication, and collaborate with peers as they create original designs. This helps students build an engineering identity.