# STEM and Service-Learning

***giving deeper purpose to students' academic and civic lives***

*The U.S. is falling behind other countries in producing college graduates with degrees in science and engineering. This impacts the future of science research and development in the U.S. We have an opportunity now to give our K-12 students skills and passion to work in this field where the best jobs will be in the future.*

Combining STEM with service-learning is a particularly effective teaching strategy for 21st Century learning. Teaching science, technology, engineering, and math through projects that address community issues equips students to become more competitive in the global workforce, develop leadership skills, and address critical social issues.

STEM service-learning offers youth the opportunity to engage in hands-on, collaborative, and higher-level activities with their peers and experts in the community. They practice important academic skills in context and see purpose for their learning as they make an impact that improves their communities and school culture.

STEM service-learning prepares today's youth to solve tomorrow's greatest problems, providing empowering learning opportunities that could spark a young person's lifelong exploration of science, technology, engineering, and math and commitment to community engagement.

**Service-Learning**

1. Investigation
2. Planning
3. Action
4. Reflection
5. Demonstration

**Scientific Process**

1. Questioning
2. Research
3. Propose and Test Hypotheses through experimentation
4. Draw conclusion
5. Communicate Results

### Through STEM Service-Learning, youth will

⇒ experience real-world applications of concepts. Learning through hands-on, problem-based projects, students will be saying, "I see why we need to learn this."

⇒ see themselves as resourceful, knowledgeable, agents of change who can harness their curiosity, creativity, ideas, energy, and competence to benefit the entire community.

⇒ benefit academically, socially, and emotionally. They develop skills and explore STEM-related career options, allowing them to be more competitive in the global workforce.

**Learning to Give** is a free online teaching resource that educates, equips, and empowers youth as philanthropists who give time, talent, or treasure for the common good. **www.learningtogive.org**

**Learning to Give lessons and concepts give deeper knowledge and real-world purpose to STEM content.** Spark STEM teaching and learning with questions about why and how science impacts the common good. All lessons are aligned with Common Core State Standards and individual state standards. **Samples below.**

**Watershed SOS** — Elementary students explore why it is important to protect the local watershed. http://learningtogive.org/lessons/unit374/

**You Light Up My Life** — Middle school students explore electricity use and debate who's responsible for conservation. http://learningtogive.org/lessons/unit384/

**Pondering the Impermeable** — High school students explore the impact of impervious land surfaces. http://learningtogive.org/lessons/unit528/