What is engineering?
Engineering is the art of applying scientific and mathematical principles, experience, judgment, and common sense to make things that benefit people.
— American Society for Engineering Education

What is the difference between a scientist and an engineer?
Scientists investigate what is; they discover new knowledge by peering into the unknown...
Engineers create what has not been; they make things that have never existed before...
— Joe Bordogna, National Science Foundation

Why teach engineering in K-12?
- Engineering integrates science and math into a real-world context to which students can relate.
- Engineering helps keep students motivated to learn fundamental math and science skills.
- Improved technological literacy helps prepare youngsters for all fields of college study.
- Engineers are in high demand in the workforce.

Might engineering be for you?
- Do you like to help people?
- Do you enjoy solving problems?
- Do you enjoy working on a team?
- Do you like science and math?
- Are you into creating things?
- Do you want to make a difference?
- Are you willing to study hard?
- Are you accurate in your work?
- Are you fascinated with the future?

If you said yes to some of these questions, a career in engineering could be in your future.

For more information, please contact:
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ITL Program and Laboratory website:
http://itll.colorado.edu > K-12 Engineering

I hear... I forget.
I see... I remember.
I do... I understand.
— Confucius, c. 500 BC

See: http://itll.colorado.edu

Colorado
University of Colorado at Boulder

K-12 Engineering Program

Integrated Teaching & Learning Program and Laboratory
College of Engineering & Applied Science
University of Colorado at Boulder
Tours

All grades and ages of learners are invited to visit the ITL Laboratory. In addition to being a classroom facility for undergraduate engineering students, the ITL Laboratory features 14 interactive exhibits for play and exploration by families and classes on field trips.

It is easiest to take a self-guided tour using a brochure available in the ITL Laboratory lobby. We’re usually open Monday-Friday, 8:30AM-4:30PM, but call in advance to confirm: 303-492-7222 or 5230. Maximum group size is 30 students. Adult supervision (minimum of one adult per six students) is required.

Guided tours are also available, on a limited basis. Call 303-492-5230 for more information.

Preview what you can expect to see and learn by viewing “Exhibits & Art” on the ITLL website at: http://itll.colorado.edu. Driving directions may be found at this website, too.

Summer Classes

The ITL Laboratory offers many activities that provide fun engineering, science and technology activities and programs involving K-12 students and teachers, engineering students and professors, and the general public. For example:

For high school students
Engineering Success Institute
Creative Engineering — Go for It!
CU Pre-Collegiate Development Program
American Indian Upward Bound

For younger students
IBM EXite Camp
Kids classes, such as Exploring Engineering

For teachers
Teacher Professional Development Workshops
Put a Spark in It (Electricity)
Up, Up and Away (Airplanes)
Mechanics Mania (Laws of Motion)
Plot Your Course (Navigation)

For the latest information on summer offerings, please see: http://itll.colorado.edu and click on K-12 Engineering.

In-Classroom Fellows

The university and two school districts are collaborating to implement a transformative, 10-year pre-engineering continuum program to benefit seven schools serving diverse students traditionally underrepresented in engineering.

In this program, CU-Boulder engineering students serve as science and math content resources, teaching partners and engineering role models with teachers in Lafayette and Denver schools. They deliver hands-on, engineering-focused science, technology, engineering and math curricula in grades 3-8 classrooms. The approach exploits the applied nature of engineering to enrich science and math content to help youngsters better understand their everyday world.

Our long-term objective is to prepare and interest students to take advantage of new pre-engineering programs at two high schools — the Pre-Engineering Academy at Centaurus High School in Lafayette, and the Denver School of Science and Technology in Denver — and ultimately enroll the high school graduates in collegiate science and engineering programs.

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"ITL Lab Tour" - Text version:

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For younger students
IBM EXite Camp
Kids classes, such as Exploring Engineering

For teachers
Teacher Professional Development Workshops
Put a Spark in It (Electricity)
Up, Up and Away (Airplanes)
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TeachEngineering.org is a free online digital library of hands-on, standards-based, classroom-tested K-12 engineering lessons and activities for science and math teachers. TeachEngineering curricula use engineering as a vehicle for integrating science and math fundamentals via hands-on engineering-based activities relevant to the lives of youth. Created by a team of US engineering colleges, including CU-Boulder, the collection is searchable by subject area, grade level, keywords, educational standards and more. Current contents: 36 multi-week curricular units, 240 lessons and 436 hands-on activities in 13 subject areas.