List what you think are THREE essential components of a successful person

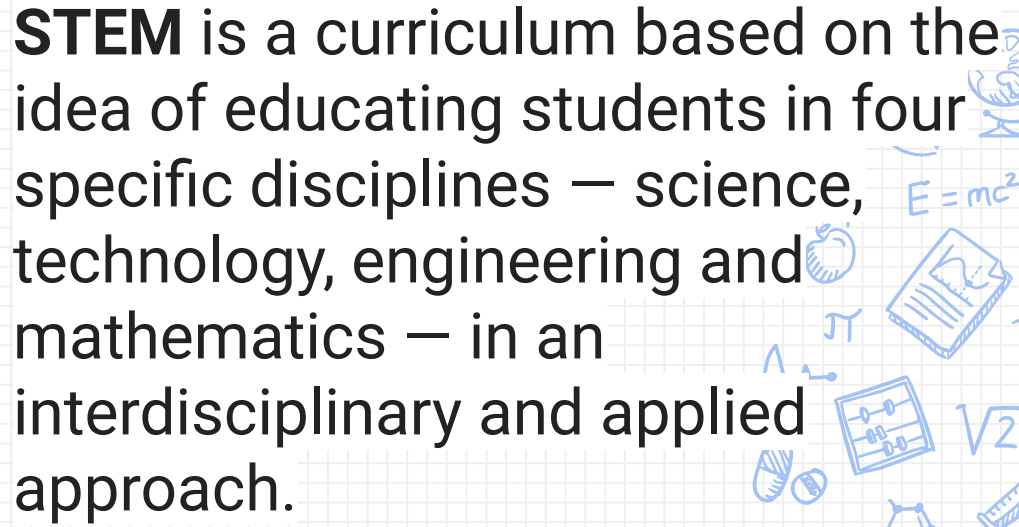**STEM** is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach.
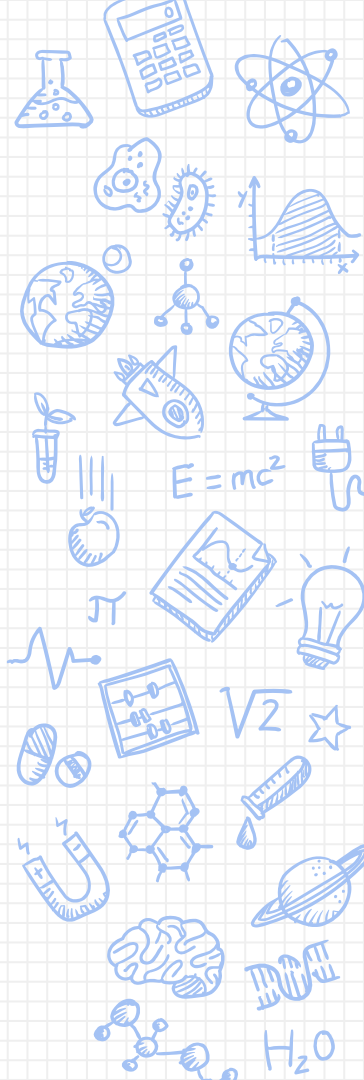
85% Of Jobs That Will Exist In 2030 Haven't Been Invented Yet: Dell

Get ready for a globalized workforce and a lifetime of retraining, report from Dell says.

- By Daniel Tencer

If you think the pace of change in the workplace has been fast lately, hold onto your hat. A new report published by Dell Technologies says things are about to get a lot faster.

So fast, in fact, that 85 percent of the jobs that will exist in 2030 haven't even been invented yet, estimates the report, which was authored by the Institute for the Future (IFTF) and a panel of 20 tech, business and academic experts from around the world.

"The pace of change will be so rapid that people will learn 'in the moment' using new technologies such as augmented reality and virtual reality. The ability to gain new knowledge will be more valuable than the knowledge itself," Dell Technologies said in a statement.

In other words, get ready for a lifetime of skills training and retraining, in real time.

Automation threatening 25% of jobs in the US, especially the 'boring and repetitive' ones: Brookings study

- One-quarter of American jobs are at a high risk of automation.
- The disruption will hit certain people harder than others, including low-wage earners and men.
- These are the findings of a new report by the Brookings Institution, a Washington-based think tank, titled, Automation and Artificial Intelligence: How Machines Affect People and Places.
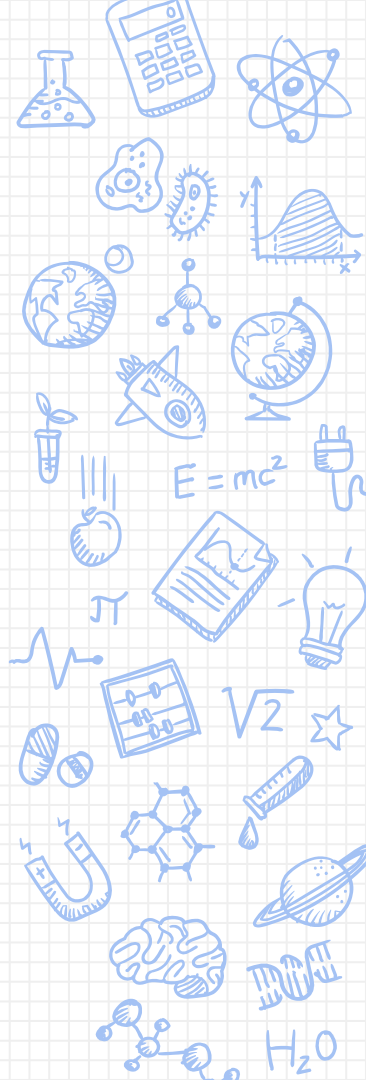

Annie Nova | John W. Schoen

So how do we "keep up with the times"?

✗ Develop 21st Century Learners
   a. Collaboration
   b. Creativity
   c. Cooperation
   d. Communication
✗ Develop GRIT/Perseverance/Growth Mindset
✗ Educate in STEM
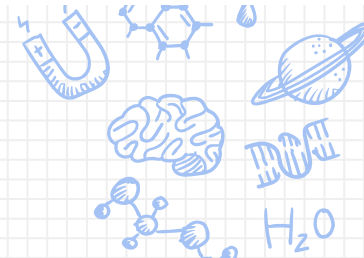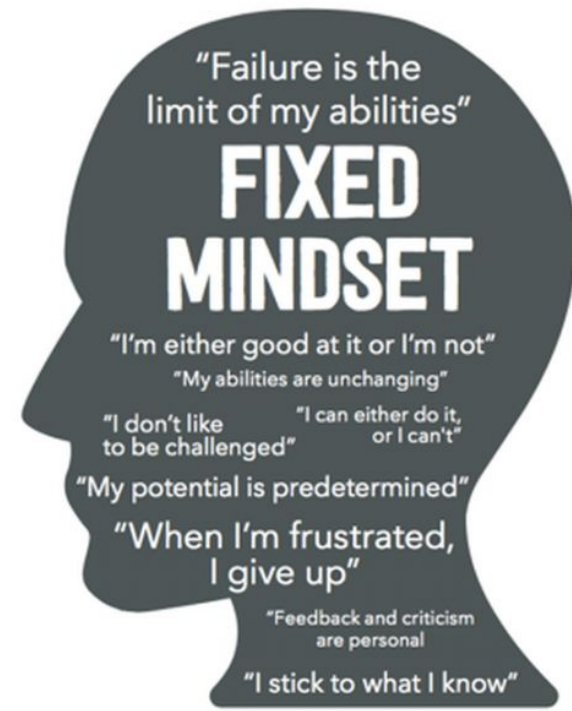
What is 21st Century Learning? (THE SKILLS)

- G.R.I.T.
- Perseverance
- Growth Mindset

(Where there's a will, there's a way)

G- Give it my all

R- Redo if necessary

I- Ignore giving up

T- Take time to do it right

"Failure is an opportunity to grow"

GROWTH MINDSET

"I can learn to do anything I want"

"Challenges help me to grow"

"My effort and attitude determine my abilities"

"Feedback is constructive"

"I am inspired by the success of others"

"I like to try new things"

"Failure is the limit of my abilities"

FIXED MINDSET

"I'm either good at it or I'm not"

"My abilities are unchanging"

"I don't like to be challenged"   "I can either do it, or I can't"

"My potential is predetermined"

"When I'm frustrated, I give up"

"Feedback and criticism are personal"

"I stick to what I know"

The "KNOW-HOW"

STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an **interdisciplinary** and **applied** approach.

STEM Occupations: Past, Present, and Future

Highlights from the Bureau of Labor Statistics' Spotlight on Statistics

January 2017

8.6 Million STEM jobs in 2015

45% Computer Occupations

19% Engineers

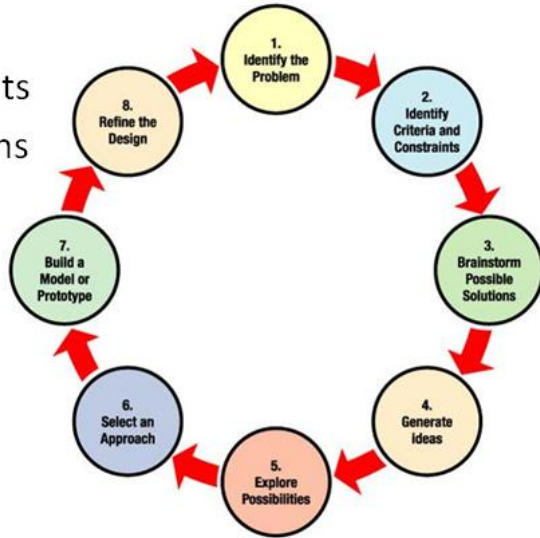% of 100 STEM Occupations with wages above the national average

93

Nearly 900,000 STEM jobs were in the architectural, engineering, and related services industry

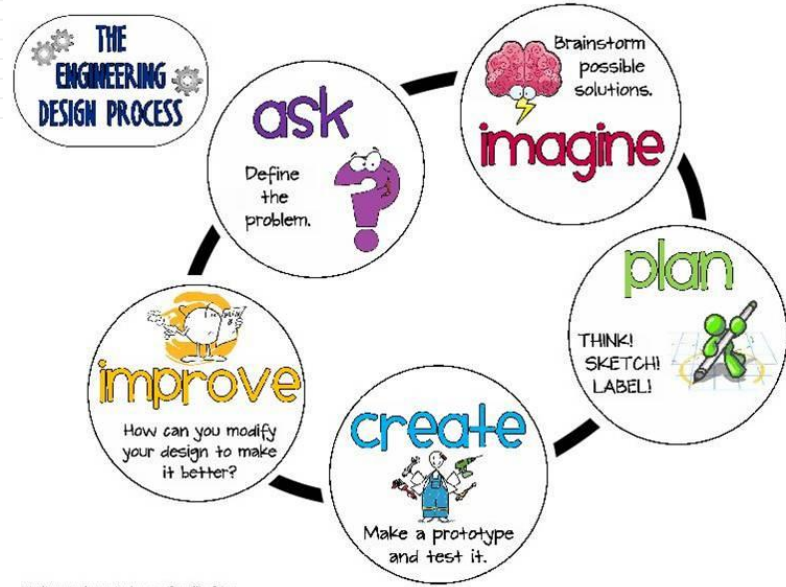# Honey, Let's talk REAL SCIENCE

Engineering Design Process

1. Identify the Problem
2. Identify Criteria & Constraints
3. Brainstorm Possible Solutions
4. Generate Ideas
5. Explore Possibilities
6. Select an Approach
7. Build a Model or Prototype
8. Refine the Design

http://www.nasa.gov/audience/foreducators/plantgrowth/reference/index.html

THE ENGINEERING DESIGN PROCESS

ask — Define the problem.

imagine — Brainstorm possible solutions.

plan — THINK! SKETCH! LABEL!

create — Make a prototype and test it.

improve — How can you modify your design to make it better?

STEM Practices

SCIENCE	ENGINEERING	TECHNOLOGY	MATHEMATICS
Ask questions	Define problems	Become aware of the web of technological systems on which society depends	Make sense of problems and persevere in solving them
Develop and use models	Develop and use models	Learn how to use new technologies as they become available	Model with mathematics
Plan and carry out investigations	Plan and carry out investigations		Use appropriate tools strategically
Analyze and interpret data	Analyze and interpret data		Attend to precision
Use mathematics and computational thinking	Use mathematics and computational thinking	Recognize the role that technology plays in the advancement of science and engineering	Reason abstractly and quantitatively
Construct explanations	Design solutions		Look for and make use of structure
Engage in argument from evidence	Engage in argument from evidence	Make informed decisions about technology given its relationship to society and the environment	Construct viable arguments and critique the reasoning of others
Obtain, evaluate, and communicate information	Obtain, evaluate, and communicate information		Look for and express regularity in repeated reasoning
Sources of the STEM Practices			
Practices of Science & Engineering in Next Generation Science Standards	Practices of Science & Engineering in Next Generation Science Standards	*STEM Lesson Essentials Grade 3-8* Derived from the *Framework for K-12 Science Education*	Mathematical Practices from the Common Core State Standards in Mathematics

Adapted from *STEM Lesson Essentials Grades 3-8* (Vasquez, Sneider, & Comer) 2013

John is watering the school garden and his plants are still dying. He suspects that the water he is using is contaminated. Help John design a solution.

Linky

John is watering the school garden and his plants are still dying. He suspects that the water he is using is contaminated. Help John design a solution

Science: Matter is present even when we can't see it

Technology: Research ways to test water. Order materials (PhStrips) Research water systems/irrigation

Engineering: Build— (Draw) a new way to irrigate
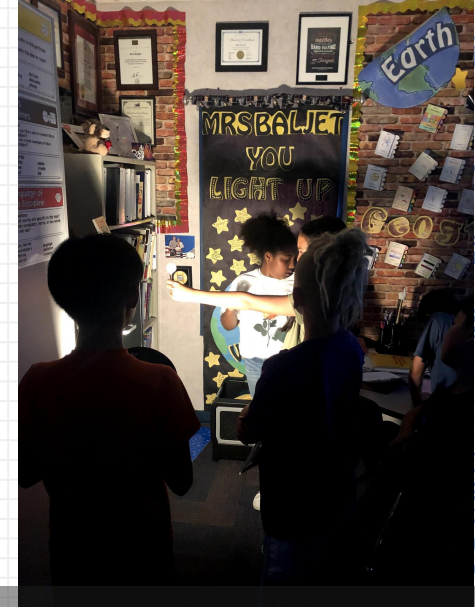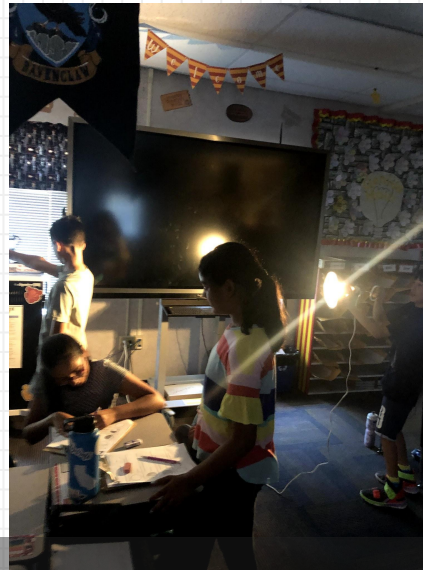
Math: Data Charts/Measurement

The country has just declared that they are establishing a colony on Mars. Using your understanding of the Earth-Sun-Moon pattern, it's your job to choose a location where plants will grow in greenhouses.

What's the
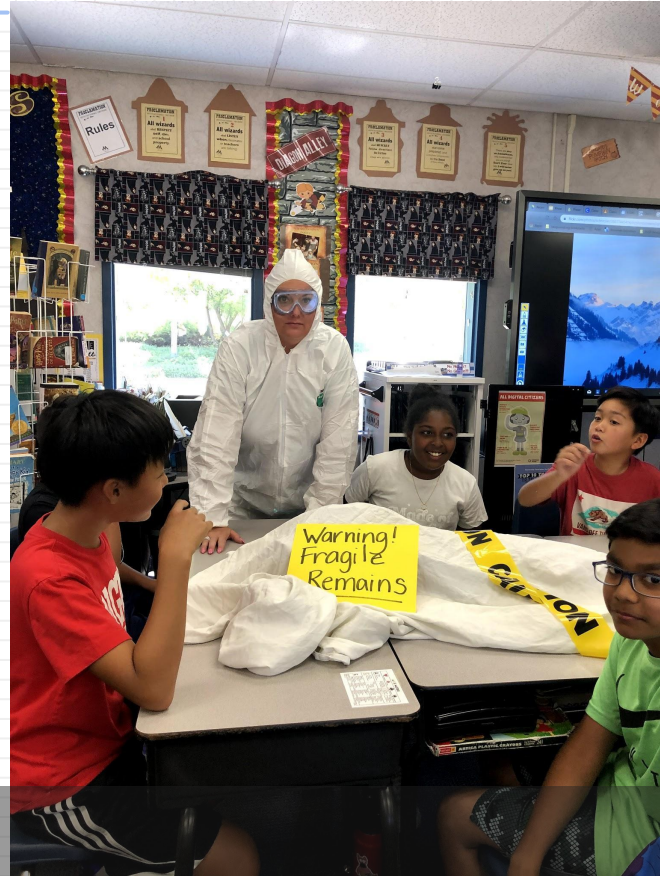 Science?
Technology?
Engineering?
Math?

Students, write your response!

A 5,300-year-old mummy has been discovered in the Alps. CSI experts need your help to solve the mystery of his death.

What's the
 Science?
Technology?
Engineering?
Math?

You've been assigned to assist Leonardo da Vinci. He's designing a catapult for the Duke of Milan. Can you make the best prototype?

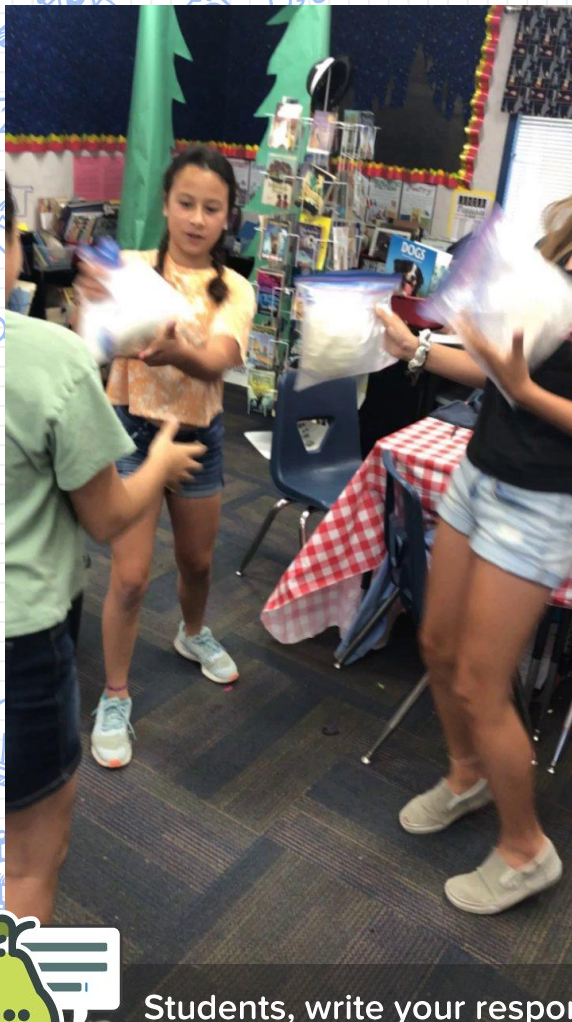What's the Science? Technology? Engineering? Math?

What's the Science? Technology? Engineering? Math?

Integrate STEM Challenges in your thematic units.
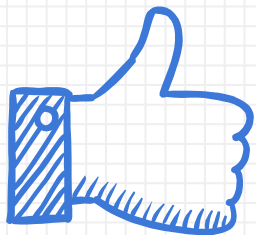
Integrate STEM Challenges in your thematic units

CAMP Learned-a-Lot
Making Ice Cream
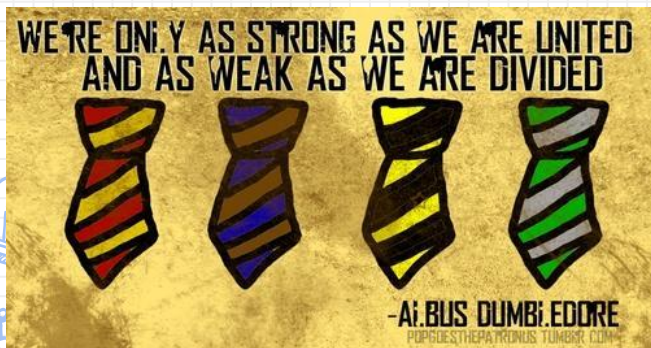
What's the Science? Technology? Engineering? Math?

Students, write your response!

http://bit.ly/2ndme6X

THANKS!

Any questions?

You can find me at

✗   kbaljet@saugususd.org

WE'RE ONLY AS STRONG AS WE ARE UNITED
AND AS WEAK AS WE ARE DIVIDED

-ALBUS DUMBLEDORE

POPGOESTHEPATRONUS.TUMBLR.COM