

CAREER BRIEF

(Grades 9-12)

ENGINEER



WHAT IS AN ENGINEER?

- An engineer uses design, construction, machines, systems and structures
- There are several different types of engineers: industrial, biomedical, environmental, marine, civil, mechanical, petroleum, computer, electrical, nuclear, materials, chemical, aeronautical and software

WHAT DO ENGINEERS DO?

- Design different structures and systems
- Test and evaluate different structures and systems
- Inspect and maintain a variety of structures and systems
- Different kinds of engineers are responsible for different kinds of systems and structures
- Civil Engineers:
 - Specialize in road, bridge, buildings and water supply system design and construction
 - Supervise and direct construction crews
 - Work with other civil engineers
 - Ensure buildings are environmentally friendly
 - Ensure buildings can withstand earthquakes and hurricanes

Fun Fact: *The Ferris wheel is regarded as one of the largest engineering wonders of the world. The first modern big wheel was built by Pittsburgh's George Washington Gale Ferris, an engineer for railway technology and bridge building, for the 1893 World's Columbian Exposition in Chicago.*

EDUCATION AND TRAINING

- A high school diploma or equivalent (GED)
- A Bachelor's Degree in Engineering (4-year degree)
- Most Lead Engineers also obtain a Master's Degree

SKILLS

- Communication Skills and Teamwork: must communicate effectively and be detailed oriented. Must work well with a team and communicate with other engineers and all others involved in the project
- Critical Thinking: must assess different problems and find solutions
- Technology Skills: all varieties of engineers need to use a computer, have experience with modeling software and other engineering computer programs
- Attention to Detail: engineers need to pay attention to small details when analyzing plans and structures

EXPLORING THIS CAREER

- <https://www.bls.gov/ooh/architecture-and-engineering/home.htm>
- Civil Engineer: <https://www.civil.columbia.edu/about-2>
- <https://www.careerprofiles.info/engineering-careers.html>

"Scientists study the world as it is; engineers create the world that has never been."

—Theodore von Karman, Hungarian-American mathematician, aerospace engineer, and physicist