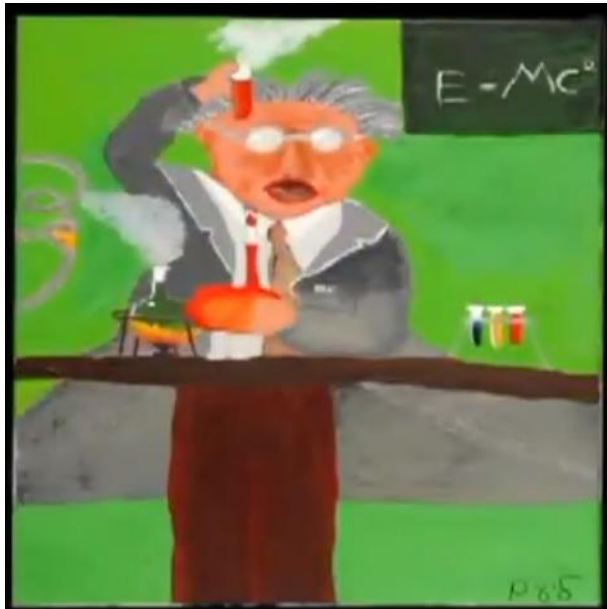


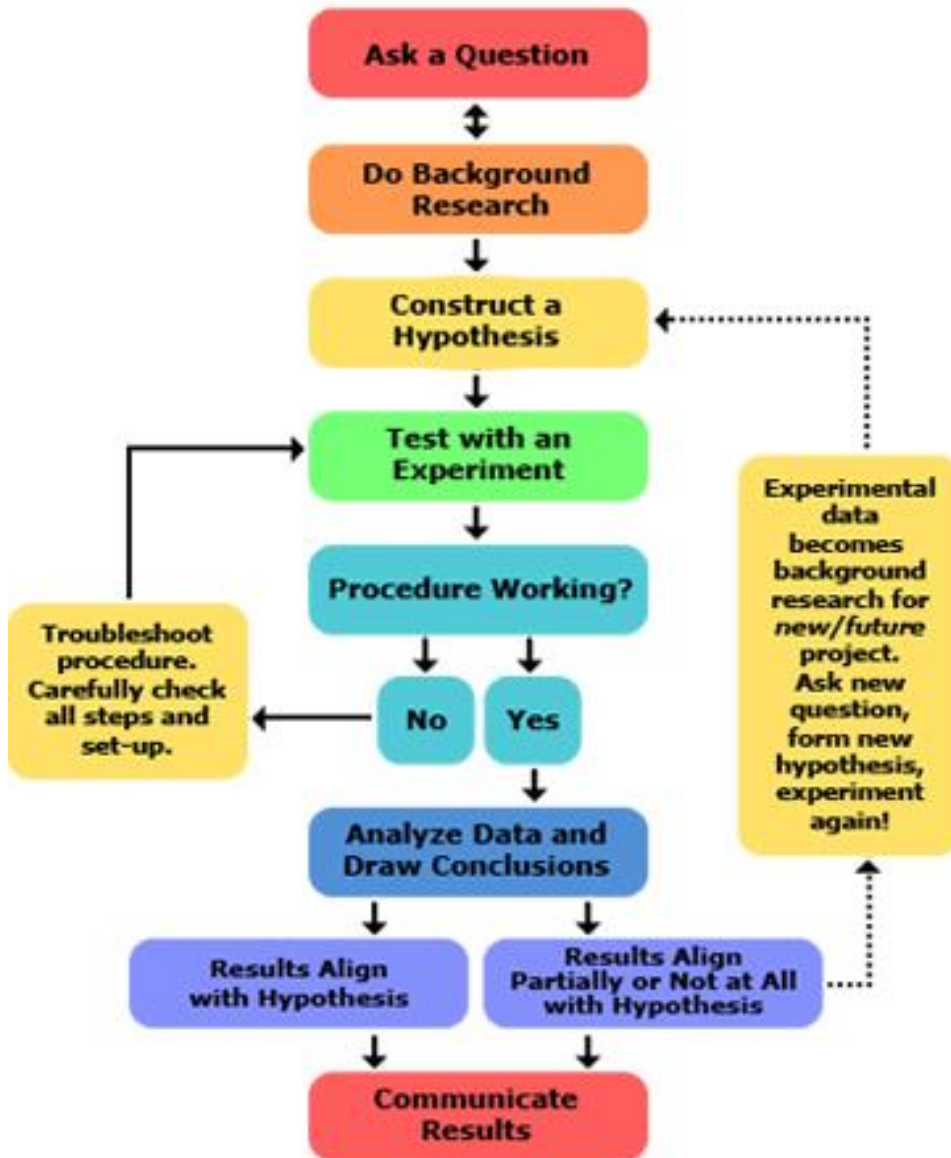
STEM

Draw a Scientist Test

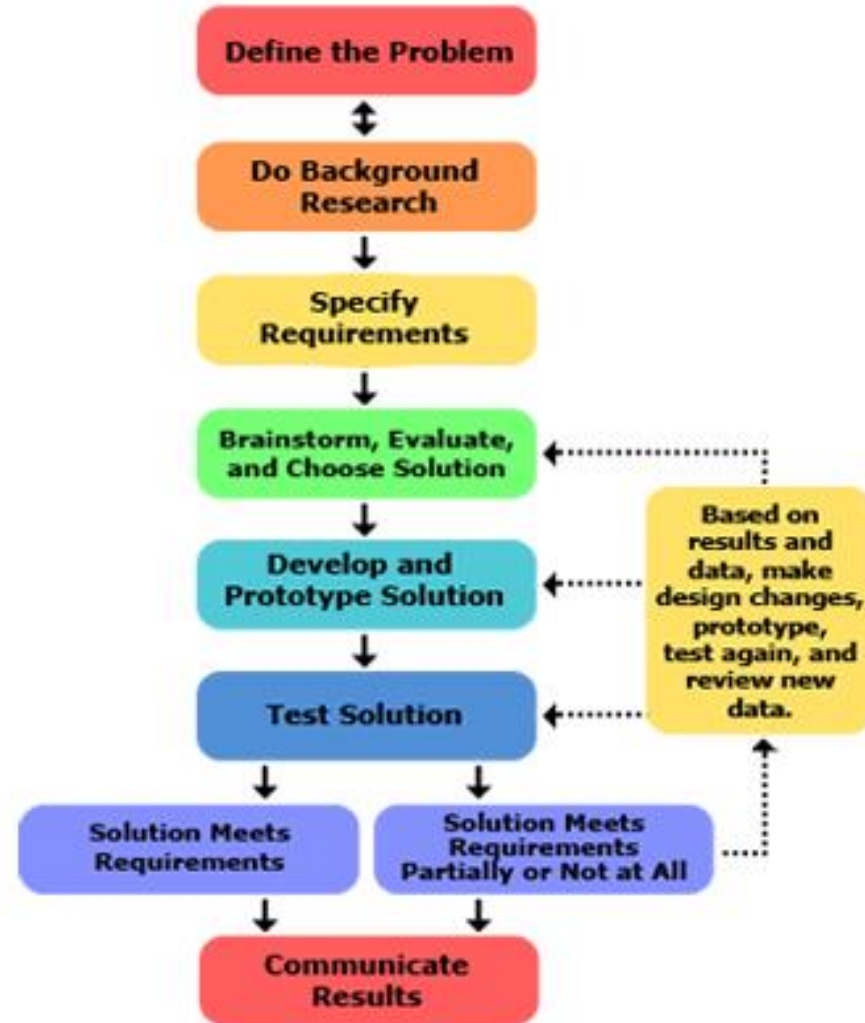
1. What do scientists do?
2. What do scientists look like?
3. List three adjectives that describe scientists.



Scientific Method



Engineering Method



Science Attitudes

Rank each question 1 – 5 where 1 is strongly disagree and 5 is strongly agree

1. I enjoy science
2. Science is useful in everyday life
3. I am very comfortable doing science
4. Science challenges me to use my mind
5. The science instruction that I have received will be helpful for me in the future
6. I am good at science
7. I usually understand what we are doing in science class
8. I will probably take more advanced science courses in the future

Technology Attitudes

Rank each question 1 – 5 where 1 is strongly disagree and 5 is strongly agree

1. I enjoy working with my hands to create or fix things
2. Even if I don't stay in my CTE field, what I am learning is useful in everyday life
3. I am very comfortable working with new tools
4. Technology helps me to do and learn new things
5. The technology instruction that I have received will be helpful for me in the future
6. I am good at classes involving tools and technology
7. I usually understand what we are doing in my CTE class
8. I will probably take more advanced CTE courses in the future

CTE's Role in Science, Technology,



Engineering and Mathematics

BY AUSHYA HYSLOP

For the last several years, concern has been brewing about America's underinvestment and underperformance in science, technology, engineering and mathematics—the fields collectively known as STEM. What is STEM, and why is it drawing so much attention? STEM can be described as an “initiative for securing America’s leadership in science, technol-

ogy, engineering and mathematics fields and identifying promising strategies for strengthening the educational pipeline that leads to STEM careers.”¹ The elements of STEM are integral parts of our nation’s critical economic sectors, from health care to energy, infrastructure and national security.

STEM careers include not only those requiring a research-based advanced

math or science degree, but a broad range of related occupations in areas as diverse as aquaculture, automotive technology, accounting and architecture. More careers than ever before require a deep understanding of STEM principles. Unfortunately, the supply of STEM talent is not increasing to meet the growing need. Two main factors are affecting the supply side of the STEM equation. First, the looming

retirement of the baby boom generation will significantly affect the STEM labor force. The number of current scientists and engineers retiring will increase rapidly over the next decade. Second, too few students are currently choosing to prepare for STEM careers. The United States is standing still or falling behind in terms of producing its home-grown STEM talent. At the same time, other nations, particu-

larly population-rich ones like India and China, are rapidly increasing the number of STEM professionals that their secondary and postsecondary education systems produce.²

While some of the dearth of STEM professionals can be attributed to lack of interest, there is growing concern that students are not gaining the foundational skills necessary to be successful in STEM

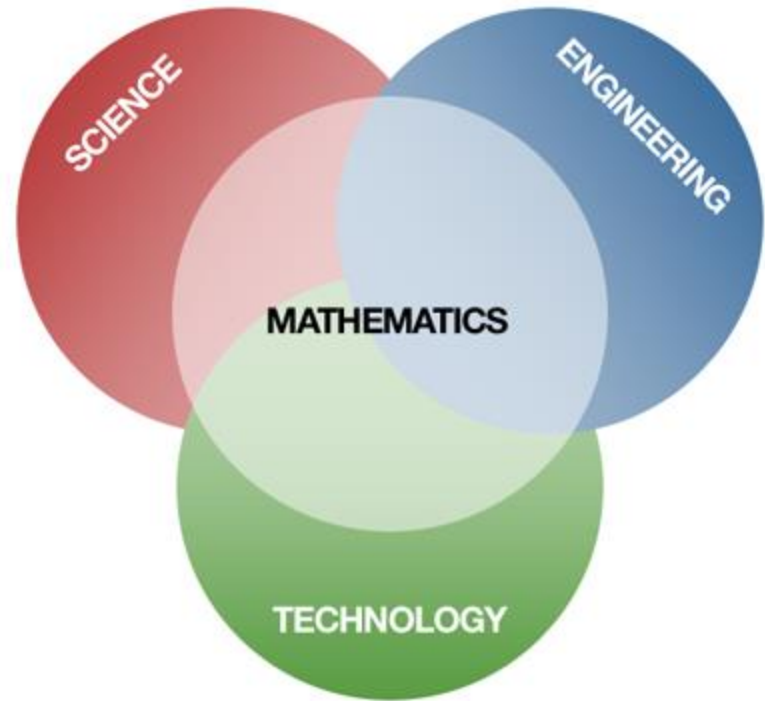
career areas even if they choose that path. Low student performance is evidenced on the U.S. National Assessment of Educational Progress. Math scores for 17-year-olds were significantly unchanged from 2004 to 2008, despite the fact that students are taking more and higher-level math courses in high school.³ In fact, test results showed that 41 percent of those students did not even have an under-

CTE's Role in Science Technology Engineering and Math

1. Summarize the text in no more than three sentences.
2. What is the central idea of the article? Support your conclusion with evidence from the article.
3. What two factors are impacting the number of qualified STEM workers?
4. In what ways can CTE help solve the need for qualified STEM workers?
5. Based on the text, what do you think the word dearth means?
6. What are some reasons for the “dearth of STEM professionals”, particularly amongst students preparing to enter the workforce?

What is STEM

- S – Science
- T – Technology
- E – Engineering
- M – Math



What is CTE

Career and Technical Education

- Prepares students for a wide range of careers and further educational opportunities
- Broken into 16 career clusters



To triple a recipe calling for $\frac{2}{3}$ cup of liquid, add _____ of liquid.

- A. $1 \frac{1}{3}$ cups
- B. $1 \frac{1}{2}$ cups
- C. $1 \frac{2}{3}$ cups
- D. 2 cups

One of the most common root systems is

- A. Filament
- B. Gymnosperm
- C. Fibrous
- D. Xylem

A battery produces electricity by

- A. thermo energy
- B. proton potential
- C. electron potential
- D. chemical reaction

Healthy hair and skin have a pH in the range of

- A. 4.5 – 5.5
- B. 7.0 – 8.0
- C. 9.5 – 10.5
- D. 11.0 – 12.0

The inner circle of an atom is called the

- A. valance ring
- B. floating ring
- C. nucleus
- D. atom ring

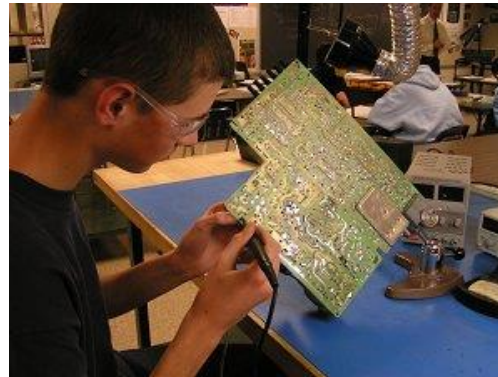
With increasing temperature, the density of a liquid

- A. increases substantially
- B. increases slightly
- C. decreases slightly
- D. decreases substantially

So What Is STEM Really?

Any field or career that:

Creates, Discovers or Applies New
Knowledge to Make Life Better for All!



9 Most In-Demand Jobs of 2017

Jobs search website CareerCast compiled a list of the most in-demand jobs using data from the BLS, hiring trends and trade statistics, university graduate employment data and its own job listings.



Tech roles tend to dominate lists of in-demand occupations. Bonus: It's unlikely these occupations will be replaced by robots any time soon.

- Truck Driver
- General business manager and operations manager
- Data Scientist
- Registered Nurse
- Information security analyst
- Software Engineer
- Financial Analyst
- Physical Therapist
- Home Health Aid

Fastest Growing Job Ops

- Biomedical engineers
- Network systems /data communications
- Home health aides
- Personal and home care aides
- Financial examiners
- Medical scientists
- Physician assistants
- Skin care specialists
- Biochemists and biophysicists
- Athletic trainers
- Physical therapist aides
- Dental hygienists
- Veterinary technologists and technicians
- Dental assistants
- Computer software engineers
- Medical assistants
- Physical therapist assistants
- Veterinarians
- Self-enrichment education teachers
- Compliance officers
- Occupational therapist aides
- Environmental engineers
- Pharmacy technicians
- Computer software engineers
- Survey researchers

NCC Programs and STEM Programs

Accounting	Education - Early Childhood Education	Medical Administrative Assistant
Applied Quality and Standards	Education - Middle Level Education:	Medical Assistant
Architecture	Education - Math & Science	Medical Billing
Aseptic Processing	Education - Secondary Education	Medical Office Specialist
Automation Control in Biomanufacturing	Education - Special Education	Medical Transcription
Automotive Technology ASE Certified Technicians	Electrical Construction Technology IBEW	Multimedia
Automotive Technology	Electrical Construction Technology	Nanofabrication Manufacturing Technology
Biological Science	Electrical Technology	Nursing
Biotechnology	Electromechanical Technology	Office Administrative Assistant
Business Administration	Electronics Technology	Office Skills Specialist
Business Management	Emergency Services Administration	Optoelectronics
Chemical Technology	Emergency Services Technology	Paralegal
Chemistry	Engineering	Philosophy
Communication Design	English	Physics/Math
Communication Studies	Fine Art	Political Science
Computer Aided Design	Funeral Service Education	Psychology
Computer Information Systems	General Studies	Radio/TV
Computer Information Technology: Application Development	History	Radiography
Computer Information Technology: Application Programming	Hotel/Restaurant Management	Real Estate
Computer Information Technology: Networking	Hotel/Restaurant Management - Casino	Small Business Management
Computer Information Technology: Security	Hotel/Restaurant Management - Dining	Social Work
Computer Information Technology: Web Programming	Hotel/Restaurant Management - Resort	Sociology
Computer Maintenance & Service Technology	Indoor Environmental Control	Sport Management
Computer Science	Interior Design	Sports Medicine: Athletic Training
Construction Management	Journalism	Surgical Technology
Criminal Justice	Legal Administrative Assistant	Theatre
Culinary Arts	Legal Office Specialist	Veterinary Technician
Dental Hygiene	Liberal Arts	Web Development
Diagnostic Medical Sonography	Library Technical Assistant	Web Site Design
Dietary Management	Marketing	Welding
Direct Service Provider	Math/Physics	Women's and Gender Studies
		Word Processing Specialist

ESU Programs and STEM Programs

Art & Design	General Science	Physical Education
Athletic Training	Geography	Physics
Biochemistry	Gerontology	Political Science
Biology	Interdisciplinary Studies	Psychology
Biotechnology	International Studies	Recreation & Leisure
Business Management	Health Education	Rehabilitative Services
Chemistry	Health Services Administration	Social Studies Education
Chemical Biotechnology	History	Social Work
Communication Studies	Hotel Restaurant & Tourism	Sociology
Computer Sciences	Marine Science	Spanish
Computer Security	Mathematics	Special & Early Child Ed
Criminal Justice Administration	Media Communications	Special & Middle Level Ed
Early Childhood Education	Media Paraprofessional	Speech-Language Pathology
Earth-Space Science	Medical Technology	Sports Management
Economics	Music	Theatre Arts
English	Nursing	Women's Studies
Environmental Studies	Philosophy	
Exercise Science		
Fine Arts		
French		

MCTI STEM Programs

- **Construction:** Building Trades Maintenance, Carpentry, Drafting, Electrical, HVAC, Masonry, Plumbing
- **Health Science & Human Services:** Health Occupations, Culinary Arts, Cosmetology, Horticulture/Floriculture, Hotel Resort and Tourism Management, Marketing, Law Enforcement
- **Information Technology:** Computer Networking & Security, Graphic Communications
- **Manufacturing:** Drafting, Electronics Technology, Computerized Machine Technology, Welding
- **Transportation:** Automotive Technology, Autobody Collision Repair, Diesel Technology, Power Sports and Small Engine Repair Technology



SkillsUSA®

STEM and CTE

