

# STEM is Electrical

## STEM AND THE SKILLED TRADES

Science, technology, engineering, and math (STEM) are the essential building blocks of careers that cross industries and impact our daily lives in different ways. STEM is the foundation of technical careers that advances the next generation of a skilled workforce. STEM is the skilled trades of plumbing, heating, and cooling (HVAC) and electrical.



### SCIENCE

The atom is key to the science behind electricity and how it works. Electricity is energy in constant motion, and when used and installed correctly, it can do amazing things. When electricity is used incorrectly, it can be extremely dangerous. Understanding the science behind electricity is vital for powering homes and businesses and keeping people safe.



### TECHNOLOGY

Technology is always changing and evolving, especially in the electrical trade. Electricians are the bridge between consumers and new products that can improve the quality, convenience, and safety of our daily lives.

The electrical trade is "going green" by installing efficient power and lighting products. This includes some products that can be controlled remotely with the use of a mobile device.



### ENGINEERING

Electricians are tasked with turning designs into practical and safe installations. Knowing what makes a system safe and what is required helps electricians adjust and assemble the most effective systems. As electricians install or add to electrical systems, other trades are impacted in the process. An electrician must understand how the electrical system will interact with other elements of a home, like an energy efficient furnace or a tankless water heater.

In a new construction project, when a system is drawn a certain way does not mean it works that way on the job site! Being an electrician is so much bigger than understanding the engineering behind an electrical system.



### MATH

The foundation of electrical math is understanding the relationship between voltage, amperage, resistance, and watts. These relationships are all broken down into simple math formulas (called Ohm's Law) that can be applied to almost any situation. From sizing conduit, junction boxes, conductors, protection for the circuits, and calculating the potential power that will be used, electricians use math every day.

