

NASA for Kids: Intro to Engineering

For the complete videos with media resources, visit:

<http://education.nationalgeographic.com/education/media/nasa-kids-intro-engineering/>

Anything that is built must first be engineered, or planned out. An engineer is a person who designs and builds complex products, machines, systems, or structures. Engineers want to know how and why things work. They have scientific training that they use to make practical things. Engineers often specialize in a specific branch of engineering. The field of engineering is divided into branches such as civil, electrical, mechanical, and chemical engineering. Many types of engineering must be performed to design and build a complicated system such as a spacecraft. For example, a spacecraft has electrical, mechanical, and propulsion systems. All those different systems must be designed before the whole spacecraft can work. The engineering design process is a series of steps that engineers use to guide them as they solve problems. During the design process, engineers:

- Identify the problem or challenge.
- Identify design requirements and limitations on the design due to available resources and the environment. Brainstorm possible solutions to the problem or challenge.
- Generate ideas and develop the most promising ones. Explore possibilities and the pros and cons of each.
- Select an approach by identifying the design that appears to solve the problem best. Build a model or prototype.
- Refine the design by identifying changes that need to be made and improving the model or prototype.

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