



Graduate School of Education
PennGSE

Policy Matters for Science Educators

NSTA Philadelphia
November 2015

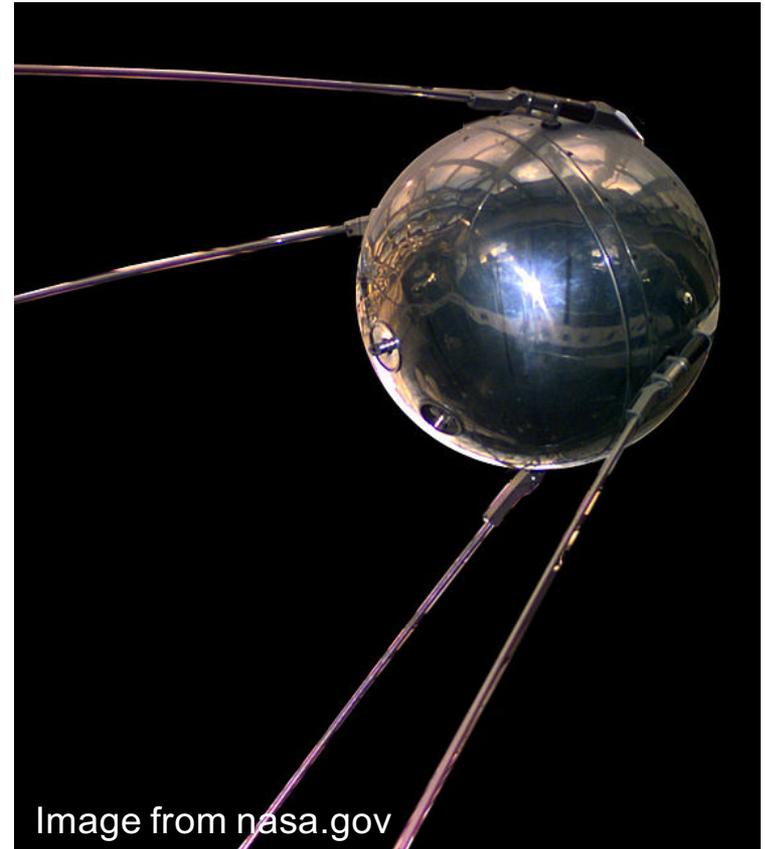
Gregory J. Collins
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Overview

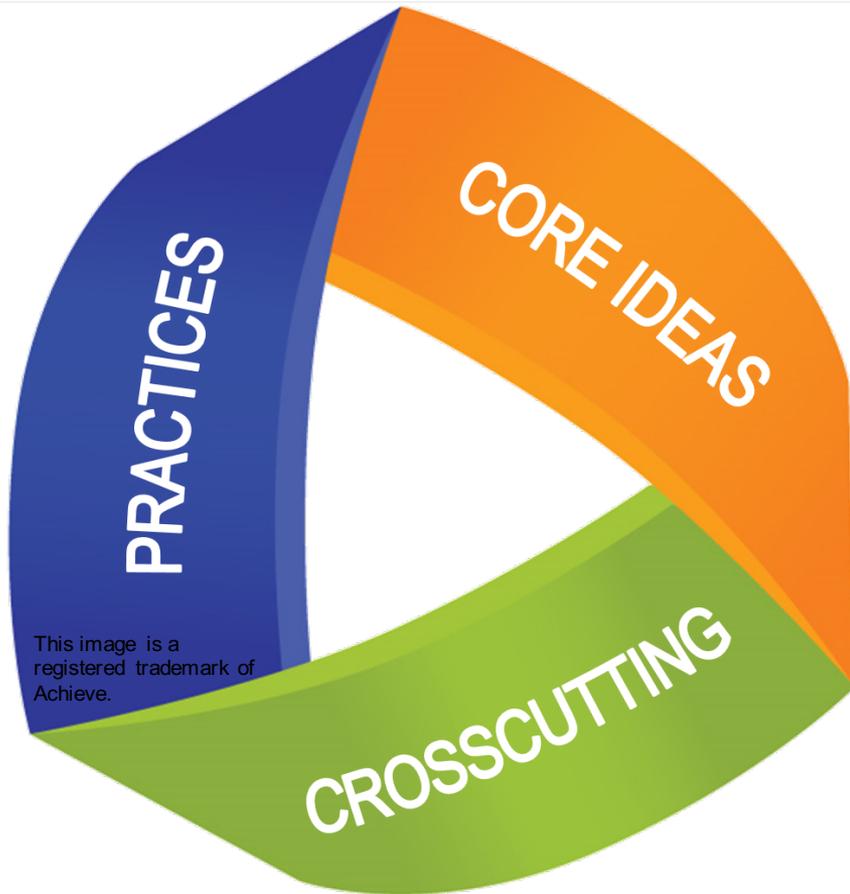
- Science Education Policy
 - Brief history
 - Current policy context
 - How you may be affected by changes
- Policy as Engagement
 - “Hot” topics spark discussion
 - Many policies, multiple modes
 - How you can leverage policy for learning

“Those who cannot remember the past ...”

- Ind. Revolution: public schools add science
- By 1930’s, biology is first-year course in HS
- Sputnik spurs Woods Hole, NSF ramp-up
- Project 2061 emphasizes science literacy



The Next Generation Science Standards



- Developed to close achievement gap, prevent lost market competitiveness
- Three dimensions
- Seventeen states and DC have adopted

NGSS: Its Effects on You

- New lessons
 - Yes, more lesson plans, but . . .
 - Authority to make desired changes
- Extra support for students who are struggling
 - Careful attention to graduation rates
- More training
 - Evidence on effectiveness of PD is mixed

The Need for More Science Teachers

- Each year, about 1/3 of schools with openings struggle to fill science positions.
- 2011: President Obama launched 100k-in-10

Mid-Level Science Teachers

Harrisburg School District
Harrisburg, PA

🕒 11/02/2015

Internal applicant deadline October 16, 2015 _rfc_ 1662...

Mid-Level Science Teacher

Harrisburg School District
Harrisburg, PA

🕒 11/02/2015

Internal Applicants Deadline November 23, 2015 _rfc_ 1253...

Middle School Science Teacher

World Communications Charter School
Philadelphia, PA, PA

🕒 10/03/2015

Position Summary: World Communications Charter School in Center City Philadelphia, is seeking a Middle School Science Teacher (Grade 6). The successful candidate will hold certification, demonstrate ability to

Mid-Level Science Teachers

Harrisburg School District
Harrisburg, PA

🕒 10/02/2015

MINIMUM QUALIFICATIONS: All applicants must possess a valid PA teaching certificate in the area of Science or Mid-Level Science; knowledge and understanding of best instructional practices; the ability to engage

Science Teacher (Middle School Earth and AP Environmental)

The Agnes Irwin School
Rosemont, PA

🕒 10/02/2015

Image from monster.com

But Is It an Input Problem?

- More science teachers are trained each year than growing population and retirements would demand
- Turnover is comparable to other teaching positions but supply in science has no buffer
- Few system-wide retention initiatives
 - Lack of content-specific PD linked to attrition

Using Policy in the Classroom

- Policy matters can be very engaging.
- Many modes
 - Advocacy
 - Debate
- Motivate good research
- Meet CCSS and NGSS expectations
- Practice Claim-Evidence-Reasoning thinking

Some Topics for Debate

- Do we need Bruce?
- Should scientists be held liable for “failed” predictions?
- And then the more obvious . . .
 - Marcellus shale drilling
 - Carbon taxes



In Closing

- We've all felt the effects of policy on science education.
- We can use policy discussions to foster learning of science content and practices.



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