TIPS FOR TEACHERS AND CLASSROOM RESOURCES

STEM Projects That Tackle Real-World Problems

By The SHARE Team

f Facebook   🐦 Twitter   📌 Pinterest   in Linkedin   ✉ Email

STEM learning is largely about designing creative solutions for real-world problems. When students learn within the context of authentic, problem-based STEM design, they can more clearly see the genuine impact of their learning. That kind of authenticity builds engagement, taking students from groans of "When will I ever use this?" to a genuine connection between skills and application.

Get Relevant Teaching Content and Updates Delivered Directly to Your Inbox. Subscribe Today!   Join

Using STEM to promote critical thinking and innovation

Invention and problem-solving aren't just for laboratory thinkers hunkered down away from the classroom. Students from elementary to high school can wonder, design, and invent a real product that solves real problems. "Problem-solving involves finding answers to questions and solutions for undesired effects. STEM lessons revolve around the engineering design process (EDP) — an organized, open-ended approach to investigation that promotes creativity, invention, and prototype design, along with testing and analysis," says Ann Jolly in her book STEM by Design. "These iterative steps will involve your students in asking critical questions about the problem, and guide them through creating and testing actual prototypes to solve that problem."

STEM projects that use real-world problems

Here are some engaging projects that get your students thinking about how to solve real-world problems.

Preventing soil erosion

In this project, meant for sixth – 12th grade, students learn to build a seawall to protest a coastline from erosion, calculating wave energy to determine the best materials for the job. See the project.

Growing food during a flood

A natural disaster that often devastates communities, floods can make it difficult to grow food. In this project, students explore "a problem faced by farmers in Bangladesh and how to grow food even when the land floods." See the project.

Solving a city's design needs

Get your middle or high school students involved in some urban planning. Students can identify a city's issues, relating to things like transportation, the environment, or overcrowding — and design solutions. See the project here or this Lego version for younger learners.

SHARE professional learning - Teaching Through The Coronavirus Pandemic course

Creating clean water

Too many areas of the world — including cities in our own country — do not have access to clean water. In this STEM project, teens will learn how to build and test their own water filtration systems. See the project here.

Improving the lives of those with disabilities

How can someone with crutches or a wheelchair carry what they need? Through some crafty designs! This project encourages middle school students to think creatively *and* to participate in civic engagement. See the project here.

Cleaning up an oil spill

We've all seen images of beaches and wildlife covered in oil after a disastrous spill. This project gets elementary to middle school students designing and testing oil spill clean-up kits. See the project here.

Building earthquake-resistant structures

With the ever-increasing amount of devastating earthquakes around the world, this project solves some major problems. Elementary students can learn to create earthquake resistant structures in their classroom. See the project here.

Constructing solar ovens

In remote places or impoverished areas, it's possible to make solar ovens to safely cook food. In this project, elementary students construct solar ovens to learn all about how they work and their environmental and societal impact. See the project here.

Stopping apple oxidization

Stop those apples from turning brown with this oxidation-based project. Perfect for younger learners, students can predict, label, count, and experiment! See the project here.

Advancing as a STEAM educator

y   ,   y   g   ,

Join Resilient Educator

Subscribe To Our Newsletter To Get Content Delivered To Your Inbox. Click or Tap the Button Below.

[Join]

You may also like to read

Teaching STEM: Challenging Students to Think Through Tough Problems

Professional Development Resources for STEM Teachers

What is the Washington State STEM Lighthouse Program?

Characteristics of a Great STEAM Program

Building a Partnership Between Your School and a STEAM Organization

The Art of Inquiry in STEAM Education

Tags: <u>Art</u>, <u>Educational Technology</u>, <u>Engaging Activities</u>, <u>Math and Science</u>, <u>Science</u>, <u>STEAM</u>

Also of Interest: Math Teaching Resources   STEAM Education Teaching Resources

Master's in Environmental Education

Resilient Educator

<u>Join</u> | <u>About</u> | <u>Privacy</u> | <u>Citation</u>