

An Introduction to a STEAM Career

A Lesson with the New Mix Team

What we learned today:

STEAM: An acronym that stands for **S**cience, **T**echnology, **E**ngineering, **A**rts and **M**ath. STEAM Education focuses on introducing students to these areas of study.

Load Distribution: Spreading out the weight (or load) so that every part of a structure is carrying part of the weight. When designing a structure, its weight is spread out and balanced to make it more sturdy. This balanced spreading of weight is called load distribution.

Center of Gravity: The center of gravity is the point in an object where its weight is evenly distributed in all directions. To keep a structure stable, its center of gravity must be kept as low as possible and centered over its base. Stability depends on a structure's center of gravity—low and centered is best! A higher center of gravity can lead to tipping or toppling.

Structural Shapes: When engineers design a bridge, they use structural shapes like triangles, also called “trusses,” to make sure the structure stays strong, even when heavy loads (like cars, trucks, and trains) move across it. Some shapes are stronger than others—it is up to the engineers to use the right structural shapes to create the strongest structure.

A CIVIL ENGINEER can:

- **Design Infrastructure:** Bridges, buildings, highways, and utility systems.
- **Research and Innovate:** Develop new technologies and improved processes.
- **Ensure Structural Integrity:** Load analysis, material selection, and follow safety standards.
- **Envision Sustainability:** Green building design, resource management, and eco-friendly solutions.
- **Support Urban Planning:** Urban development and community projects that help maintain public areas like sidewalks, parks, and multiuse trails.
- **Conduct Site Assessments:** Roadside safety, environmental impact studies, and land surveys to make sure the ground a structure stands on is strong and safe to build on.



If you enjoyed today's lesson, consider a career as a CIVIL ENGINEER:

Civil engineers are professionals who design, build, and maintain the infrastructure that supports modern society. At the heart of civil engineering is the challenge of creating structures and systems that are safe and long-lasting.

What you can do NOW to prepare for your future:

- Work hard in school and take extra math and science classes.
- Ask your school administrators about classes focused on architecture, design, and structures.
- Talk to your guidance counselor to discuss your plan for higher education—most civil engineers have a bachelor's degree or more.
- Research internships that work with engineering, construction, and inspection services.
- Stay connected with the New Mix Team as the program progresses!



For more information, visit NewMixWaterbury.com
 203-759-8742
thenewmixwaterbury@gmail.com

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