

Reaching and Teaching “Those Kids”



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The World I Come From



When You Reach ‘em ...

Geometry: from 1st Progress to Semester Report Card (over 3 years)

12-15% » 0-9%

District Final improved over 3 years from 74% to 85% avg.

Algebra Essentials: 1st Progress to Semester Report Card (over 2 semesters)

33% » 9%

Remedial Math Class met the district average on Final Exam.

Algebra 1 At-Risk: from 8th Grade Math to Freshman Algebra

100% » 0-6%

Exceeded the district average on Final Exam.

Single Digit Failure Rates are Possible!



How Do We Reach Them?

NCTM 2015, Boston

We need...

Brain Surgery. (a Paradigm Shift)

Information, Confirmation, Affirmation



They need...

No-Options Engagement

Boot Camp Numeracy

HOTS

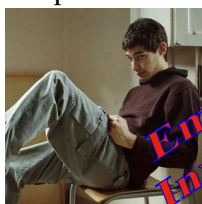


The Paradigm Shift

“Students are
solely
responsible.”



Coach's Mind Set



No-Options Engagement

The most loving thing you can do for your students is ...

Demand Their Best Effort

No-Options

(Make failure more painful than success)

- Slacker Alert
- Entrance Ticket
- Incomplete Policy
- Student Conference
- Intervention
- HW Camp/Board-listed

Engage

(No Quiet Deals)

- Interesting Lessons
- Walk-about
- Call Outs
- Whiteboards
- Exit Ticket
- Pair/Share



No-Options Engagement

❖ No-Options Strategies

- Ticket out the door
- Non-stop harassment
- HW Detention
- Phone Calls/Email
- Supplemental Assignments



❖ Engagement Strategies

- I do/we do/you do
- Chunking
- Stand & Point
- Use Student Response
- Wait for 100% involvement
- Thumb/Finger Votes
- Sticky Note Terror
- Participation Paraphernalia
(Beads, Raffle Tickets, Initials,
Deck of Cards, Seating Chart Dots,
Equity Sticks)



No-Options Engagement

Ryan: What did you prove in class yesterday?

“I am actually intelligent.”

Danielle: What was the great victory yesterday?

“I really can do math.”

Danika: What did Mr. Shore ever do to you?

“Mr. Shore didn't say anything about my Mom, but I still don't think I did anything wrong.”

Clemente: EL/SPED ... **7 of 10**



Boot Camp

Refresh, Refine & Accelerate ...

pre-requisite skills ...

before each lesson, week or unit.



Fundamentals are Key ...

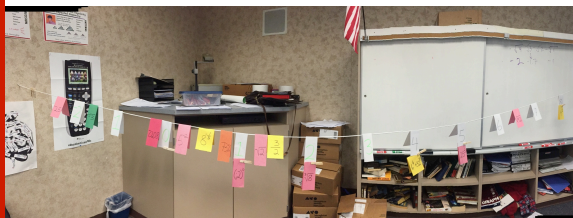
... and need to be practiced regularly!



Refresh



Clothesline

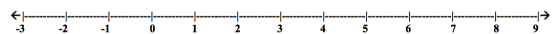


Progressive Number line

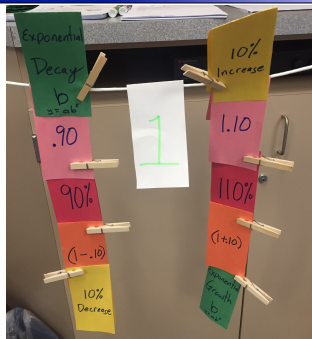
Exponent Number Line

Place the following values at their appropriate place on the given number line.

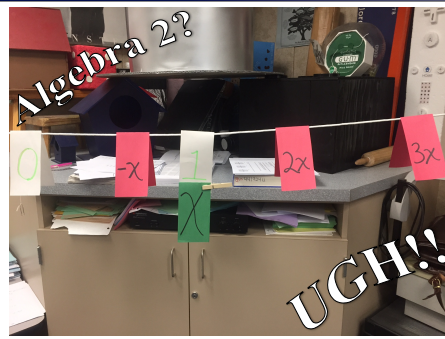
$\frac{1}{6}$ $25^{\frac{1}{2}}$ -2.5 5^{-2} $(-2)^0$ $\frac{3}{2}$ $\sqrt{2}$
 73% $16^{\frac{1}{4}} + 32^{\frac{1}{5}}$ $4^{\frac{3}{2}}$ -0.08 $-\sqrt{3}$ $8^{-\frac{1}{3}}$ $\sqrt{42}$



Clothesline



Clothesline



clotheslinemath.net

forthcoming



Boot Camp Resources



Boot Camp Intervention

Case Study:

Algebra Team Pre-Assessed w/
Textbook Resources: **15% Failed**

3-Day, 20-Min Intervention, then
Post Test: **85% of those Passed**

Double Up?



What are your pre-req's?

Acceleration
Extra Work



Explicit Teaching of Thinking

HOTS

Dr. John Star



“Math does not teach Problem Solving.”

“Only the explicit teaching of thinking
teaches thinking.”



Defining Problem Solving

Exercise = Know How
Have the Ability



Problem = Don't Know How
Have the Ability

Crisis = Don't Know How
Don't Have the Ability



Re-Orientation



Notes-Oriented → **Task-Oriented**

30%

Dual Objectives

70%



Being Task-Oriented

70%

What is a Task?



30%

“A *mathematical task* is a problem or set of problems that focuses students’ attention on a particular mathematical idea and/or provides an opportunity to develop or use a particular mathematical habit of mind.”

-- Adding it up (2001)



Being Task-Oriented

What is a Task?

“a problem that provides an opportunity to develop mathematical ideas and [thinking].”

-- Adding it up (2001)

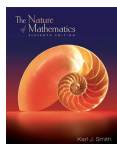
Tasks = Problems used to teach Content & Critical Thinking



Fail Grandly

Task Resources

No Real Risk



But Did They Learn Any More?

Work ► Learn ► Earn

Work ► ► ► ► ► Earn

External Data

6% of Geometry Total failed state test (**2%** failed course)

98% of SL Studies Seniors passed IB Exam



Declarations

Reaching & Teaching Those Kids

The Paradigm Shift

No-Options Engagement

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H.O.T.S.






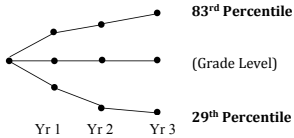



Teacher Action is the Difference

“The greatest influence in the quality of the education that a student receives is the decisions that a teacher makes on a daily basis.”

-- Dr. William Schmidt, University of Michigan









Teacher Action is the Difference


Teachers matter most.
-- Dr. William Schmidt, University of Michigan

Teachers matter most.
-- Tim Kanold, Adlai E. Stevenson HS, Chicago

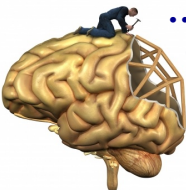
Poverty matters ... a lot.
-- Dr. Uri Treisman, University of Texas, Austin

Teachers matter most.
-- David Foster, Silicon Valley Math Initiative, CA



Reach ‘Em & Teach ‘Em ...




...with the faith that they can learn it,

and that we can teach it to them,

because what we do matters the most.

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Chris Shore**

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