Thomas Cook Group on the Brink (C): Transformation Year 2 Results

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Summer 2013

- CTA's Teacher Leadership Cohort
- School District's Common Core PD

"If you want to go fast, go alone.
If you want to go far, go together."
— African proverb

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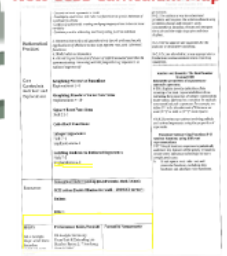
New CCSS Curriculum Map



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PANIC!

Do we have enough resources with our current text books? NO

How, where, and when can we find more resources?

How will we effectively teach critical thinking, collaboration and communication skills?

How will we incorporate reading and writing in Mathematics?

What are the logistics of Smarter Balance testing?

In what ways can we increase students use and comfort with testing on technology?

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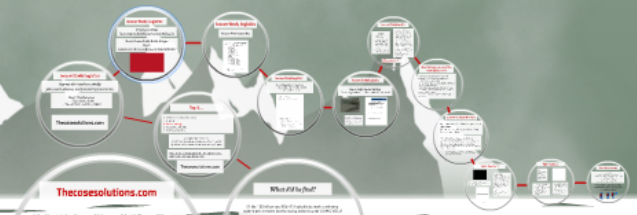

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John Hattie is Professor and Director of the Melbourne Education Research Institute at the University of Melbourne, Australia and Honorary Professor at the University of Auckland, New Zealand

Hattie spent 15 years synthesizing the results of over 50 000 educational research on the influences of **student achievement**. He focused on students from 4 to 20 years old in all subject areas.

800+ meta-analysis
50,000 studies
240,000,000 students

What did he find?

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Results:

1) Teacher-subject matter knowledge
2) Direction
3) Assessment
4) Response to intervention
5) Cooperative Learning

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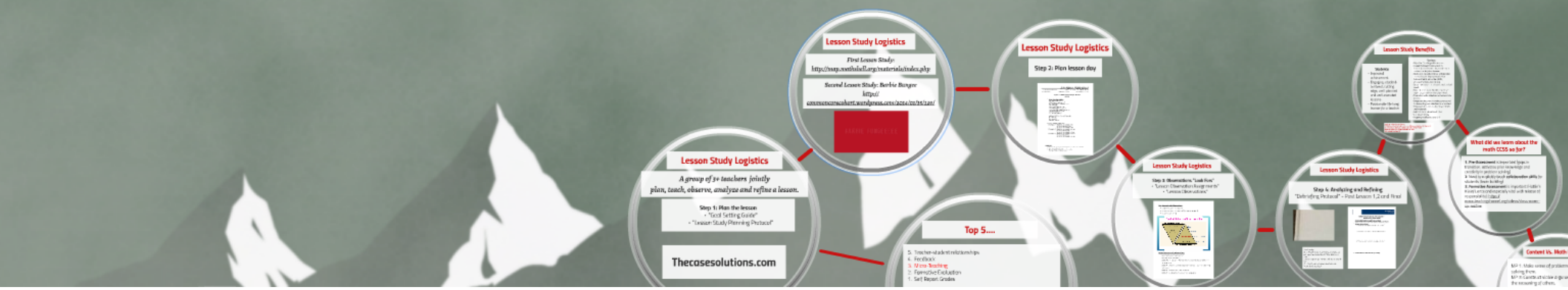

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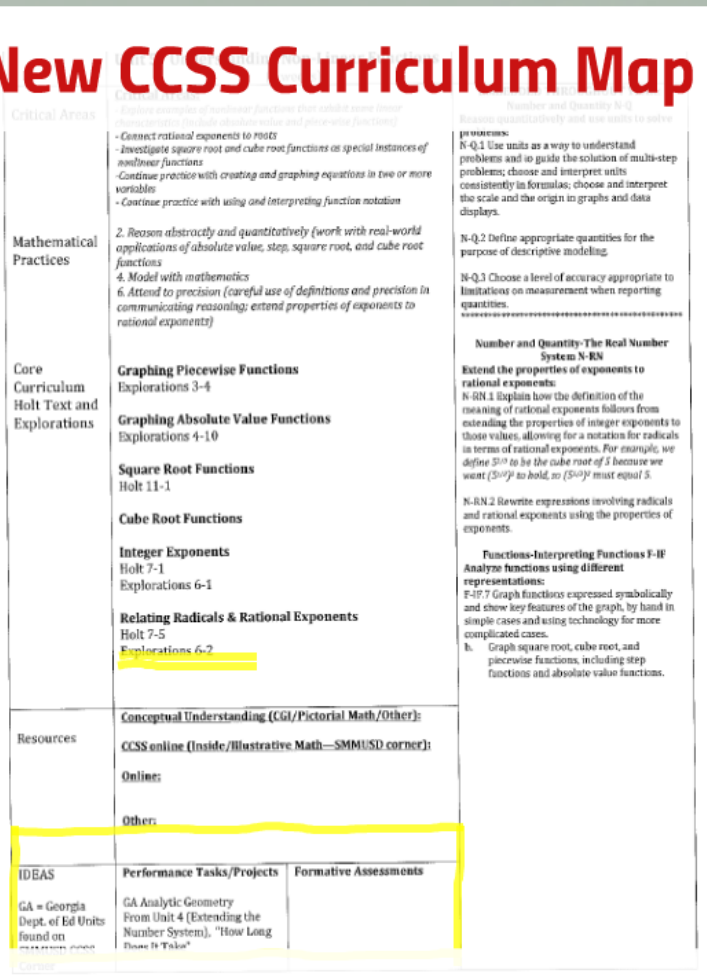

Critical Areas	- Connect rational exponents to roots - Investigate square root and cube root functions as special instances of nonlinear functions -Continue practice with creating and graphing equations in two or more variables - Continue practice with using and interpreting function notation	Number and Quantity N-Q Reason quantitatively and use units to solve problems: N-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. N-Q.2 Define appropriate quantities for the purpose of descriptive modeling. N-Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Mathematical Practices	2. Reason abstractly and quantitatively (work with real-world applications of absolute value, step, square root, and cube root functions 4. Model with mathematics 6. Attend to precision (careful use of definitions and precision in communicating reasoning; extend properties of exponents to rational exponents)	
Core Curriculum Holt Text and Explorations	**Graphing Piecewise Functions** Explorations 3-4 **Graphing Absolute Value Functions** Explorations 4-10 **Square Root Functions** Holt 11-1 **Cube Root Functions** **Integer Exponents** Holt 7-1 Explorations 6-1 **Relating Radicals & Rational Exponents** Holt 7-5 Explorations 6-2	**Number and Quantity-The Real Number System N-RN** **Extend the properties of exponents to rational exponents:** N-RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3$ to hold, so $(5^{1/3})^3$ must equal 5. N-RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents. **Functions-Interpreting Functions F-IF** **Analyze functions using different representations:** F-IF.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise functions, including step functions and absolute value functions.
Resources	**Conceptual Understanding (CGI/Pictorial Math/Other):** **CCSS online (Inside/Illustrative Math—SMMUSD corner):** **Online:** **Other:**	
IDEAS GA = Georgia Dept. of Ed Units found on [illegible] Corner	**Performance Tasks/Projects** GA Analytic Geometry From Unit 4 (Extending the Number System), "How Long Does It Take"	**Formative Assessments**

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Of the 138 influences, 95%-97% actually do work to enhance student achievement, but the real question is what WORKS WELL?

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Results:

10. Teacher subject matter knowledge
9. Class size
8. Homework
7. Home Environment
6. Cooperative Learning

Top 5....

5. Teacher-student relationships
4. Feedback
3. Micro-Teaching
2. Formative Evaluation
1. Self Report Grades

Average effect size is 0.4
Effect size 0.2 advances achievement by 9 months
Effect size of 1.0 advances achievement by 3 years.

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Lesson Study Logistics

A group of 3+ teachers jointly plan, teach, observe, analyze and refine a lesson.

Step 1: Plan the lesson

- "Goal Setting Guide"
- "Lesson Study Planning Protocol"

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