Take a closer look!

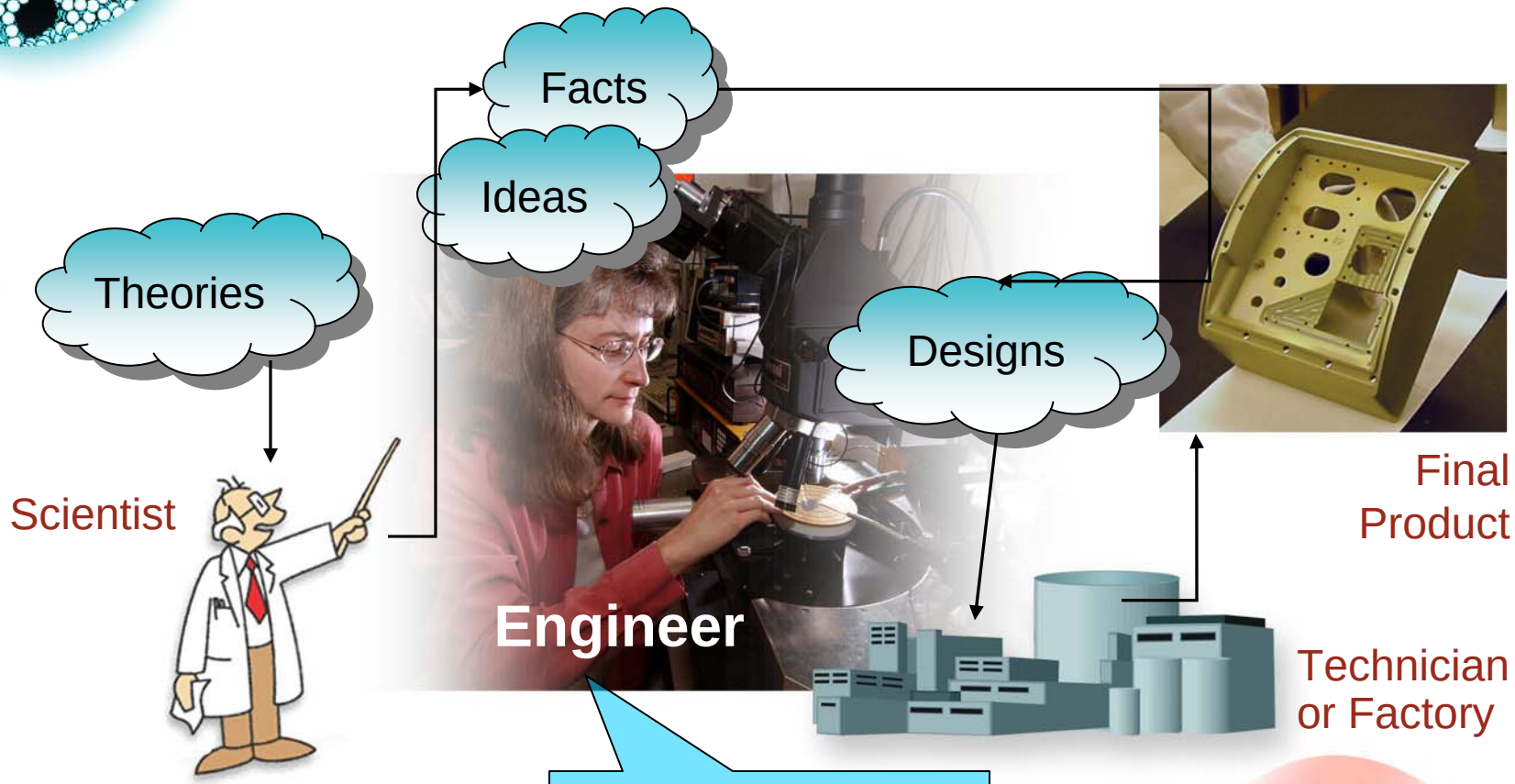
EXPLORE ENGINEERING

Turn Your Ideas into Reality

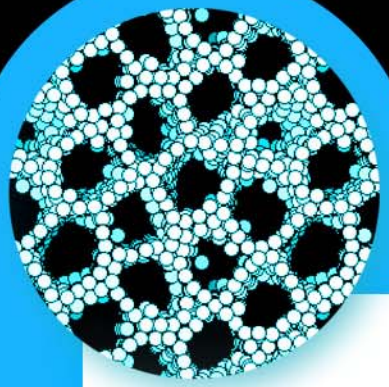
Sandia National Laboratories

LOCKHEED MARTIN

What is **Engineering**?



<u>A practical inventor</u> who uses science and nature to make life better.

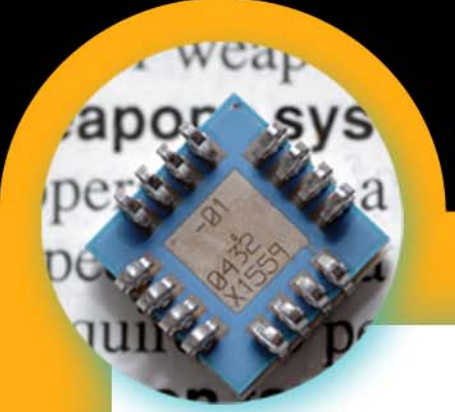


If you **like to…**

- Solve problems
- Design things
- Build things
- Work puzzles
- Figure out how things work
- What makes people click?

And if you like to help others…

Consider engineering!

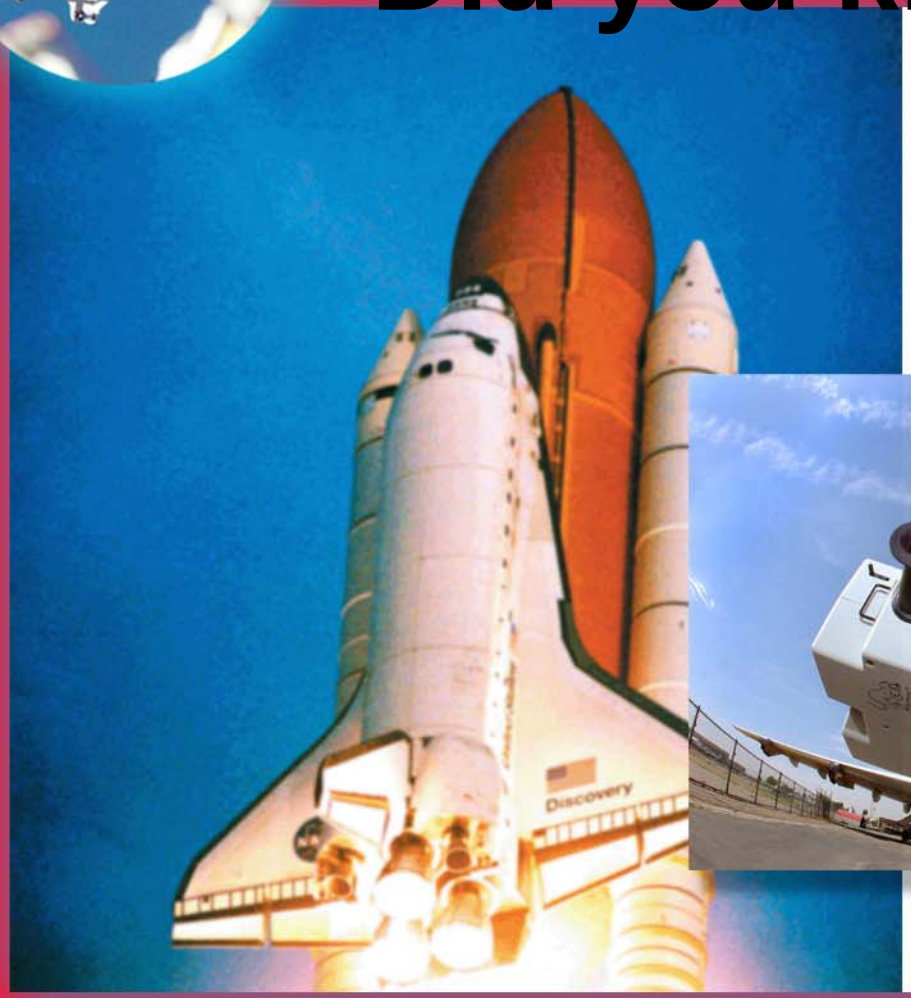


Did you know that engineering teams designed…

- the rides at amusement parks (at Disney they're called ***Imagineers***)?

- the incubators that hold the premature babies at the hospital?

Did you know that engineers here in Albuquerque…

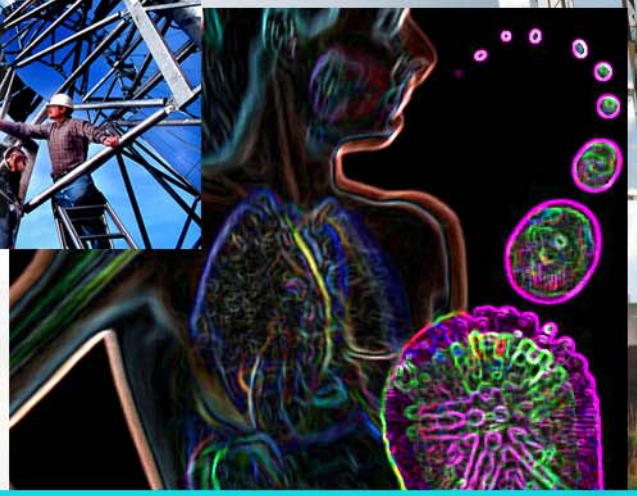


- designed a camera to watch for cracked tiles on the Space Shuttle on its last launch?

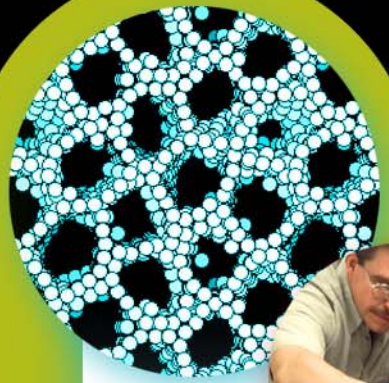
- invented a hand-held sensor that sniffs for explosives, chemicals, and drugs?

Did you know that they also…

- design & install solar energy systems on Indian reservations?

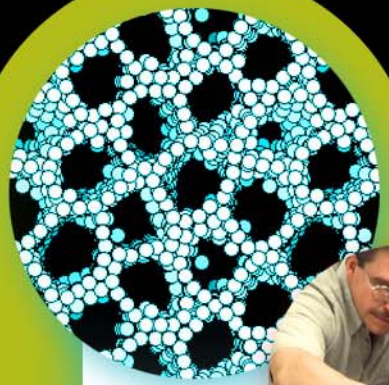


- create computer models of the bird flu virus to study how to lessen its effects?



Many engineers **specialize.**

Transportation Engineering



Many engineers **specialize.**

- Aerospace
- Air conditioning
- Agriculture
- Architectural
- Astronautical
- Automotive
- Bio-chemical
- Bio-mechanical
- Bio-medical
- Ceramic
- Chemical
- Civil
- Computer
- Electrical
- Environmental
- Fire protection
- Forensic
- Geological
- Geothermal
- Heating
- Industrial
- Manufacturing
- Materials
- Mechanical
- Metallurgy
- Mineral
- Naval
- Nuclear
- Ocean
- Optical
- Petroleum
- Pharmaceutical
- Plant
- Plastics
- Robotics
- Safety
- Software
- Transportation
- Ventilation

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EXPLORE ENGINEERING

What is it like to be an engineer?

You'll never be bored!

You'll often work in a team.

Enjoy a flexible schedule with time for friends and family.

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What about becoming a **scientist?**

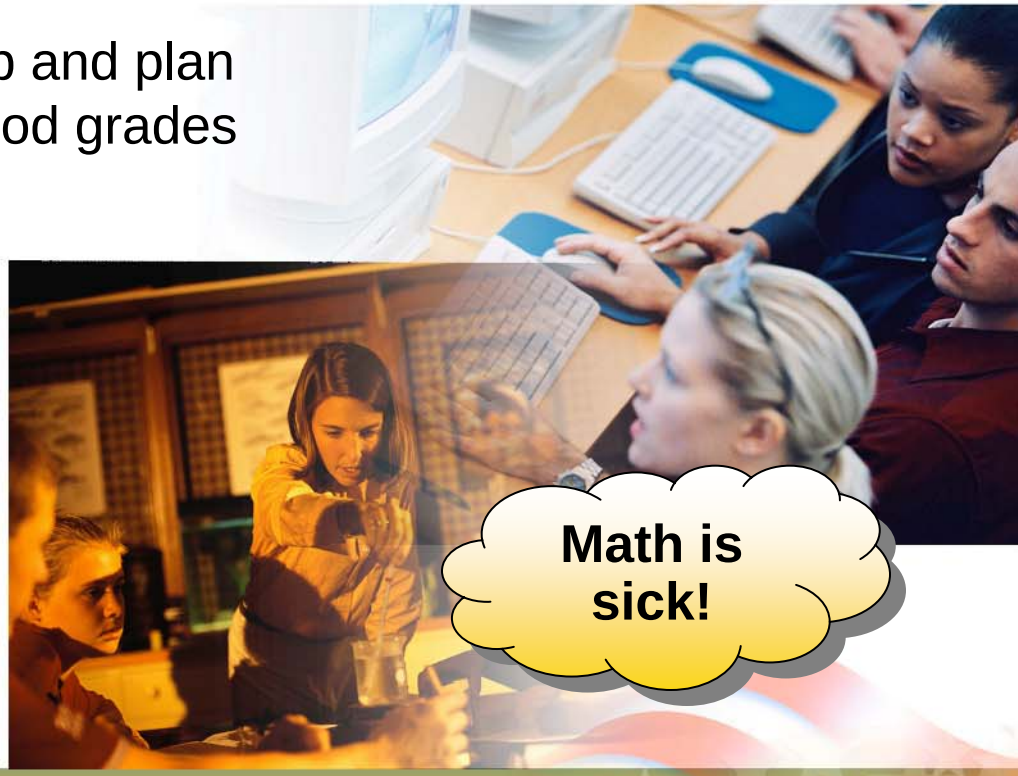
- **The difference between Engineers and Scientists is that**
  - Engineers apply science to solve problems.
  - Scientists keep expanding what we know about the world.

- **For example, to develop a new cancer drug**
  - a scientist **discovers** which chemicals can fight cancer cells, and
  - a chemical engineer **creates** chemical compounds needed to make the drug, and
  - a team of other engineers **builds** a factory to produce the drug.

What can you do **now?**

- Study math, science, and writing.
- Develop a good attitude about learning.
  - Keep your grades up and plan to go to college. (Good grades = scholarships)
- Watch *Junkyard Wars*
- Participate in activities like:

  team activities, ham radio, rocket association, astronomy club, coach for pinewood derby, science fair, invention convention.



What does it mean to **design?**

Designing means coming up with a scheme or plan for accomplishing something. It starts in your head and ends up on paper.

- If that “something” is to be built, the design is the drawings and words that show what parts need to be put together in what way.
- If that “something” is to be done, the design is the drawings and/or words that show what jobs to do in what order.

Engineering teams have **many roles.**

- Project manager
- Quality control
- Cost manager
- Team leader
- Sales engineer
- Tester
- Designer

- Applications engineer
- Computer modeler