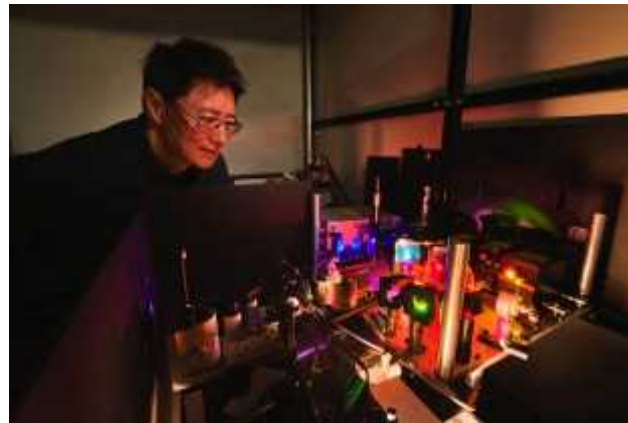


Exceptional service in the national interest



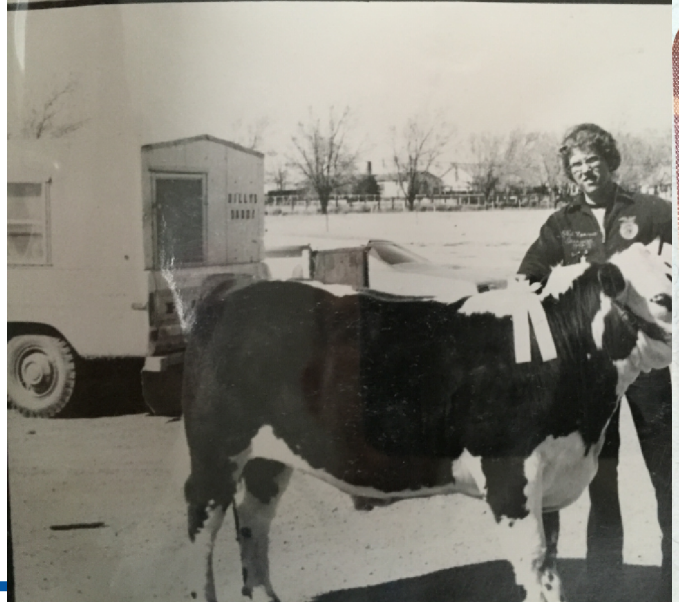
Science, Technology, Engineering, and Math (STEM) Sandia National Laboratories

Phil Hoover
March 30, 2015





1970's at Beaver High School





Sandia National Laboratories is Large and Diverse

- Nuclear Weapons
- Defense Systems and Assessment
- Energy and Climate
- International Homeland and Nuclear Security

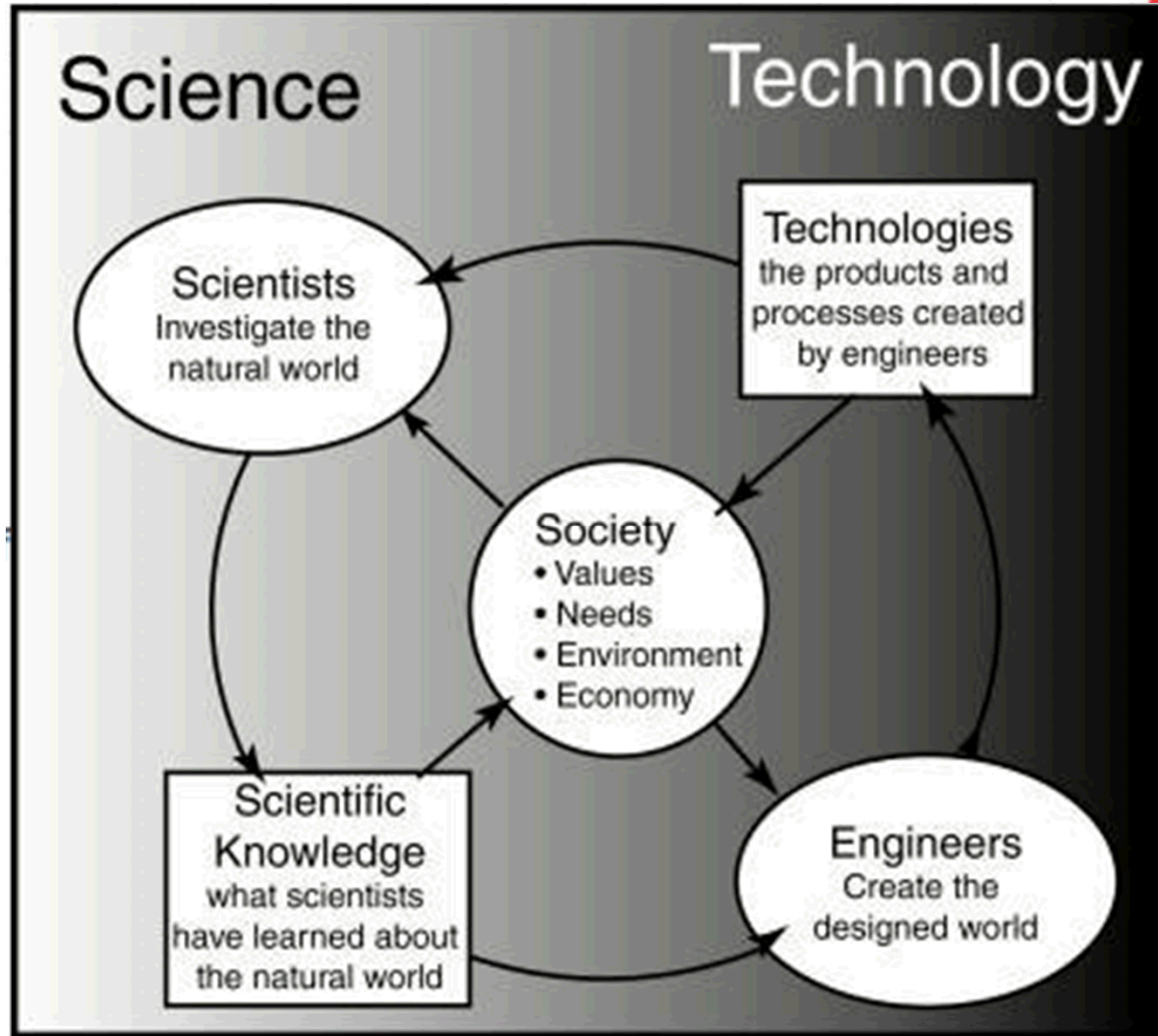
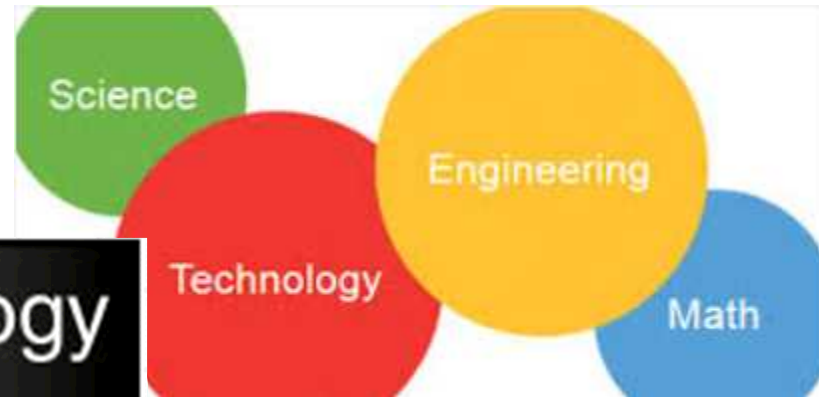


Renewable Energy



Homeland Defense and Force Protection

What is STEM?



STEM - all fields of fundamental science and engineering, except for medical sciences (National Science Foundation)

STEM Disciplines

- Chemistry
- Computer Science
- Engineering
- Environmental Science
- Geosciences
- Life Sciences
- Mathematics
- Physics/Astronomy



Why Study STEM?

- High employment rate
- Fastest growing occupations
- Higher pay

Engineering Fields

Agriculture
Aerospace
Agriculture
Biomedical
Chemical
Civil
Computer
Electrical
Environmental

Fire Protection
Geological
Human Factors
Industrial
Manufacturing
Marine
Materials
Mechanical
Microsystems

Mining
Nuclear
Petroleum
Quality
Safety
Software
Transportation
Water
Validation



ENGINEERING PAYS OFF

\$ 79,000

annual mean wage for Engineering

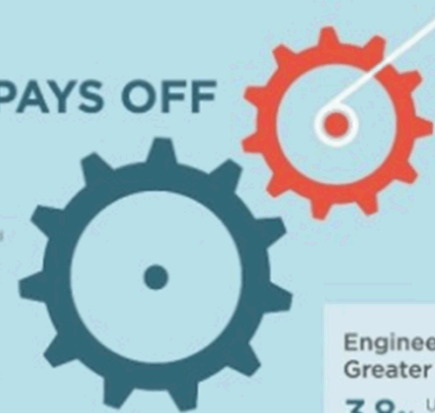
(Engineering occupations includes all engineering and architecture occupations, including Engineering Technical occupations, which most often require less than a bachelor's degree)

\$ 45,790

annual mean wage for all occupations

Source: Bureau of Labor Statistics, 2012

{CHANGE THE EQUATION}



Engineers Enjoy Greater Security

3.8% Unemployment rate for engineers

7.0% Unemployment rate for all occupations

Source: Bureau of Labor Statistics, 2011



REASONS TO CHOOSE A STEM MAJOR

Impact on Society



- North Korea successfully conducted a three-stage rocket test - Dec 2012
- North Korea successfully conducted underground nuclear test – Feb 2013
- North Korea threats of pre-emptive nuclear strikes against the US and South Korea – Dec 2012 – Mar 2013

A U.S. Air Force "nuclear capable" B-2 stealth bomber flew near Osan U.S. Air Base, south of Seoul, on Thursday in a display of force aimed at deterring North Korean threats of attacks on the U.S. and South Korea. March 27, 2013 YONHAP/ASSOCIATED PRESS



TOP REASONS TO CHOOSE A STEM MAJOR

Fun!

“Do what you love. When you love your work, you become the best worker in the world” – Uri Geller.



Sandia conducts comprehensive system testing to ensure nuclear weapon safety and reliability.



Thu Oct 19 2006 10:27:16.986 996 S96 utc S



REASONS TO CHOOSE A STEM MAJOR

Challenge

In the ever-changing world of STEM, no two days will be exactly the same.

B53 Nuclear Bomb Dismantled in 2011



Discover Magazine article





REASONS TO CHOOSE A STEM MAJOR

Self and Career Satisfaction

“I feel sorry for the person who can't get genuinely excited about his/her work. Not only will he/she never be satisfied, but he/she will never achieve anything worthwhile” – Walter Chrysler.

Best Jobs of 2014 (CareerCast.com)

1	Mathematician	\$101,000
2	University Professor	\$69,000
3	Statistician	\$76,000
4	Actuary	\$94,000
5	Audiologist	\$70,000
6	Dental Hygienist	\$71,000
7	Software Engineer	\$94,000
8	Computer Systems Analyst	\$80,000
9	Occupational Therapist	\$76,000
10	Speech Pathologist	\$70,000
11	Dietitian	\$56,000
12	Biomedical Engineer	\$87,000
13	Human Resources Manager	\$100,000
14	Optometrist	\$98,000
15	Physical Therapist	\$80,000
16	Financial Planner	\$68,000
17	Medical Laboratory Technician	\$48,000
18	Economist	\$92,000
19	Computer Systems Administration	\$73,000
20	Petroleum Engineer	\$131,000

Ranking based on Working Environment, Income, Employment Outlook, and Stress

Bold = STEM Career



REASONS TO CHOOSE A STEM MAJOR

Experiences

STEM fields offer more opportunities and experiences than other majors



NATO Nuclear Policy Group - 2009

Motivation Matters!



Tim Overton

Lorinda Nelson

Tami VanDeburgh

Kelly Gregg

Ray Lynn Myer

BHS Class of '76 Has Five Honor Students

Tim Overton, Lorinda Nelson, Tami VanDeburgh, Kelly Gregg, and Ray Lynn Myer are the Honor Students of the 1976 Beaver high school graduating class.

Tim Overton, son of Mr. Alfred Overton, is president of the Student Council and served as vice-president last year. He has been in the Oklahoma Honor Society each year, was Citizen-of-the-Month twice and last year was selected as the Beaver high school Citizen-of-the-Year.

Tim has been active in band and golf, was in the junior and senior plays, and has represented his school on the

School Students'.

Lorinda Nelson is the daughter of Mr. and Mrs. Kenneth Nelson. During her four years at Beaver High School, she has been active in vocal music, 4-H, FHA, and has been in the Oklahoma Honor Society each year. She is president of the senior class, was secretary for the vocal group for two years and served as vocal accompanist for two years. She was elected FHA Sweetheart this year and was a candidate for Vocal Queen her sophomore year. She also served as 4-H secretary and game leader for two years. In her busy schedule she has found

Who Among American High School Students' and the "Society of Distinguished American High School Students". Next fall, she plans to major in business at Oklahoma Panhandle State University.

Tami VanDeburgh is the daughter of Mr. and Mrs. Scott VanDeburgh of Elmwood. Active membership in the First Christian Church of Beaver and its Youth Group has influenced Tami's decision to attend the Dallas Christian College, Dallas, Texas, to major in music. She is accompanist for the Boy's Glee Club and has been a member of the High

State University. Her activities have included one year in the FHA, participation in the state and district music contests resulting in three first place awards, a year on the school paper staff, parts in the junior and senior plays, and work in the School Service program. She has been in the Oklahoma Honor Society and will be in "Who's Who Among American High School Students."

Kelly Lin Gregg is the daughter of Mr. and Mrs. Irtle Joe Gregg. She enjoys her work as a nurse's aide at the Beaver County Memorial Hospital and has enrolled in a pre-medical course at Oklahoma Panhandle State University. Her activities

1974-1975. Kelly was honored a queen candidate for FFV during her freshman year served as a Student Council Representative during her sophomore year, and was member of the Pep Club for three years.

Ray Myer, the son of Mrs. Lorene Gray, has combined his work at Beaver High School with a technical program at the Liberal Area Vocational Technical School. He has three credits in Auto mechanics and three credits in Drafting Technology. He is planning to continue his education at Northern Oklahoma College, Tonkawa, majoring in Drafting Technology.

Motivation is required in order to do anything, but that power can only come from within you. Goals can typically provide a direction for your motivation and help bring you success in a STEM major. It is important to have an end in sight.



You're an essential piece....without you, the puzzle is incomplete!



Backups