Electronics engineers who work for the federal government research, develop, and evaluate electronic devices used in a variety of areas, such as aviation, computing, transportation, and manufacturing. They work on federal electronic devices and systems, including satellites, flight systems, radar and sonar systems, and communications systems.

The work of electrical engineers and electronics engineers is often similar. Both use engineering and design software and equipment to do engineering tasks. Both types of engineers also must work with other engineers to discuss existing products and possibilities for engineering projects. Engineers whose work is related exclusively to computer hardware are considered *computer hardware engineers*.

To get you thinking...

A. Instead of:
...to discuss existing products...

Can you say:
...to discuss **about** existing products...?

B. Look at these verbs:
improve, prove, approve.
What are the nouns?

Work Environment

Electrical and electronics engineers work in industries including research and development, engineering services, manufacturing, telecommunications, and the federal government. Electrical and electronics engineers generally work indoors in offices. However, they may have to visit sites to observe a problem or a piece of complex equipment.

Work Schedules

Most electrical and electronics engineers work full time.

► **Activity 2: Now that you have read Part I, fill in the gaps using the following words:**

professionals / computer / government / aircraft / federal / hardware / outdoors / spacecraft

Electrical and electronics engineers...

...work both in industries and the **(1)** _____ **(2)** _____.

...work on automated systems used by **(3)** _____ and **(4)** _____.

...cooperate with other engineering **(5)** _____.

...who design and develop components such as memory devices are **(6)** _____ **(7)** _____ engineers.

...work mainly in offices, but sometimes are required to work **(8)** _____.

Part II – How to Become an Electrical or Electronics Engineer

Electrical and electronics engineers must have a bachelor's degree. Employers also value practical experience, such as internships or participation in cooperative engineering programs, in which students earn academic credit for structured work experience.

Education

High school students interested in studying electrical or electronics engineering benefit from taking courses in physics and math, including algebra, trigonometry, and calculus. Courses in drafting are also helpful, because electrical and electronics engineers often are required to prepare technical drawings.

Electrical and electronics engineers typically need a bachelor's degree in electrical engineering, electronics engineering, or a related engineering field. Programs include classroom, laboratory, and field studies. Courses include digital systems design, differential equations, and electrical circuit theory. At some universities, students can enroll in a 5-year program that leads to both a bachelor's degree and a master's degree.