

Warm Up:

DRAW an image of a scientist or mathematician....

Warm Up:

Whose image comes to mind upon hearing the words scientist or mathematician?



Changing the Face of Science

A STEM Biography Project

GISA Annual Conference - 2013

Woodward Academy

Changing the Face of Science

A STEM Biography Project

2013 NSTA Area Conference- Charlotte



Jessica Parsons

7th grade Life Science

[Horizons](#) at Woodward Executive Director

MS Discipline Board

Middle Five Points Advisor

@jantec6 / <http://waegles220.weebly.com>





WA



Make 4 appointments:



12 o'clock:

3 o'clock:

6 o'clock:

9 o'clock:

*Preferably, with a new “specialist”
each time!

Drowning in content

SCIENCE



THE ELEMENTS OF A SUPER-HERO

COMMON AND NOTABLE POWERS, ABILITIES AND ORIGINS

1 O Orphan											2 A Alien						
3 F Flight	4 S Strength											5 M Mind Control	6 R Royalty	7 Rc Rich	8 Sc Scientist	9 So Socialite	10 Ls Last Survivor
11 I Invulnerability	12 SP Speed											13 IN Intangibility	14 AP Astral Form	15 X Mutant	16 Rd Radiation	17 Ch Chemicals	18 E Elemental
19 Vx X-Ray Vision	20 VH Heat Vision	21 FR Fire Control	22 AQ Water Control	23 Fz Ice Control	24 NF Military	25 W Weaponry	26 Tc Technology	27 AR Armor	28 G Gadgets	29 Dc Detective	30 Fm Toughness	31 Kf Martial Arts	32 Tk Telekinesis	33 TP Telepathy	34 My Mystic	35 Tl Time-Last	36 Lg Legacy Hero
37 SN Super-Senses	38 Wx Claws	39 H Healing	40 St Weather Control	41 Iv Plant Control	42 DB Sonic	43 Ec Earth Control	44 Dz Light Control	45 Lc Luck	46 Fs Transmutation	47 Ag Agility	48 Sz Alternate Form	49 Rr Stretching	50 Ff Force Fields	51 Il Illusions	52 Pc Precognition	53 V Vigilante	54 Sk Sidekick
55 SH Shapeshifting	56 Py Shrinking	57 GR Growth	58 Mg Magnetism	59 L Electricity	60 B Bouncing	61 TR Triplcation	62 FE Metallic Form	63 Gv Gravity	64 U Shadows	65 Ds Tracking	66 EA Matter-Eating	67 TE Teleportation	68 Is Invisibility	69 T Time-Travel	70 MB Mental Blast	71 GE Intelligence	72 AN Animalistic
73 Du Duplication	74 Nu Nullification	75 AB Absorption	76 PQ Porcupine Quills	77 FB Fire Breath	78 IL Infectious	79 CL Color Control	80 Sf Stone Form	81 Tw Two Heads	82 EY Multiple Eyes	83 Gt Giant Turtle	84 Af Arms Fall Off						

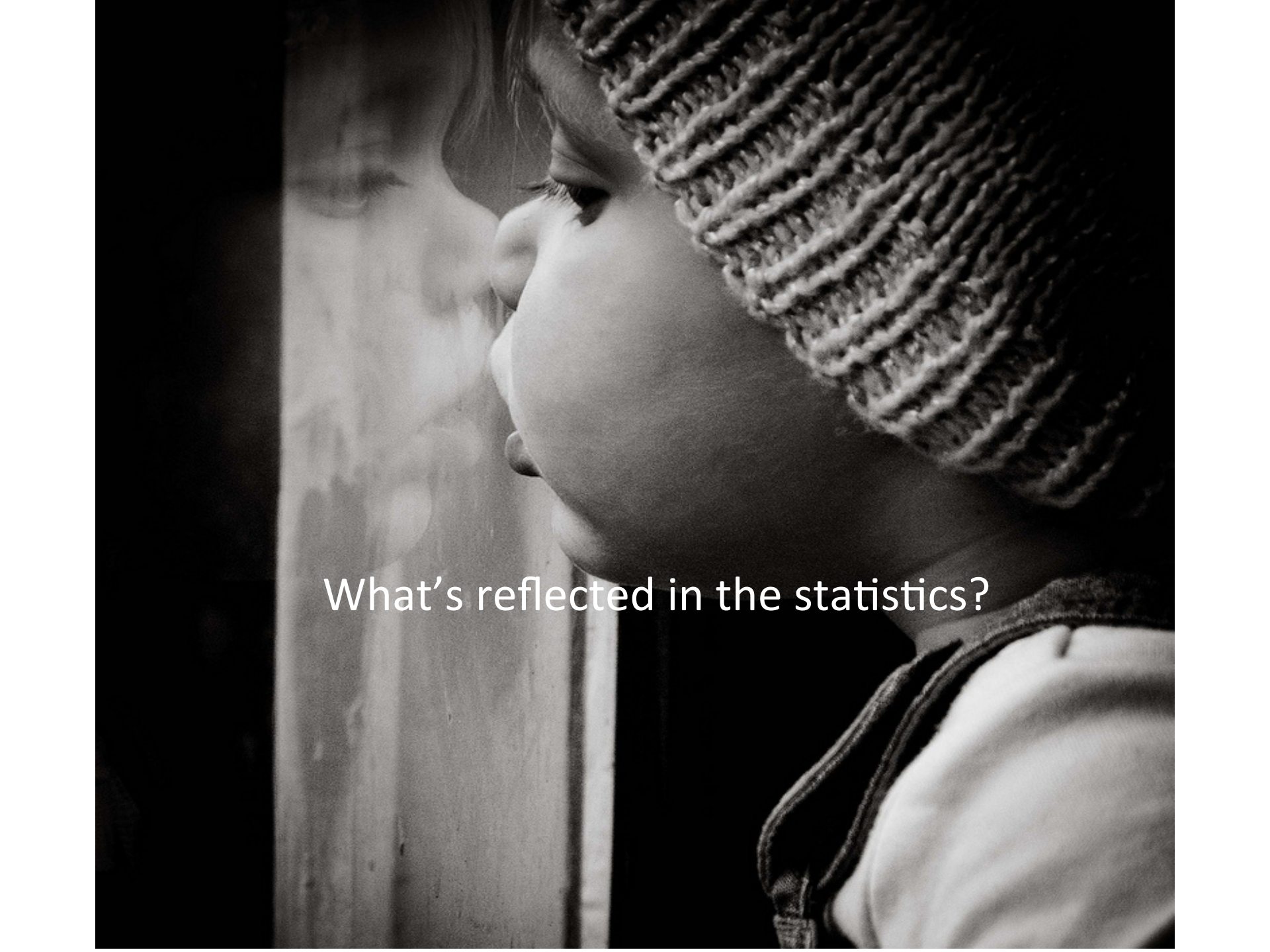
ORIGIN
STORIES

PHYSICAL
POWERS

MENTAL
POWERS







What's reflected in the statistics?



TED



SOS

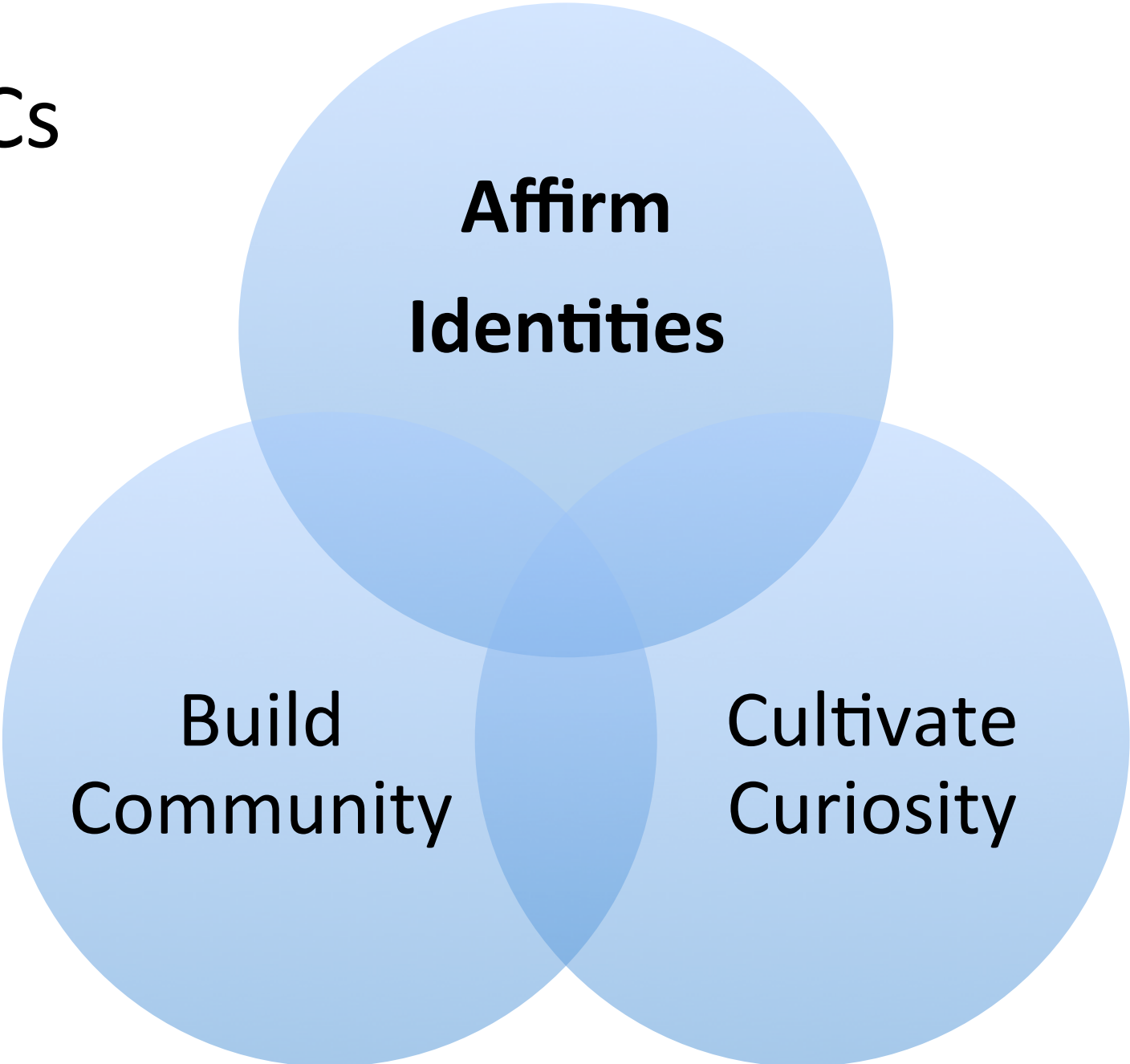


SAVE OUR SCIENCE

How to Inspire a New Generation of Scientists

AINISSA RAMIREZ

ABCs



**Affirm
Identities**

**Build
Community**

**Cultivate
Curiosity**

Red and
yellow, black
and white...



“The true sign of intelligence is not knowledge, but imagination.”

~Albert Einstein

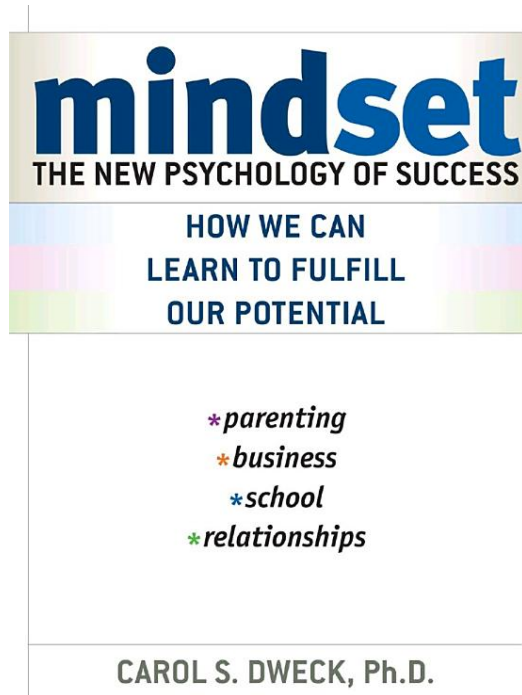
Mission & Vision

“...In a broadly diverse and caring community, Woodward *embraces the uniqueness of each individual...*”

“...developing critical thinkers and ethical problem solvers, in an *inclusive* community...”



Reading the Mission & Vision

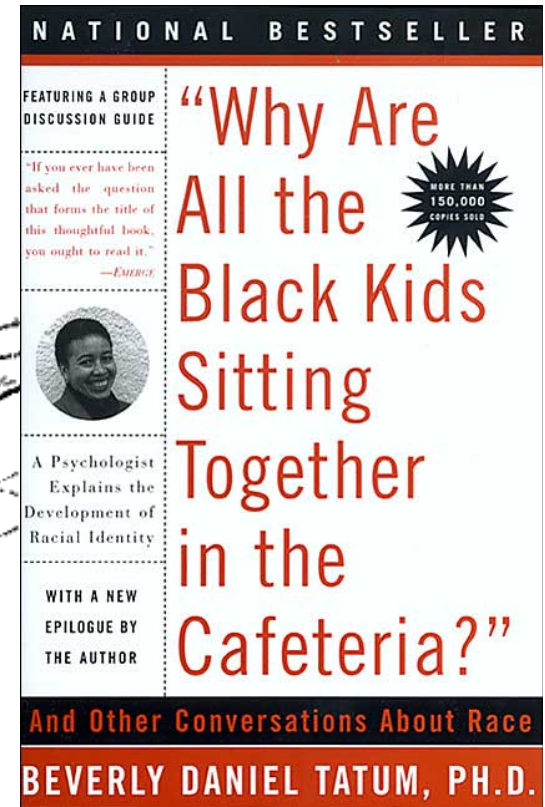
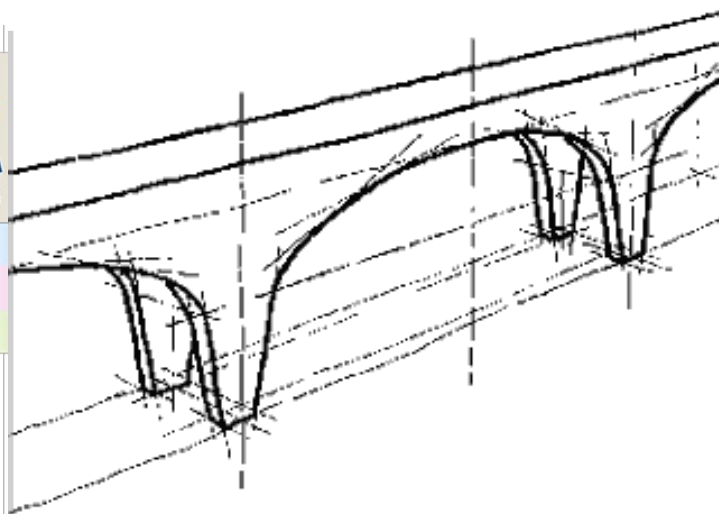


mindset
THE NEW PSYCHOLOGY OF SUCCESS

HOW WE CAN
LEARN TO FULFILL
OUR POTENTIAL

- *parenting
- *business
- *school
- *relationships

CAROL S. DWECK, Ph.D.



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"If you ever have been asked the question that forms the title of this thoughtful book, you ought to read it."
—EMERGE

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A Psychologist Explains the Development of Racial Identity

WITH A NEW EPILOGUE BY THE AUTHOR

And Other Conversations About Race

BEVERLY DANIEL TATUM, Ph.D.



WA



Diversity to Inclusion

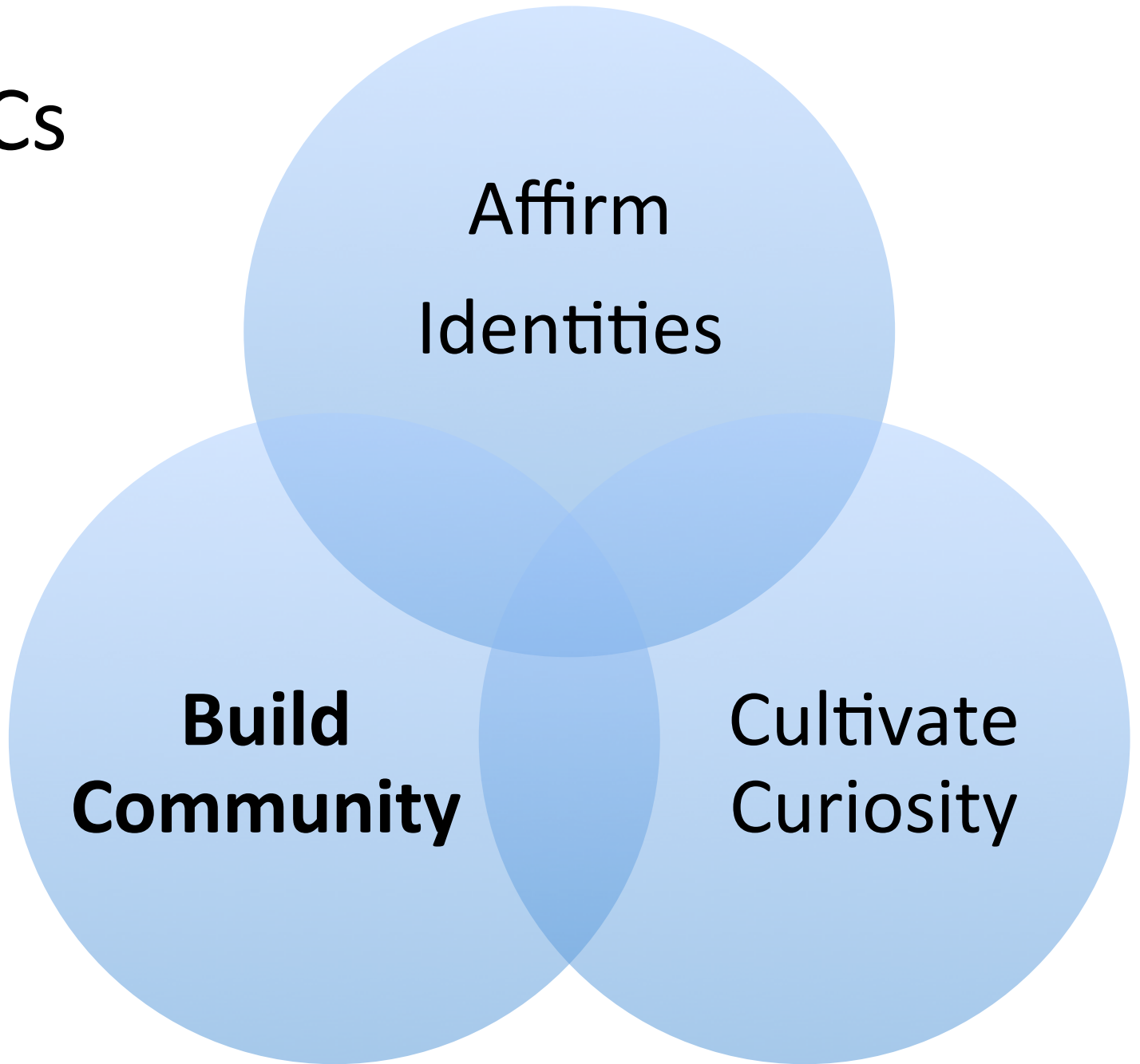


Think, Turn, &Talk



Why is it important to affirm identities of your students?

ABCs



Affirm
Identities

**Build
Community**

Cultivate
Curiosity

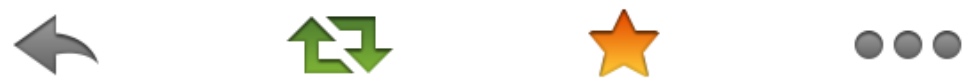


Amber Teamann
@8Amber8

What you do in the first five days shows what you value in your classroom. #ISTE13

6/25/13, 2:03 PM

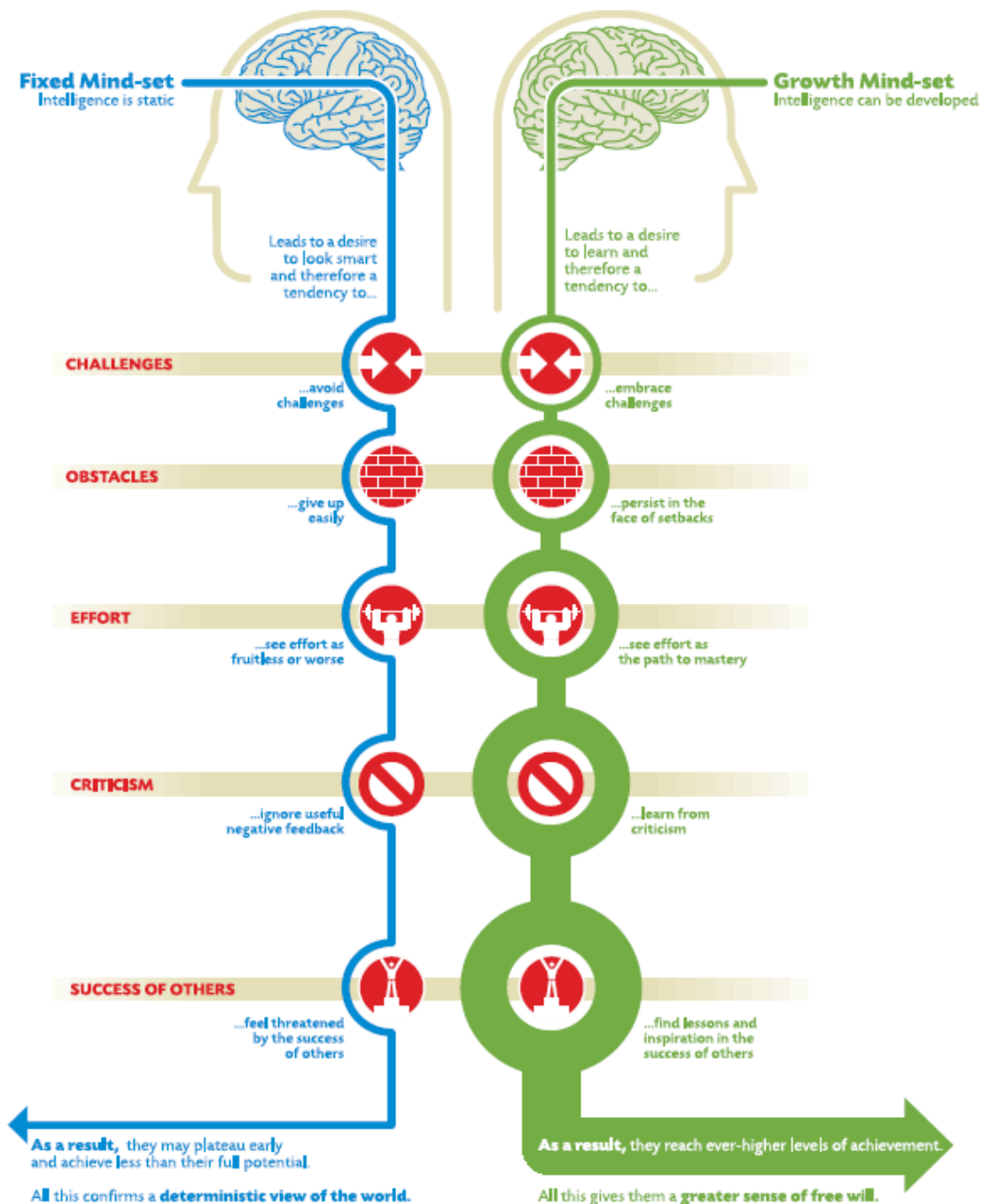
21 RETWEETS 10 FAVORITES



Kenneth Durham @Princip... 6/25/13

RT "@8Amber8: What you do in the first five days shows what you value in
#ISTE13"

Easy Lesson: use a graphic organizer



[Graphic organizer by Nigel Holmes](#)

Expanding the sphere...

Community



<http://goo.gl/PYCBs>

The Project (Idea to Action)

Framework:

- Students must share identifying factor(s) with STEM professional
- Tell their story
- Genius questions....
- Choice of Final product



The Project (Idea to Action)

www.sciencebuddies.org/science-fair-projects/science_careers.shtml#lifesciences



The header of the Science Buddies website features the logo on the left, a search bar with the text "Search sciencebuddies.org" and "All Results" on the right, and a navigation menu with buttons for "Project Ideas", "Project Guide", "Ask An Expert", "Blog", "Science Careers", "My Science Buddies", "Who Are You?", and "More +".

Careers in Science

Earth & Physical Sciences

Life Sciences

Engineering

Math & Computer Science

Health

Explore Careers in Life Science

Want to know more about careers in life science? Browse through detailed information on over 100 careers to discover what scientists really do and what it takes to prepare for these careers. Each career profile provides basic career information such as salary, job outlook, degree requirements, etc. We have also included videos featuring interviews with real scientists or on the job profiles.

New Scientist Profiles



Meet **Katie Hilpisch**, a Senior Biomedical Engineer at Medtronic who is helping to find medical therapies for patients with heart problems.

Career List

Life Science

Behavioral and Social Science

Guiding questions



“Biographies can be a source of inspiration – they can become mentors in print.”

Organizer (Google Docs)

Changing the Face of Science ☆

shelley.paul@woodward.edu

Comments

Share

File Edit View Insert Format Tools Table Help Last edit was made on January 31 by jessica.parsons

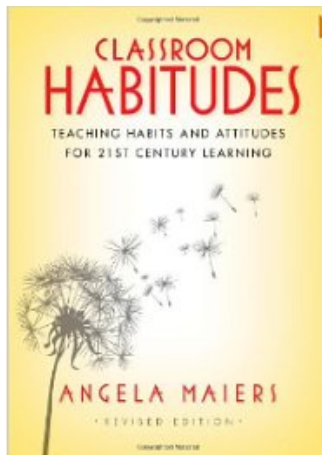
Normal text Arial 11 B I U A A G G

Changing the Face of Science

Question	Information/Notes	Source(s)
Introduce the scientist by their full name. Where were they born? Where'd they go to school? Where are they now?		
Why did you choose this scientist? How do you <i>identify</i> (race, gender, ethnicity, learning ability...) with this scientist?		
What events early in the scientist's life might indicate or have sparked an interest in science?		

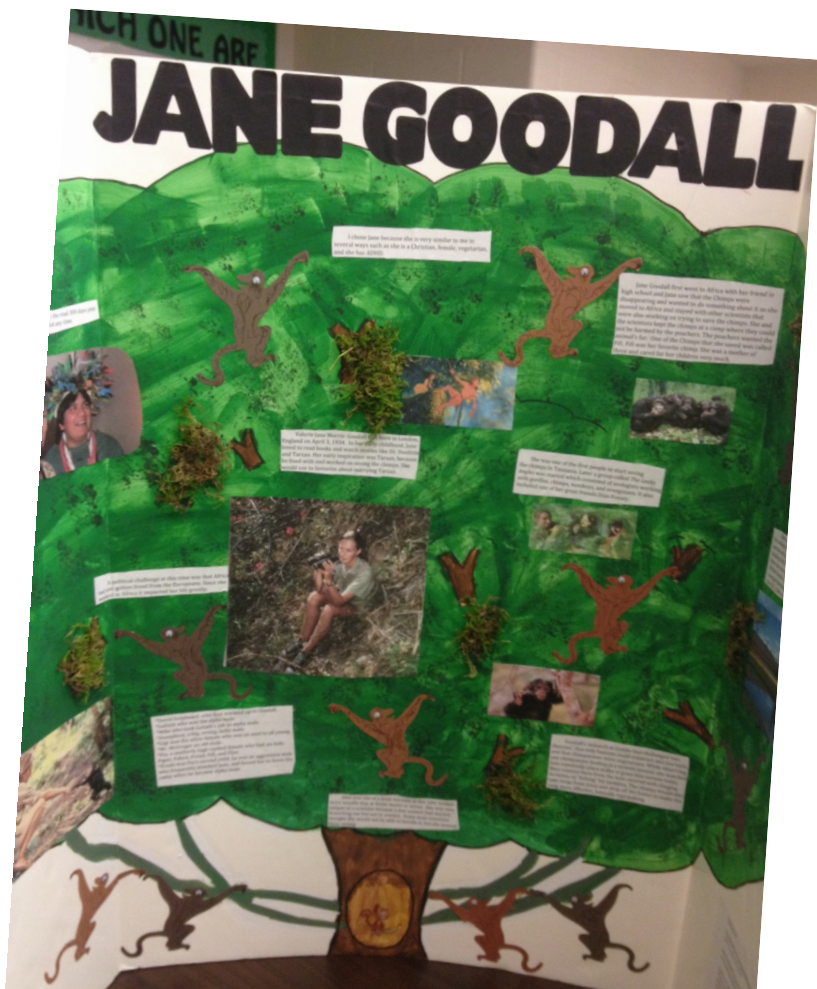
“Ask Genius to Show Up...”

Angela Maiers



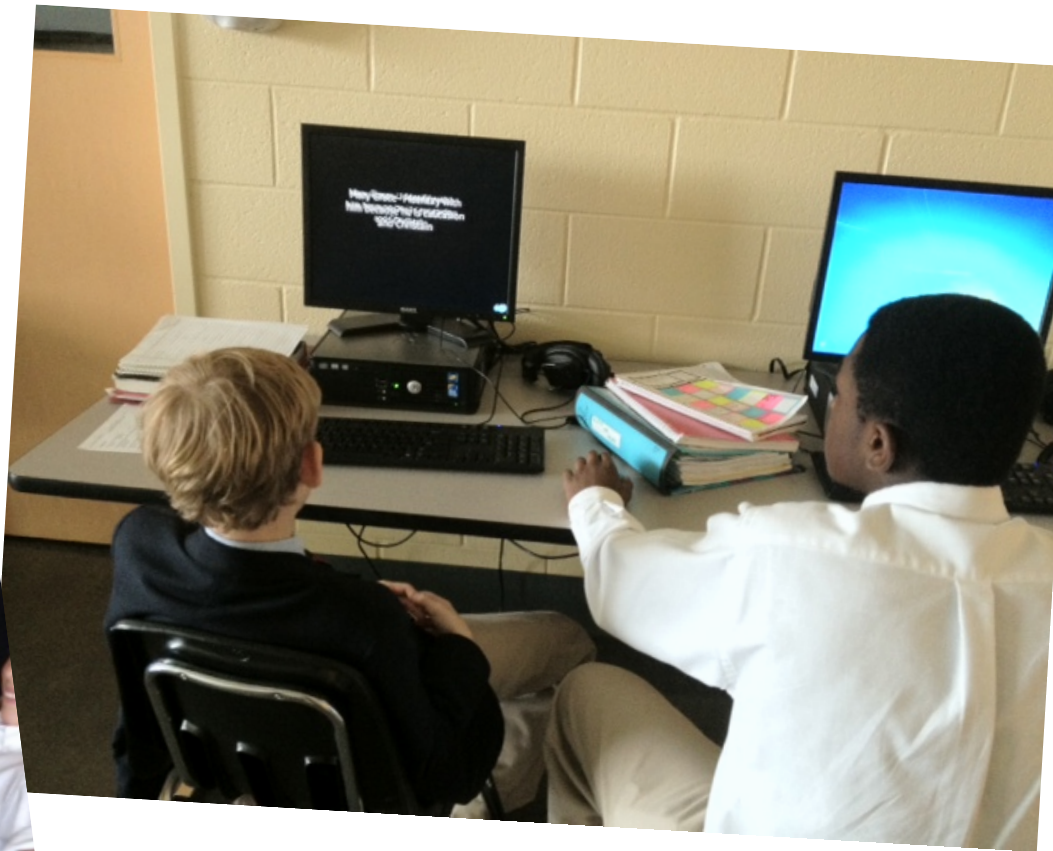
Art+
Science=
Genius

Student Examples



Cheyenne's tribute to her dad, CDR Early

Kia's **Skype** interview with Dr. Kevin Carroll



Students discover the triumphs of Dr. Daniel Hale Williams, the first African American surgeon

Exemplary Student Work



Changing the Face of Science: STEM field Biography Projects

STEM Professional Bingo

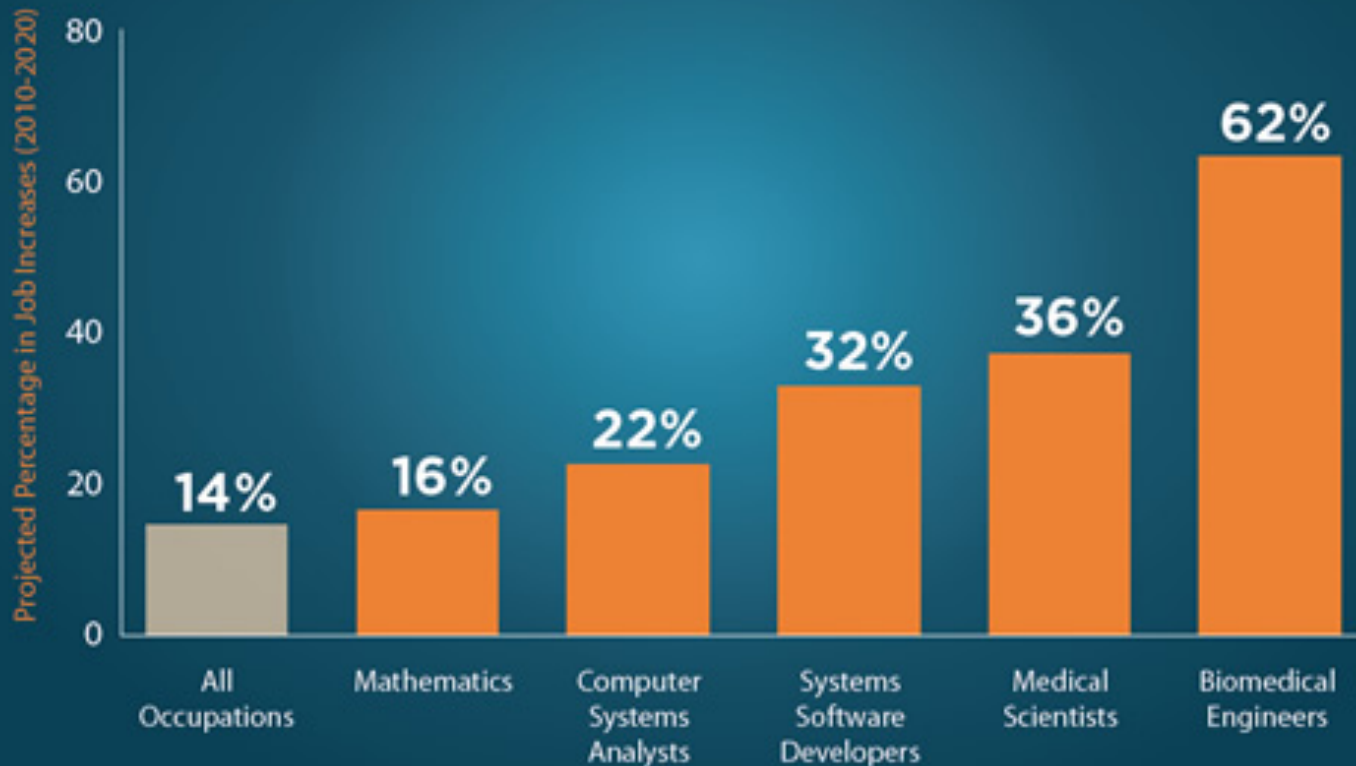


<http://goo.gl/nBW7J8>

Robotics / Computer Science



PROJECTED PERCENTAGE INCREASES IN STEM JOBS: 2010-2020



<http://www.ed.gov/stem>

Think, Turn, &Talk

What explicit ways can your curriculum highlight the diverse contributors to the world of science?

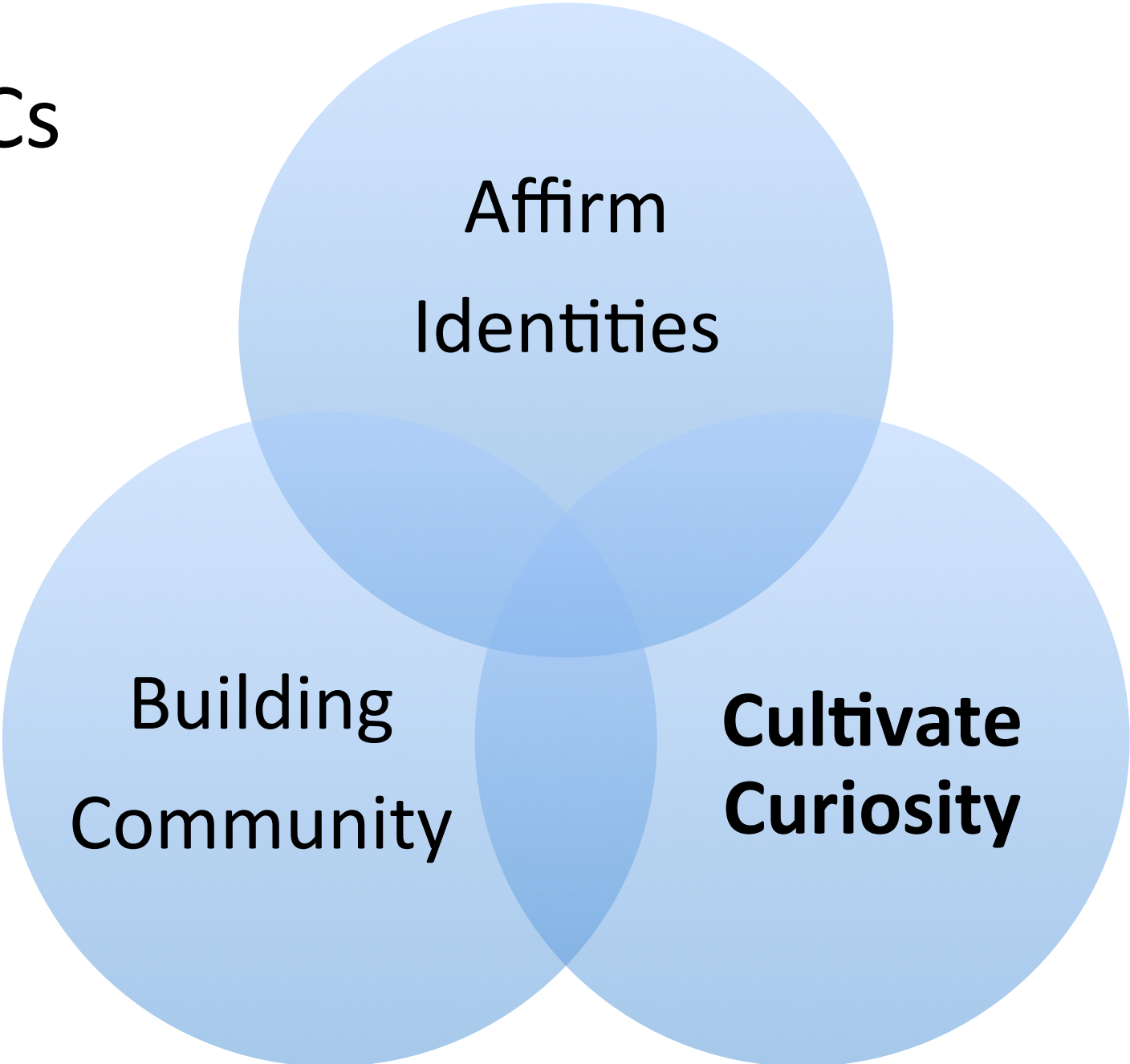
How could you modify this project to cultivate curiosity and inspire future STEM innovators?



What type of projects would build a broader sense of shared community?



ABCs

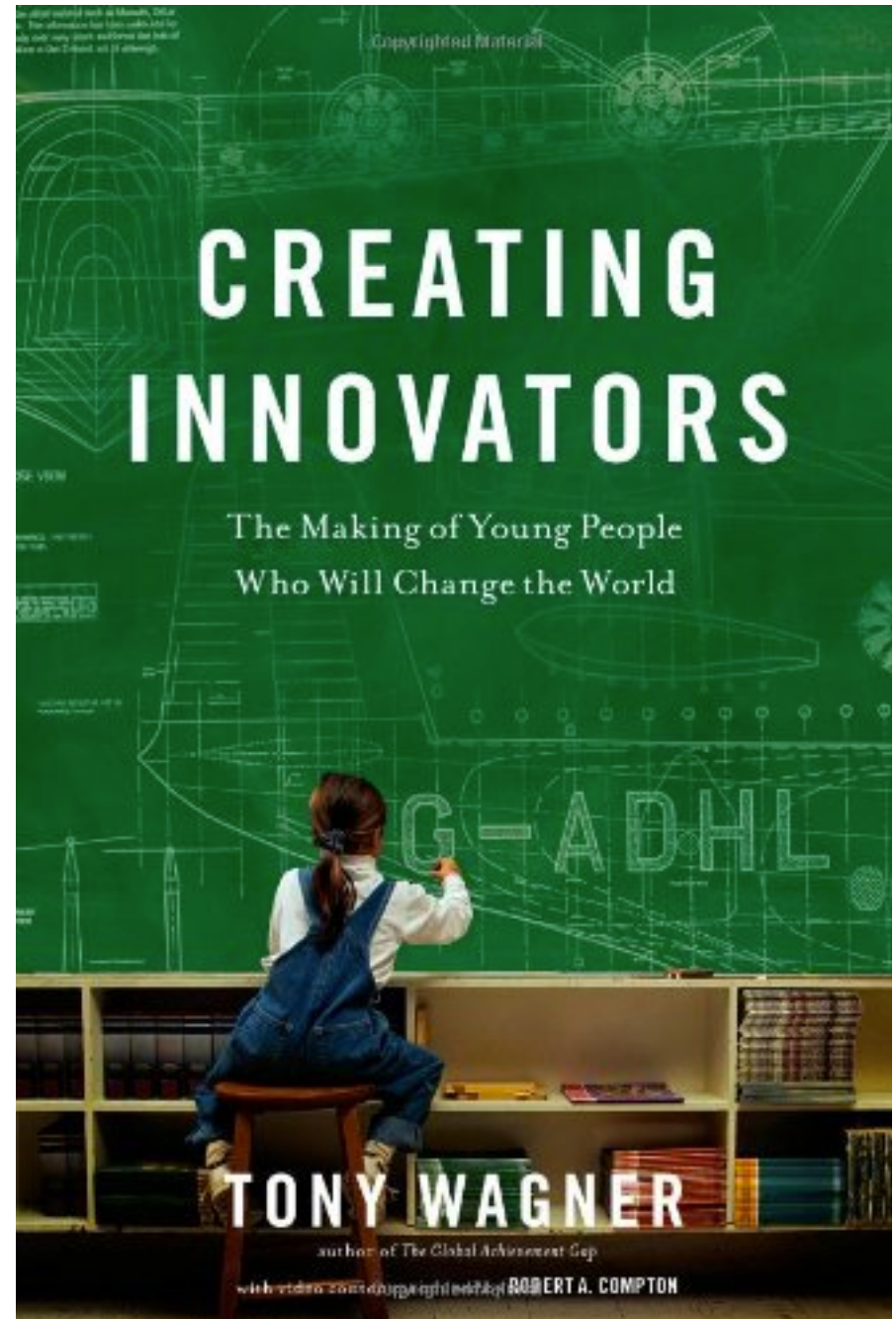


Affirm
Identities

Building
Community

**Cultivate
Curiosity**

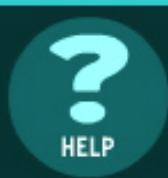
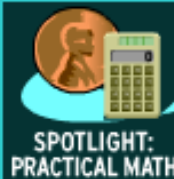
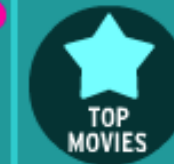
“To be a successful science teacher, make it fun...”





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the more you kno



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SEARCH LESS, FIND MORE!



iWonder Project

Genius Questions

What if . . . ?

I wonder why . . .

If . . . ?

What is it that . . . ?

When is it . . . ?

Who could . . . ?

Is it possible to . . . ?

When is . . . ?

What could happen if . . . ?

If it were possible . . . ?

Are there . . . ?

Why is . . . ?

How . . . ?

Where did . . . ?

Do you . . . ?

Is . . . the reason for . . . ?

Can . . . ?

Would you rather . . . ?

What would it take to . . . ?

Why is it like that . . . ?

How is . . . like . . . ?

If I . . . , could . . . ?

Does it matter if . . . ?

How can . . . ?

What is your opinion about . . . ?

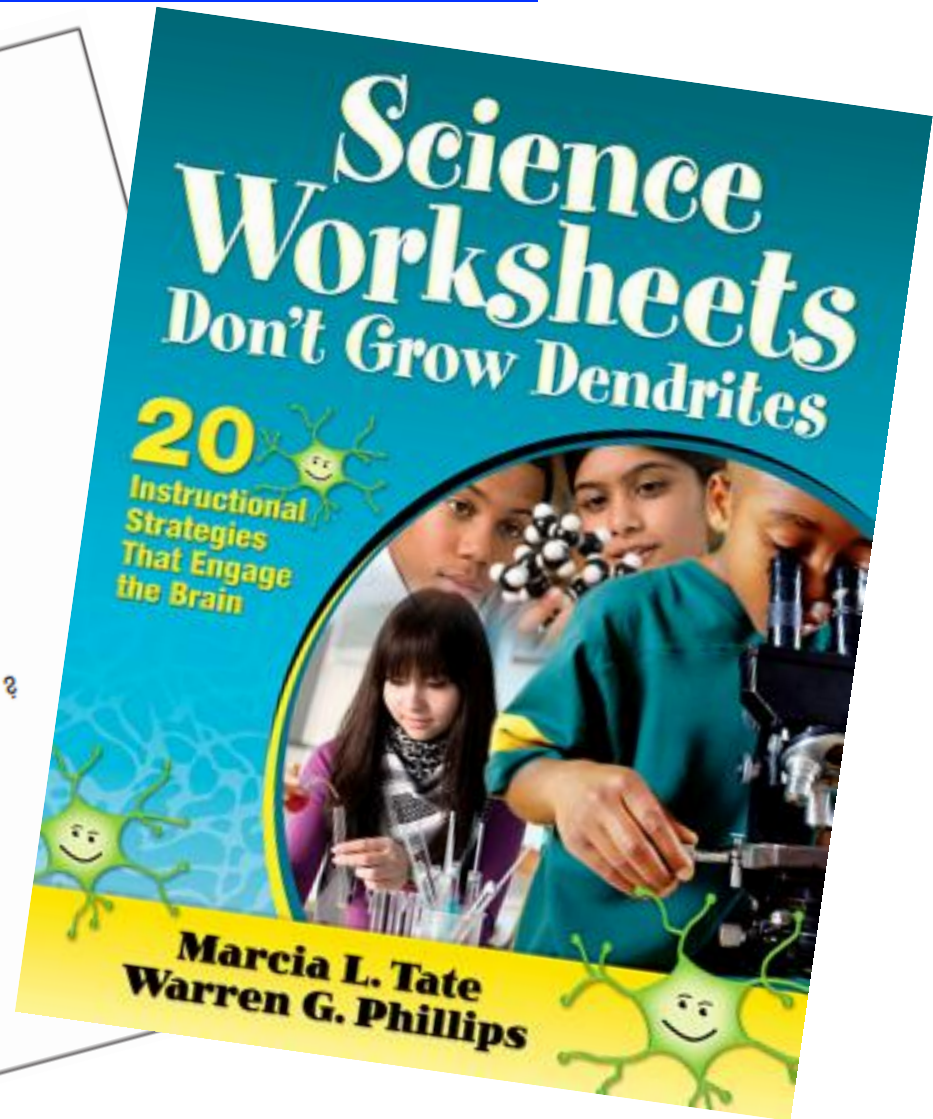
Is it right to . . . ?

I wonder when . . .

I'm wondering if . . . ?

How could it . . . ?

Why are . . . ?



Think, Turn, & Talk

How could you or
How do you cultivate
curiosity in the
classroom?



Yeah, but....

- I have a homogeneous classroom.
- I can't take time away from content.
- How can I do such a project if everyone else isn't "on board?"



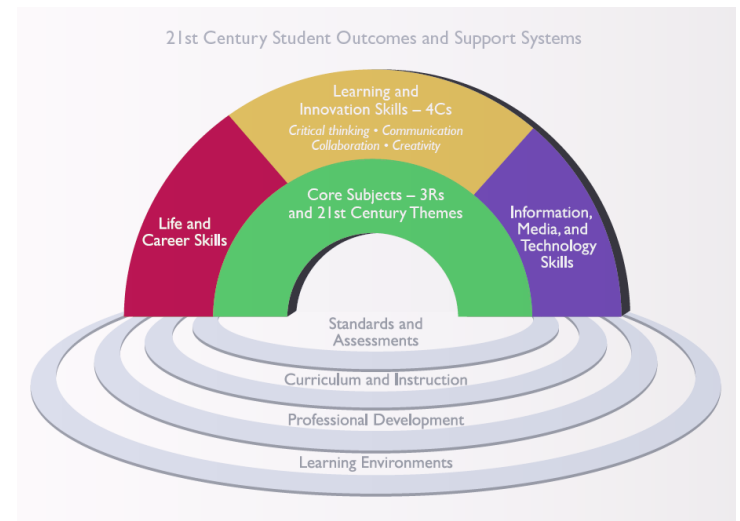
21C Connections

The 4Cs:

Communication,
Collaboration,
Critical Thinking
& Creativity



PARTNERSHIP FOR
21ST CENTURY SKILLS



21C Connections

The CCSS & NGSS:

Fewer

Clearer

Higher



21C Connections

The CCSS ELA:

1. Building knowledge through content-rich nonfiction
2. Reading, writing, and speaking grounded in evidence from text, both literary and informational
3. Regular practice with complex text and its academic language





<http://www.techyes.net/>



Create Learn Explore

Ben Carson



Science Explorations

Home Tables and Graphs



Mixbook | Learn About Mixbook [Photo Books](#) | Create your own [Photo Book](#)

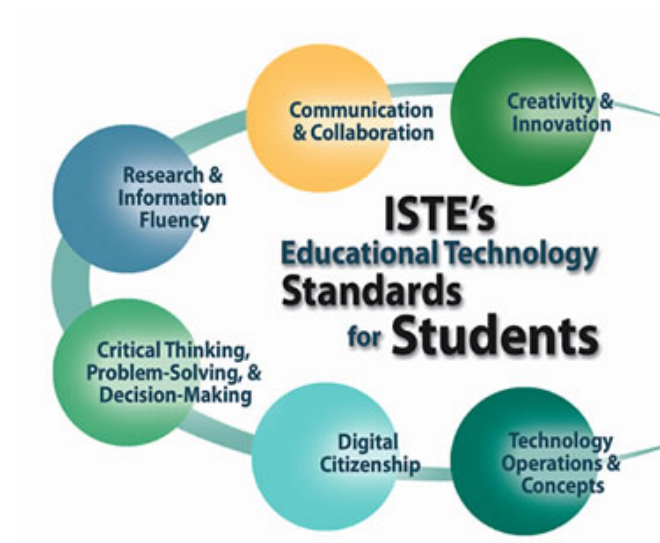
<http://brownham.weebly.com/virginia-satir.html>

<http://eagletscience101.weebly.com/ben-carson.html>

21C Connections

Digital-age skills (ISTE Standards)

- Creativity and Innovation
- Communication and Collaboration
- Research and Information Fluency
- Critical Thinking, Problem Solving, & Decision Making
- Digital Citizenship
- Technology Operations & Concepts





Think, Turn, & Talk

How could you modify this project to meet the Standards for your grade level?

How can you do such a project if everyone else isn't "on board?"

Why my students need me



Session Evaluations QR Codes

**Online: [www.nsta.org/
evaluations](http://www.nsta.org/evaluations)**



Brief instructions:



Other Resources

- Alsop, [Analysing Exemplary Science Teaching](#)
- Dweck, [Mindset](#)
- Tate, Marcia. [Science Worksheets Don't Grow Dendrites](#)
- Tatum,
[Why are all the black kids sitting together in the cafeteria?](#)
- Wagner, [Creating Innovators](#)
- 21st Century Classroom: The Amaryllis,
[My students need me after all](#)
- <http://waeagles220.weebly.com>