MIT Women's Initiative Presentation

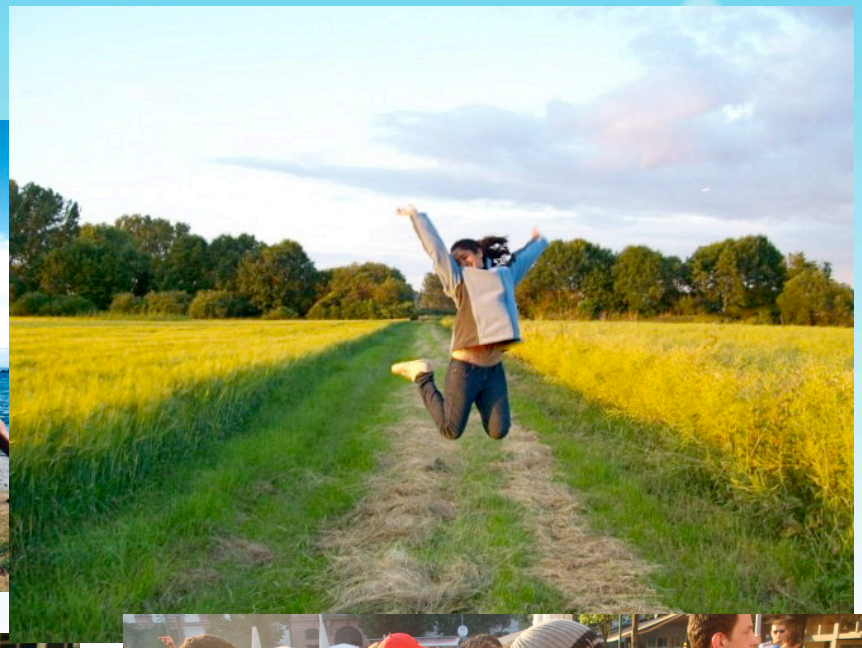
Engineering is awesome!

Sondy


162


Welcome to Historic
"Mount Wilson Observatory
Founded by George Ellery Hale in 1904
Mount Wilson Institute
Carnegie Institution of Washington

Hamsika



What is **engineering**?
What do **you** think?

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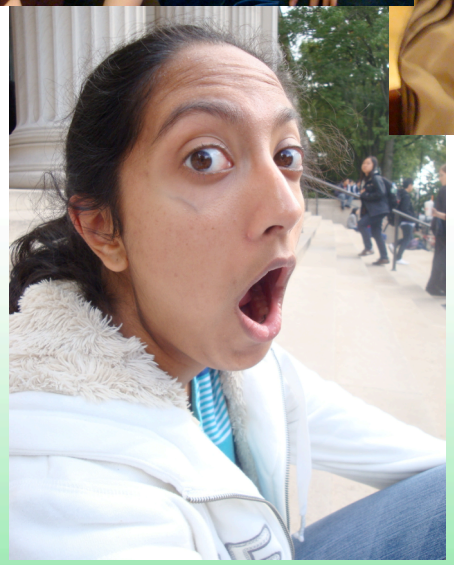
What do **you** think?

Engineering is using ***math*** and ***science*** to solve interesting problems, such as:

1. How do we get humans to Mars?
2. How can you build a talking robot?
3. How can you make better makeup?

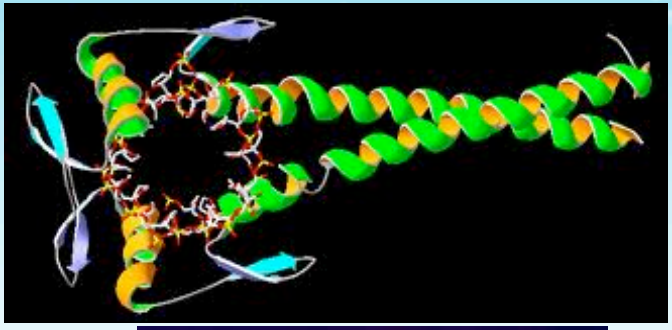
Engineering is about ***creating*** new and exciting things from ideas!

Who is an engineer?



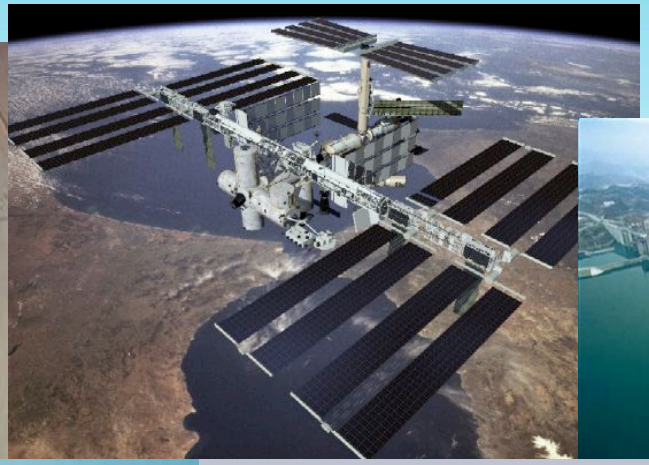
Surprise! They look like you :)

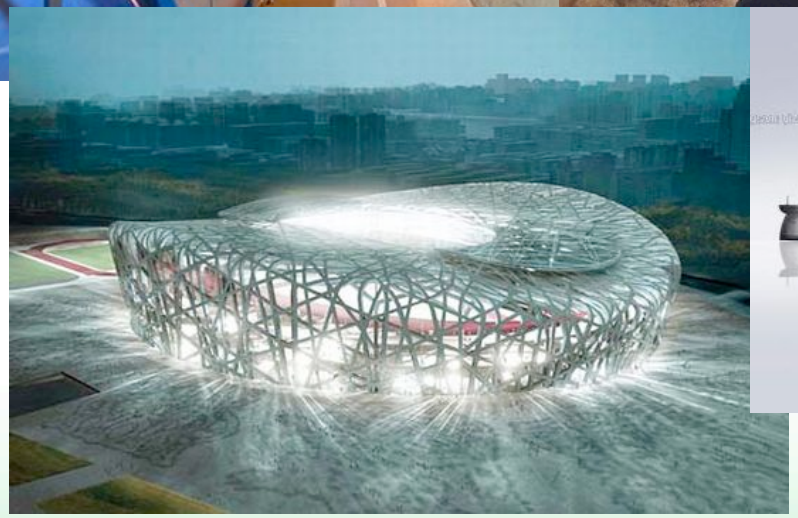
Types of engineers

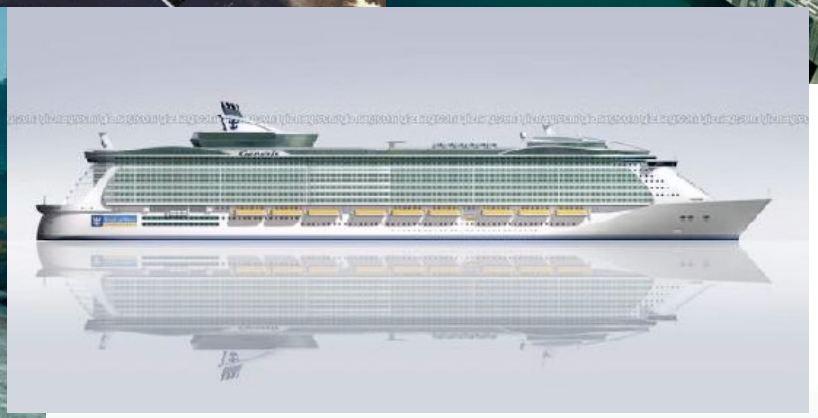


Civil
Mechanical
Materials
EE/CS
Chemical
Biological
Aerospace
Environmental
Nuclear
Systems
And many more!

Examples of what engineers do







Engineers use science and math to understand the world better; they then use that understanding to design a product.

Aerospace/Astronautical Engineers

- Figure out ways to get to other **planets**
- Design robots to roll around on **Mars**
- Find out how to get rocks back from **asteroids** by **robots**

Chemical Engineer

Design helpful **medications**
Come up with better **makeup**
Find alternative **fuels** for cars and airplanes

Software Engineer

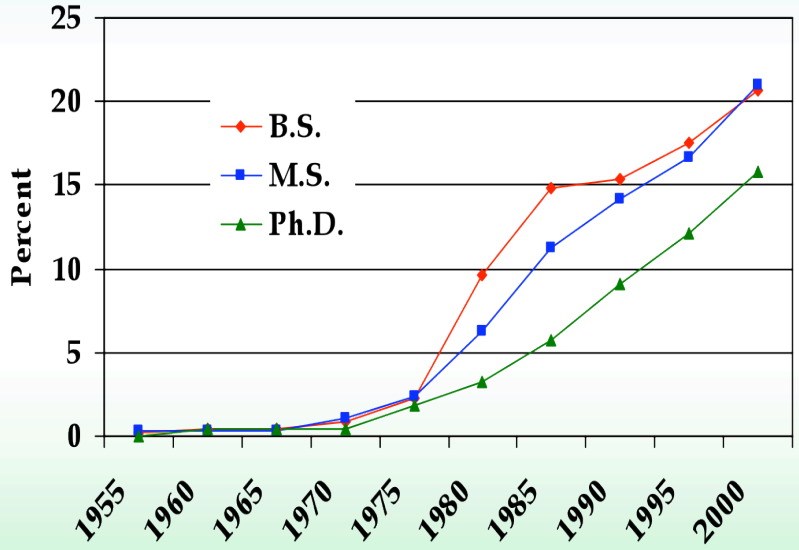
- Come up with ideas for cool websites and software
- Like **Twitter**, **Facebook**, **Google**, **iTunes**
- Design how websites look, feel, and act
- Work as part of a team to keep customers (you) excited to use their product!

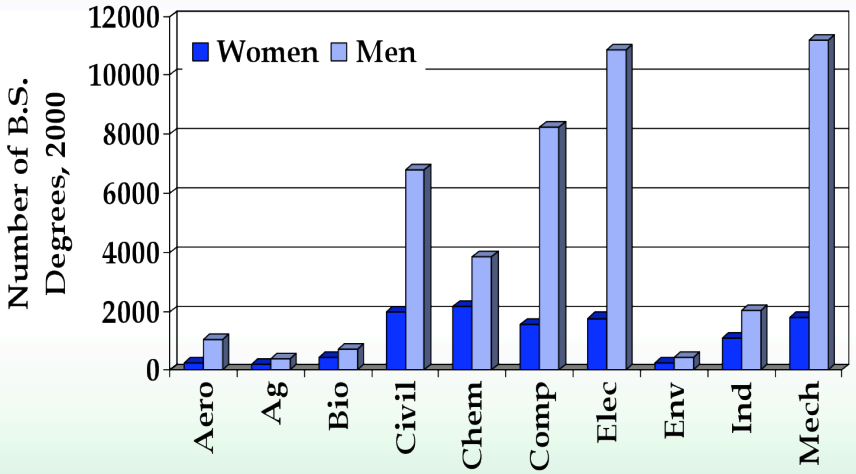
Why do I want to be an engineer?

- I love making stuff that will **help people**
- I love coming up with **ideas**
- I enjoy **solving** problems
- I enjoy **traveling**
- I enjoy **meeting** and **socializing** with people
- A **secure future**

Why do we want YOU in engineering?

- Less than 20% of undergrads in engineering are women.
- At MIT, the engineering school is 33% female.
- Even less, 17% continue on to graduate school.
- Women constitute about 11% of the engineering workforce.





Source: Engineering Workforce Commission, 2001

Benefits of Engineering

- Challenging (You Don't Get Bored)
- Flexible Job Opportunities
- Good Pay and Benefits
- Lasting and Tangible Products
- Help to humankind

Should I be an **Engineer**?

- Do you enjoy **science** and **math**?
- Do you have *perseverance*?
- Are you **creative**?
- Are you *curious*?
- Do you wonder **why** things are the way they are?
- Do you like to think of ways to *improve* things?

Engineering Problem Solving:
How do Engineers approach a problem?

Problem Type: what causes this to behave this way?

Define the Problem
Research what's been done before to solve this problem
Lots of thinking
Form a hypothesis then test it with an experiment
Analyze Data (could be more involved that you would expect)
Form Conclusions
Use your conclusions to take action!

Activity

Activity

- Split into groups of 6
- Designate a scribe
- Come up with a plan - 4 minutes
- Bring us a plan in order to get materials
- Start activity! - 12 minutes

Ready?

Build the TALLEST structure you can out of newspaper!

Prizes for winning teams

Time's up!

How do I prepare to be an Engineer?

- Classes:
  - High School: Finish taking your classes!
  - Math: Algebra, Geometry, Pre-Calculus, Calculus
  - Science: Biology, Physics, Chemistry
  - Also: 4 years of English, a Foreign Language, Social Sciences
  - Middle School: Work hard in algebra and science, and prepare for taking challenging and interesting classes in high school
- Summer Programs
- Activities: Sports, Music, Art, Community Service…

Broaden your horizons, explore, and *have **fun**!*

Summer programs in TX and beyond

Research at the Texas Medical Center

Mathworks Math Camp
- http://www.txstate.edu/mathworks

High School Summer Science Research Program
- http://www.baylor.edu/summerscience

Awesome Math
- http://awesomemath.org

Summer Science Program (New Mexico and California)
- http://www.ssp.org (Sondy used to teach here!)

RSI - Research Science Institute (at MIT!)

MITES - Minority Introduction to Engineering and Science (at MIT!)

WTP - Women's Technology Program (again, at MIT!)

Research

Hamsika - Developing a New Generation of Cochlear Implants
+ Experiments with Kids!

Research

Sondy - dangerous asteroids, Pluto, and magma ocean solidification

Contact Us

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