What is Engineering?
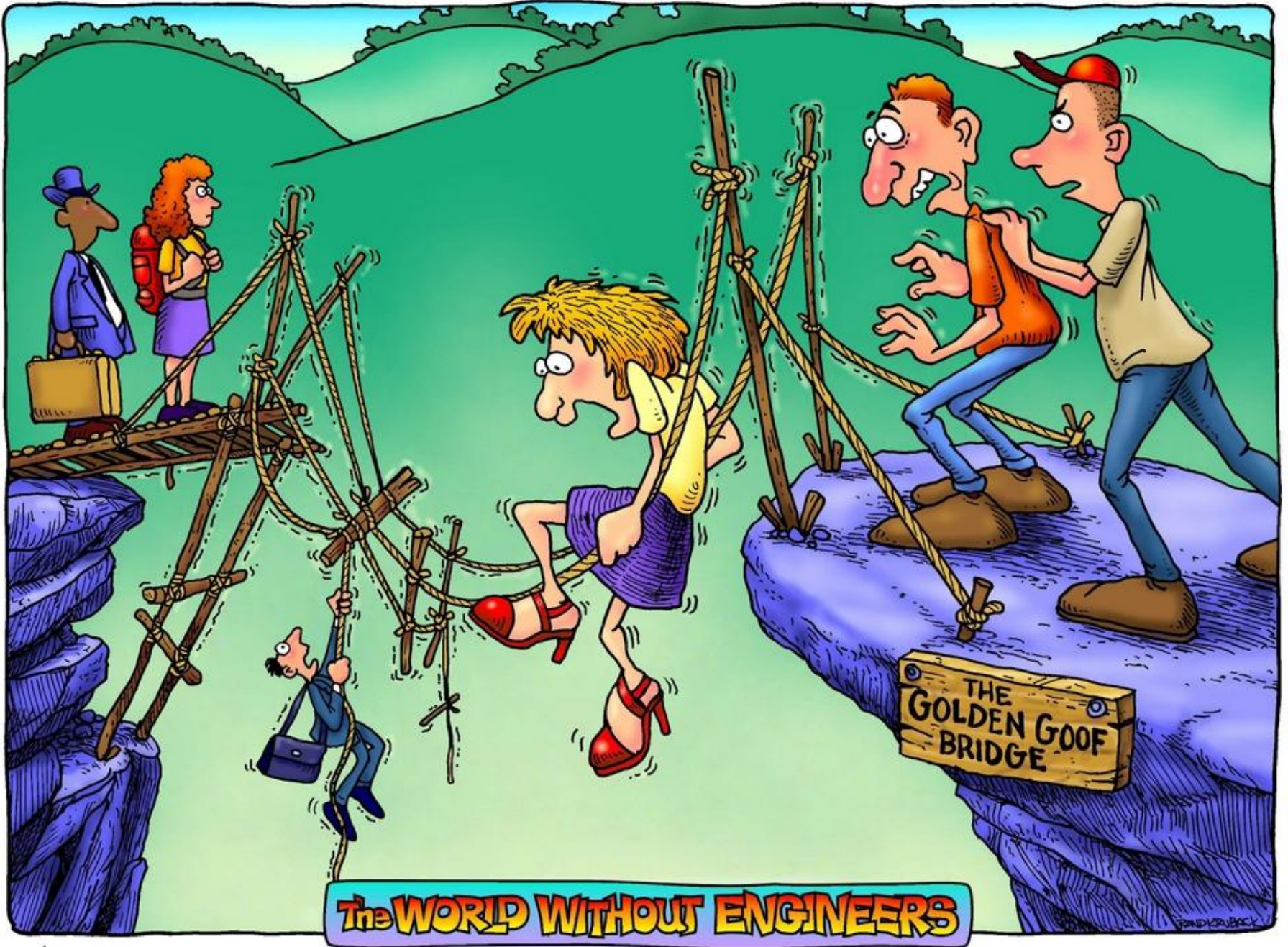
- What would the world be like without engineers?

- Look at the following comics and figure out what engineers do!

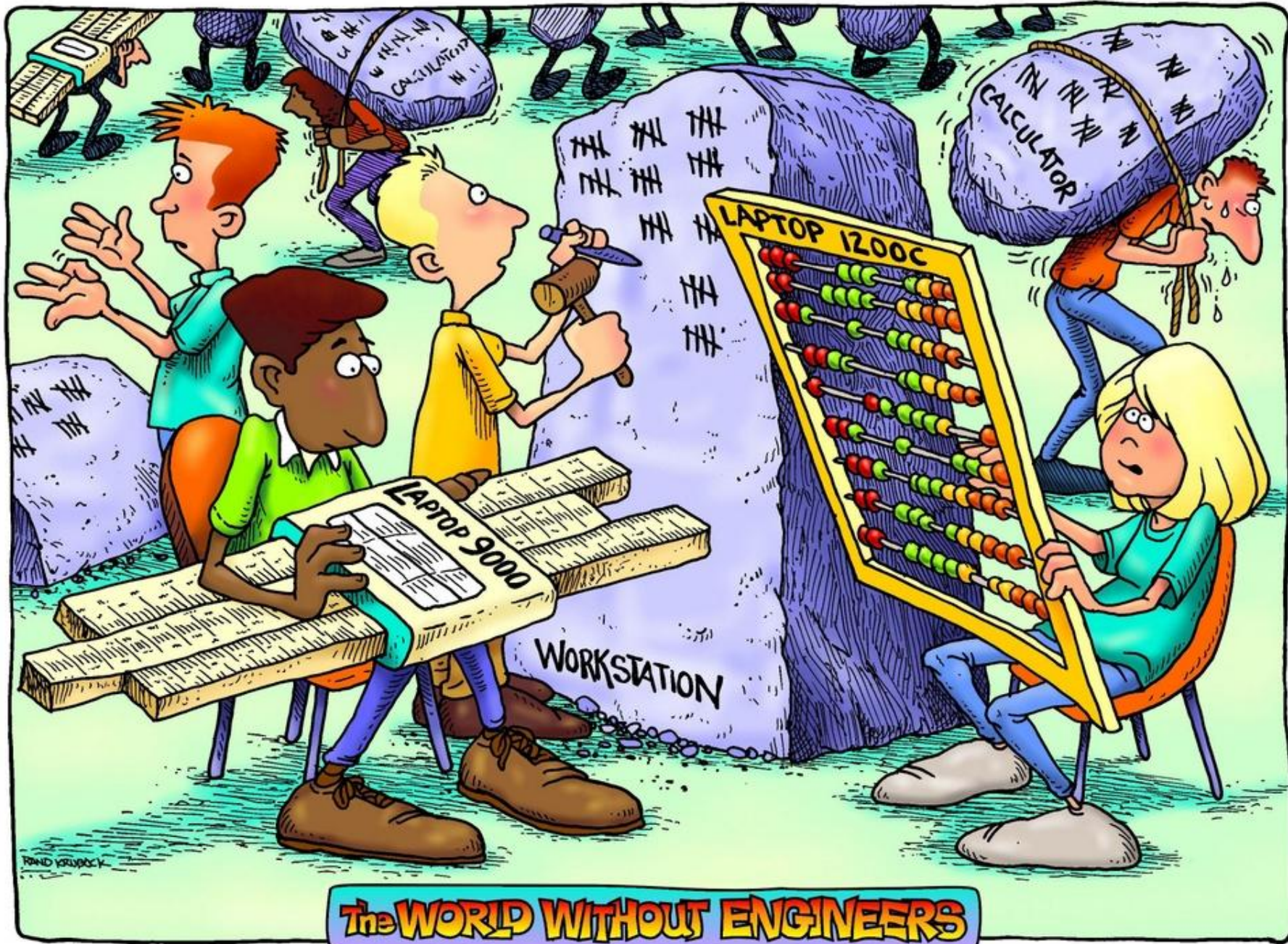The WORLD WITHOUT ENGINEERS

Agilent Technologies

http://www.agilent.com/find/edu

THE GOLDEN GOOF BRIDGE

The WORLD WITHOUT ENGINEERS

Agilent Technologies

http://www.agilent.com/find/edu

The WORLD WITHOUT ENGINEERS

The WORLD WITHOUT ENGINEERS

The WORLD WITHOUT ENGINEERS

iPed

The WORLD WITHOUT ENGINEERS

The WORLD WITHOUT ENGINEERS

Agilent Technologies

http://www.agilent.com/find/edu

Engineers are Inventors!
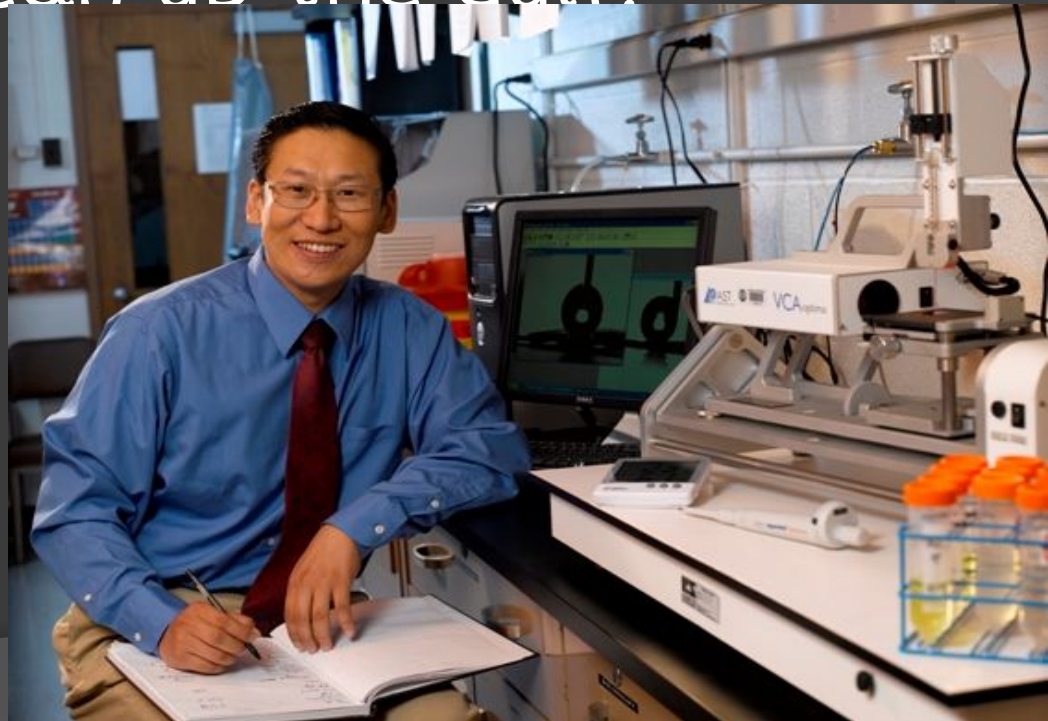
- Engineers use science and math to solve real world problems!
- What are some of the types of engineers you've heard of?
- Possibly:
  - Chemical, electrical, mechanical, software, civil, biomedical, and environmental. AND MANY MORE!

Look around you, virtually every manmade contraption you see was conceived of and created by an engineer!

Now let's take a look at some real life engineers and what they're working on right now!

Separating Oil from Water

- Di Gao, a chemical engineer at the University of Pittsburg, invented a plastic-coated cotton material that could clean up the Gulf.

Designing Better Cars

- Marcus Ashford, a mechanical engineer at the University of Alabama, has invented a car engine with 80% less exhaust emissions.
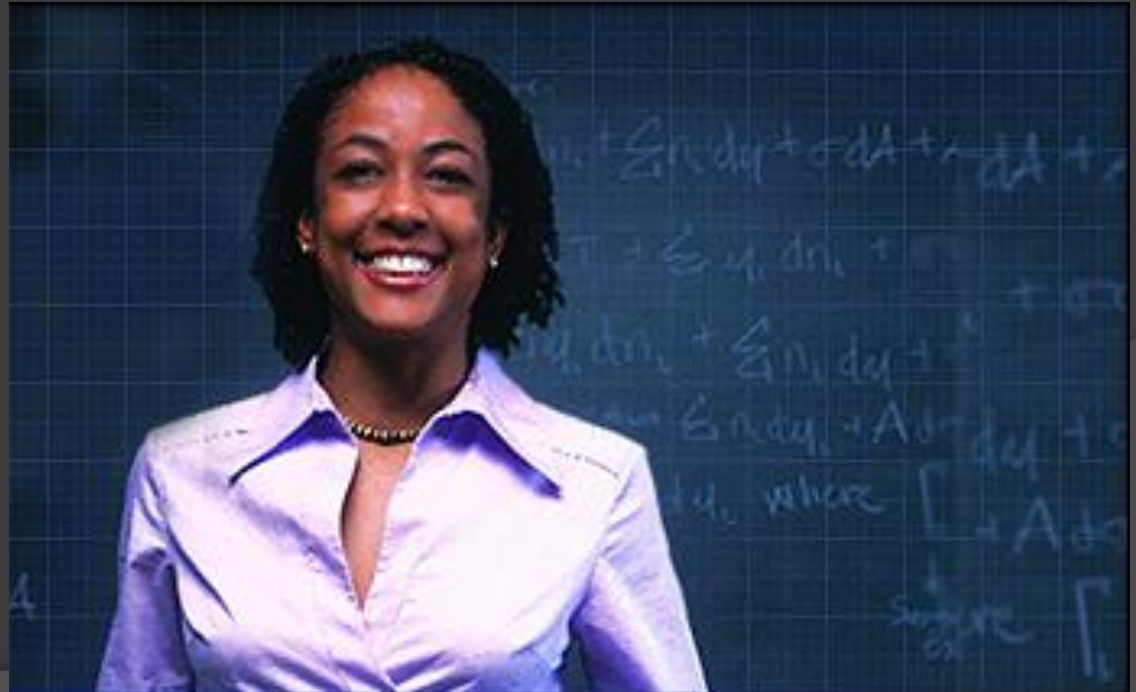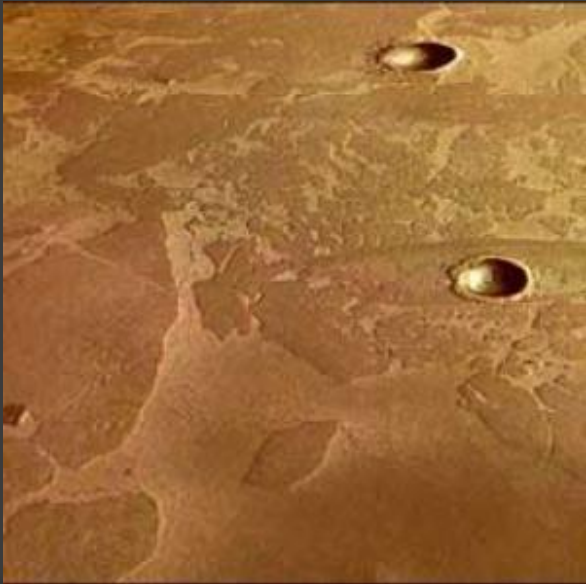
PHOTOGRAPH BY WYATT MCSPADDEN

FACULTY'S FINEST: Marcus D. Ashford – Driving Force

Cleaning Up the Ocean

- Alexandria Boehm is an environmental engineer who works on ways to clean up oceans near wh

Designing Space Colonies

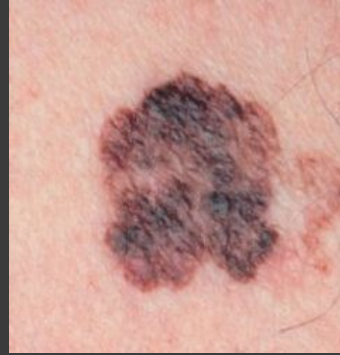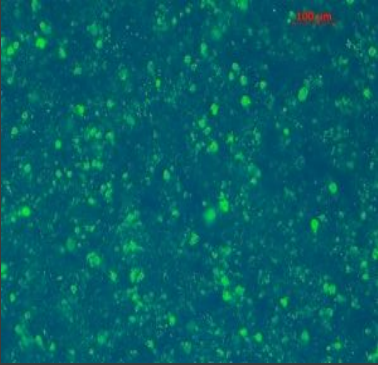- Kimberly Jones is a civil engineer working on purifying water so that we can one day go to Mars!!!
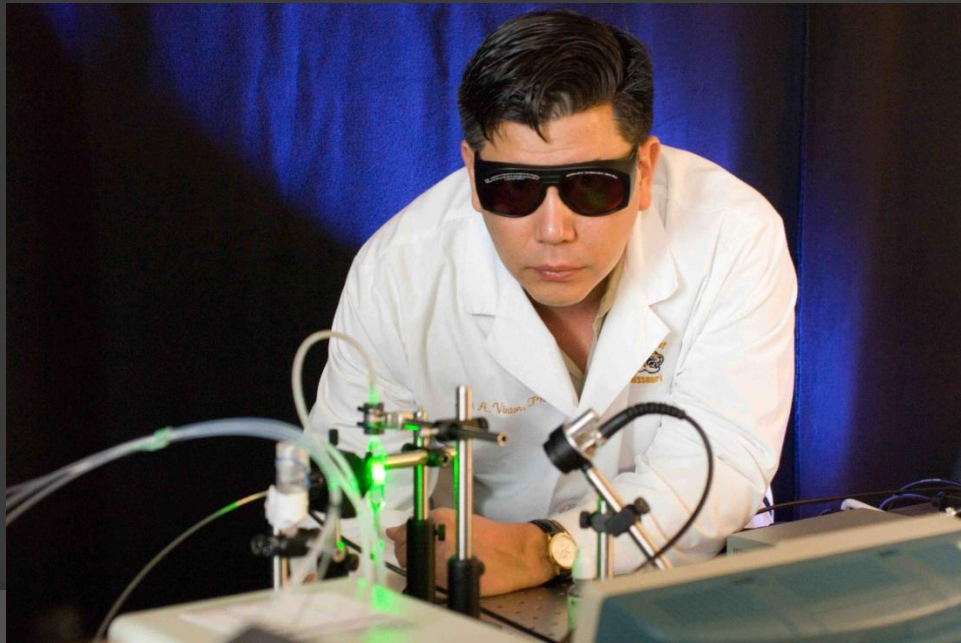
Controlling Computers with Thoughts

- Daniel Moran, a biomedical engineer at Washington University, has invented a way to play video games using only the human mind!
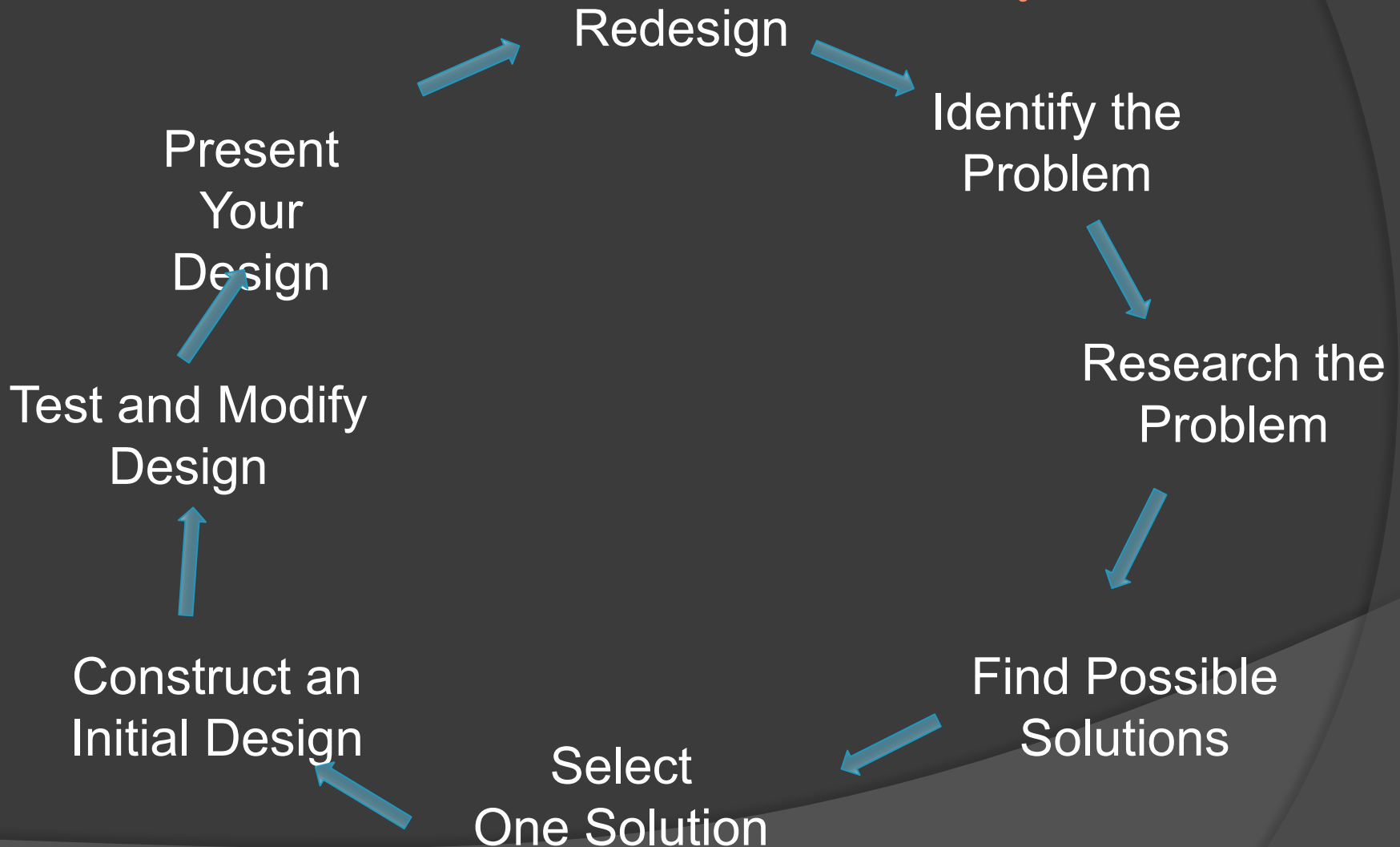
Listening for Cancer

- John Viator, a biological engineer, has invented a way to hear cancer cells.

The Engineering Design Process Loop

Redesign

Identify the Problem

Present Your Design

Research the Problem

Test and Modify Design

Construct an Initial Design

Find Possible Solutions

Select One Solution

You will be an Engineer!

- Throughout this curriculum, you will answer:
  - 1. What is the problem that we have?
  - 2. What can you find out about the problem?
  - 3. What ideas are there already out there that could help us solve the problem?
  - 4. How can you use those ideas to determine a solution?
  - 5. What would your design look like?
  - 6. Build and test it. Does your design work?
  - 7. Show others!