



# Educational Topic

## Engineer

### Related Job Titles:

Electrical Engineer, Electronics Engineer, Mechanical Engineer, Aerospace Engineer, Chemical Engineer, Materials Engineer, Computer Engineer

### Job Description:

Engineers design, develop and test products, machinery, factories and systems such as buildings, robots, instruments, spacecraft, airplanes, motors and other equipment. When designing a new product, Engineers first figure out what it needs to do. They then design and test the parts, fit the parts together and test to see how successful it is. They also write reports on the product. Most Engineers work in office buildings or laboratories. Some work outdoors at construction sites. Some must travel to different work sites.

### Interests / Abilities:

- Are you good at math?
- Is your work detailed?
- Do you like to solve problems?
- Are you interested in how things work?
- Do you like working with computers?
- Do you like to take things apart and put them back together?

### Suggested School Subjects / Courses:

- Mathematics (algebra, geometry, trigonometry, calculus)
- Science (physics, biology, chemistry,)
- English (writing)
- Social studies (history)
- Computer programming
- Engineering

### Education / Training Needed:

The minimum education required for this position is a bachelor's degree in Engineering from an accredited college or university. Engineering degrees are generally offered in Electrical, Mechanical, Aerospace or Civil Engineering. To do research, a Ph.D. is highly desired for this position.

### Areas of expertise:

- *Electronics:* design and lead the production of electrical and electronic equipment such as motors, wiring, aircraft, radar and computers
- *Aerospace:* design, test and lead the building of missile, spacecraft and aircraft
- *Chemistry:* use chemistry and engineering to solve problems in producing or using chemicals and to design equipment for producing chemicals
- *Mechanics:* plan and design tools, engines, machines and other equipment such as jet and rocket engines and robots
- *Computers:* design and develop computers or robots
- *Materials:* develop and test new types of materials for aerospace systems and vehicles

## Additional Resources:

- Accreditation Board for Engineering and Technology, Inc.  
<http://www.abet.org>
- American Institute of Aeronautics and Astronautics  
<http://www.aiaa.org>
- Astrobiology Summer Academy  
<http://academy.arc.nasa.gov/>
- Earth to Orbit: Engineering Design Challenges  
<http://eto.nasa.gov/>
- Graduate Student Researchers Program  
<http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Graduate.Student.Researchers.Program.Brochure/.index.html>
- Institute of Electrical and Electronics Engineers  
<http://www.ieee.org>
- Junior Engineering Technical Society  
<http://www.asee.org/jets>
- MATHCOUNTS Competition  
<http://mathcounts.org/>
- Minority University Research and Education Programs  
<http://mured.nasaprs.com/>
- NASA Cooperative Education Program for college students  
<http://spacelink.nasa.gov/Educational.Services/NASA.Education.Programs/Student.Support/NASA.Cooperative.Education.Program/.index.html>
- NASA Jobs  
<http://nasajobs.nasa.gov/>
- NASA SHARP Internship Program for high-schoolers  
<http://www.mtsibase.com/sharp/>
- NASA Student Employment  
[http://nasajobs.nasa.gov/stud\\_opps/employment/index.htm](http://nasajobs.nasa.gov/stud_opps/employment/index.htm)

## What can I do right now?

- Participate in Bot-Ball or FIRST Robotics competitions (see [Robotics Education](http://robotics.arc.nasa.gov) <http://robotics.arc.nasa.gov>).
- Take as many math and science classes as you can.
- Participate in science fair projects.
- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit. (202) 783-7200
- Order activity books, poster sets and engineering kits by writing to the Society of Manufacturing Engineers, One SME Drive, P.O. Box 930, Dearborn, MI 48121-0930.
- Participate in National Engineers Week.

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- NASA Student Involvement Program student contests  
<http://www.nsip.net/index.cfm>
  - Order NASA career videos such as "Engineers: Turning Ideas into Reality," "Careers: Aerospace Engineer" or "Reaching for the Stars" from NASA CORE.  
<http://core.nasa.gov>
  - Revolutionary Vehicle Concepts and Systems student competition  
<http://avst.larc.nasa.gov/competitions.html>
  - Robotics Education  
<http://robotics.arc.nasa.gov>
  - Student's Guide to Astrobiology  
<http://www.astrobiology.com/student.html>
  - Tech-Interns.com  
<http://www.tech-interns.com/>

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- Please take a moment to evaluate this product at:  
[http://ehb2.gsfc.nasa.gov/edcats/educational\\_topic](http://ehb2.gsfc.nasa.gov/edcats/educational_topic)
  - Your evaluation and suggestions are vital to continually improving NASA educational materials.
  - Thank you.



<http://quest.nasa.gov/people/index.html>

Engineer

ET-2004-10-106-ARC