

COMMON CORE STATE STANDARDS: MATH

KAREN LAMOREAUX

**ARKANSANS
FOR EDUCATION
FREEDOM**

INTRODUCTION

**Controversial Constructivism is cognitively inappropriate
and leaves our kids 1-2 years behind our international peers**

“Functional” Algebra does not prepare for STEM

**CCSS prepares for introductory community college, not 4
year university**

NOT-SO-NEW MATH: IGNORING HISTORY

1920s NCTM

Enrollment in Algebra went from 56.9% in 1910 to 24.8% in 1954

The “New Math” curriculum of the 1960s during the Sputnik Crisis

Focal Points 1990-2006

Achieve Inc. did a crosswalk to Focal Points and Achieve notes, “The CCSS are similarly rigorous to NCTM’s Focal Points. While some content occurs earlier in the CCSS, the two documents generally describe the same content.”

THE NEW YORK TIMES, SATURDAY, OCTOBER 12, 1957.

SATELLITE CALLED SPUR TO EDUCATION

Soviet Success Shows Need
for a Major U. S. Effort,
College Heads Agree

By BENJAMIN FINE
Special to The New York Times.
WASHINGTON, Oct. 11—Ed-
ucation as usual can no longer
be accepted in this country,
leading college and university
spokesmen said here today.
The Soviet satellite, they in-
sisted, has shattered the na-
tion's “smug complacency.”



WHERE DO CONSTRUCTIVIST MATH STANDARDS COME FROM?

- 2006 NCTM Focal Points failed miserably under No Child Left Behind testing

2008 National Math Panel Report

- Not effective for young students
- Scores did not improve
- <http://www2.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf>
- CCSS embedded them and does the exact opposite of what the report recommends

CURRICULUM VS. STANDARDS

Standards DRIVE curriculum

Because the standards call for a certain approach, *any textbook that is aligned to the CCSS will utilize those approaches.*

Large market

All common core aligned texts will use constructivism

Some publishers offer two versions (Saxon)

Professor Jon Star from Harvard is studying the effect of constructivism in the Common Core now, along with Vanderbilt University and the National Science Foundation



WHAT IS CONSTRUCTIVISM?

Social- Emotional approach instead of algorithm

Collaborative, lots of group work

Based on Abstract thought (not concrete)

No directions or examples/Self-Directed

Method emphasized over correct answer

Inefficient

Time Consuming

WHERE IS IT NOTED IN THE CCSS?

It calls for "**abstract**" learning approaches, favoring them over standard algorithm and rote memorization. Common language found in the CCSS that point to Constructivism include asking students to **construct, draw or illustrate, argue or explain** math.

For example, standard 3 says, "construct a viable argument and critique the reasoning of others."

EXAMPLE IN CCSS

K-12 Standards for Mathematical Practice »

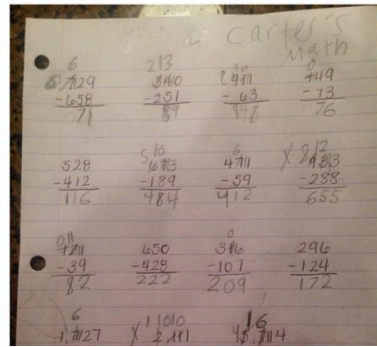
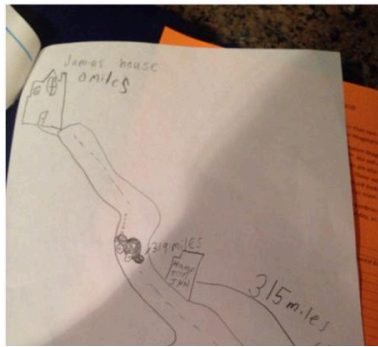
CCSS Mathematical Practices:

2. Reason **abstractly and quantitatively**

3. **Construct viable arguments and critique the reasoning of others.**

EXAMPLE – 4TH GRADE – RIGOROUS?

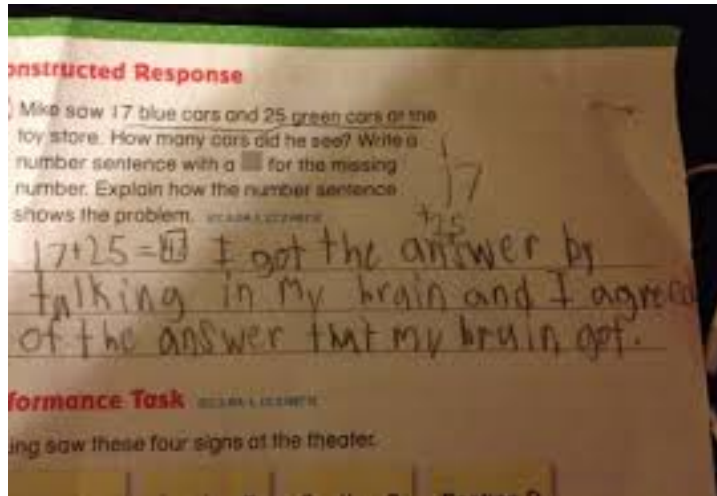
- Jamie's family visited their grandmother, who lives 634 miles from their house. On the first day, they drove 319 miles. How many miles did they have



EXAMPLE OF CONSTRUCTIVISM

CCSS.MATH.CONTENT.4.NBT.B.5

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. **Illustrate and explain** the calculation by using equations, rectangular arrays, and/or area models.



Dr. James Milgram

“...the reason I didn’t sign off on them was that they did not match up to international expectations. They were at least **2 years behind** the practices in the high achieving countries **by the 7th grade**, and...only require a partial understanding of what would be the content of a normal, solid, course in Algebra I or Geometry.”



R. James Milgram,
Ph.D.
Emeritus Professor
Department of
Mathematics
Stanford University

ZE'EV WURMAN

Replaces the traditional foundations of Euclidean geometry with an experimental approach. This approach has never been successfully used in any sizable system; in fact, it **failed even in the school for gifted and talented students in Moscow**, where it was originally invented. Yet Common Core effectively imposes this experimental approach on the entire country, without any piloting.”

Not internationally benchmarked



Scholar at the Hoover Institution; former senior policy adviser at the U.S. Department of Education's Office of Planning, Development, and Policy Dev.; Electrical engineer and CAD software innovator

CCSS APPENDIX A EXAMPLES

“For example, transformations are emphasized early in this course.”

Reason abstractly and quantitatively. construct viable arguments and critique the reasoning of others.

G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Unit 2, pg.31 Understand similarity in terms of similarity transformations.

COMMON CORE IS COLLEGE READY

- Two-year non-selective community college
- Jason Zimba
- Functional Algebra Not for STEM/Advanced Math
- Arne Duncan 2010 speech
- Asia is NOT using this math!



WHY IS MY CHILD CRYING ABOUT IT?



Early Childhood

500 sign open letter

**Dr. Thompson, Cognitive
Child Abuse**

**Dr. Megan Koschnick
Testimony**

**Educational Psychologist
Volume 41, Issue 2, 2006.**

**Why Minimal Guidance
During Instruction Does Not
Work: An Analysis of the
Failure of Constructivist,
Discovery, Problem-Based,
Experiential, and Inquiry-
Based Teaching**

OPPOSITION

The Pioneer Institute

American Principles Project

U of A Emeritus Dr. Sandra Stotsky

Stanford and NASA's Dr. James Milgram

5 STEPS TO PROVEN SUCCESS IN MATH

1. Eliminate the failed constructivist approaches and restore standard algorithm and cognitively appropriate rote math for 7th grade and below.
2. Restore early proficiency for addition and subtraction proficiency (grade 3 instead of 4), multiplication (grades 3 & 4 instead of grade 5) and division (grade 5 instead of 6) according to higher state standards,
3. Restore prime factorization, least common denominators & greatest common factors; conversions among fractions, decimals, and percent according to higher state standards.
4. Keep CGI approaches as an option in grades K-3 but not after grade 3
5. Replace internationally failed transformational geometry with proven Euclidean geometry in K-12.

FURTHER READING

A Brief History of American K-12 Mathematics Education in the 20th Century by David Klein :

<http://www.csun.edu/~vcmth00m/AHistory.html>

White Paper from Pioneer Institute:

http://www.uaedreform.org/wp-content/uploads/2000/01/Lowering_the_Bar.pdf

White Paper from American Principles Project & Ze'Ev Worman:

<https://americanprinciplesproject.org/app-education/new-white-paper-why-students-need-strong-standards-and-not-common-core/>

PREVIOUS AR FRAMEWORKS

[http://www.arkansased.gov/public/userfiles/
Learning_Services/Curriculum%20and%20Instruction/
Frameworks/Math/math_k_8_may05.pdf](http://www.arkansased.gov/public/userfiles/Learning_Services/Curriculum%20and%20Instruction/Frameworks/Math/math_k_8_may05.pdf)