



# Advanced Manufacturing eCTE

The following resources are related to the [Advance CTE Career Cluster](#). This Cluster covers areas such as engineering, research and development, automation and artificial intelligence, equipment maintenance, safety protocols, and quality control.

**A Possible Futures–Engineering and Design** [arizonafuture.org/programs/](http://arizonafuture.org/programs/)  
(Grades 6-10) Free engineering lessons aligned to Arizona Career Literacy standards.

**Engineering Design Process** [teachengineering.org](http://teachengineering.org)  
(Grades K-8) This process emphasizes open-ended problem-solving and encourages learning from failure.

**Engineering for Kids** [engineeringforkids.com/](http://engineeringforkids.com/)  
(Grades K-8) Accredited, interactive engineering programs.

**EVERFI Endeavor** [endeavor-stem-activities](http://endeavor-stem-activities)  
(Grades 6-8) Career exploration projects in game design, prototype design, and data-related challenges.

**First Robotics** [firstinspires.org/robotics](http://firstinspires.org/robotics)  
(Grades 4-12) Robotics is a perfect STEM lesson as it encompasses all skills.

**My American Farm** [games/subjects/engineering](http://games/subjects/engineering)  
(Grades K-5) Fun, educational games created by the American Farm Bureau.

**PBS Learning- Engineering Systems** [engineering-systems-processes](http://engineering-systems-processes)  
(Grades 6-8) Free robotics lessons based on science standards.

**Project Lead the Way Automation and Robotics** [pltw.org/curriculum](http://pltw.org/curriculum)  
(Grades 6-8) Combine mechanisms with automation and solve real-life problems of mechanical engineers, software developers, and electrical engineers.

**Rube Goldberg Machine- Teach Engineering** [simp\\_machines\\_lesson05\\_activity1](http://simp_machines_lesson05_activity1)  
(Grades 5-12) Open-ended, hands-on, fun challenge employs the engineering design process. Develops student creativity and problem-solving skills.

**Solve It Challenges** [schoolsup.org/solveit](http://schoolsup.org/solveit)  
(Grades 6-12) Free real-world challenges using the Engineering Design Process.

**Start-Up STEM** [startupstemllc.net/](http://startupstemllc.net/)  
(Grades K-5) Hands-on teacher PD for elementary educators to learn how to write STEM lessons and build a STEM community.

**STEM Activities- Science Buddies** [stem-activities/](http://stem-activities/)  
(Grades 5-8) Free real-world challenges using the Engineering Design Process.

**Teach STEM Explorers- AZ Educational Foundation** [teachstem](http://teachstem)  
(Grades 5-8) Free lessons on engineering design processes and inventions.

**TryEngineering (IEEE)** [tryengineering.org/explore-resources](http://tryengineering.org/explore-resources)  
Free computer science, binary basics, AI, and machine learning resources.

**ZSpace Franklin's Lab and Newton's Park** [zspace.com/solutions/stem](http://zspace.com/solutions/stem)  
(Grades K-8) Virtual platform for elementary students to learn how to build electrical circuits.

