The Common Core: a closer look

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This talk

◊ Focus on math curriculum
◊ Grades 9-12 only
◊ Not exactly as advertised
Where I’m coming from
half our SSAT scores fell between the 54th and 83rd percentiles
How I prepared for this talk: a thought experiment — from standards to curriculum
The Common Core

◊ National standards, at last
◊ Written by math educators
Good: coherence
Good: truce in the “math wars”
Bad: no questioning of test mania
Bad: unrealistic implementation timetables
Needed: professional development
◊ math content
◊ mathematical practices
Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
A hard sell!
◊ test anxiety
◊ culture of pragmatism
◊ underprepared teachers
CCSS High School Specs

First the good news...
Good: in algebra,
◊ emphasize modeling,
◊ deemphasize symbol manipulation
Good: transformational geometry
Good:
probability and statistics in the core
Good:
high school sequence not mandated
… and now the bad news:
◊ Geometry shrinkage
◊ Too many standards
◊ Too much, too soon
Geometry shrinkage

Some basic topics disappear...
... just as technology makes the subject more accessible than ever!
Why it’s wrong
◊ Geometry makes sense to different students
◊ Geometry is the part of math where you look at the whole
◊ Geometry connects with art and culture
It could have gone the other way:
◊ The third dimension
◊ Symmetry, tiling
◊ Advanced work on transformations
“The CCSS do not prevent you from teaching other topics”

Alas, that is not true.
Too Many Standards

Mile-wide, and therefore inch-deep, still (e.g. 13 fewer high school standards than CA Standards)
The drive to “cover” will undermine teaching for understanding.
Not enough time for multiple approaches
◊ Less depth
◊ Less access
Not enough flexibility in content

◊ a big problem in transition years
◊ no time for projects, side trips, digging deeper
◊ no room for unorthodox electives
Only *core* concepts should be mandated, leaving room for effective pedagogy and curricular choices.
Too much, too soon
Topics best left for Math 3 / Algebra 2
◊ Quadratic formula
◊ Function notation
◊ Rational exponents
◊ Complex numbers
Topics best left for Year 4 / Electives
◊ Rational and radical equations
◊ Remainder theorem
◊ Radians and trig identities
◊ Matrices
Pushing abstraction down the grades is counterproductive.
◊ Less depth
◊ Less access
Too many standards... too much too soon... many students will not be able to keep up. They, or their teachers, will get blamed.
What To Do

Citizens
◊ Ask for periodic re-evaluation of the CCSS
◊ Join the movement to opt out of high-stake tests
What To Do

Educators
Heed the Common Core overall shift:
◊ More modeling, less symbol manipulation
◊ Foundational role for transformations in geometry
As a first approximation, choose the integrated path
Topics can move

◊ Too abstract? Later!
◊ More accessible because of tech? Sooner!
◊ Too much on one topic at once? Spread it out!
Prioritize foundational topics, taking time from less important standards

Choose which (+) standards to drop altogether
◊ Do not sacrifice the practice standards to the content standards
◊ Prioritize understanding
◊ Do not lose sight of your core values