

Coaching Math Teachers to THEIR 21st Century Classrooms: One Redlands Relationship at a Time



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What is Your Million-Dollar Talent? as a teacher & as a coach



[Teaching Center](#)



My Coaching Experience



My Coaching Experience



My Coaching Experience



Axiom #1

"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.**



Axiom #2

“The meta-research shows that math coaches are effective. We see small bumps in student data in years 1 & 2, and large spikes in years 3 & 4.”

-- Dr. Maggie McGatha, University of Louisville



**A program and
a plan are
imperative.**



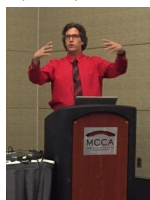
Axiom #3

“You either come from a state that is implementing the Common Core, or you come from a state that is pretending not to.”

-- Chris Shore, NCTM, Boston



**21st Century
standards are
here to stay.**



Workshop Objectives

by the Numbers

The 8 Qualities of an Instructional Leader:

Empower you to empower teachers.



The 6 C's:

What teachers need to be teaching.



The 3 Great Needs:

What teachers ask for most.



The 3 Foci:

Where to start.



The 1 Plan:

How your site will create *your* 21st Century Classrooms.

Your Questions

- How might we make a teacher feel more successful new strategies?
- How can we help teachers prioritize ALL the information in a way that is best for students with stressing out the teachers?
- What if the top performing teacher is the most traditional?
- How do we teach/model assess the SMPs?
- Can number sense be a year-long effort if doesn't match the scope & sequence?
- How do we write dual targets?
- How do we improve teacher knowledge of content & pedagogy?





VISION

Billy Beane



Common Core's Noble Goal



Teach students to THINK and COMMUNICATE their thinking.

These are the 21st Century Skills.



The 6 C's of the Math Mission

Chris Shore's one original thought.

Concepts & Procedures

Construct Models

Critical Thinking

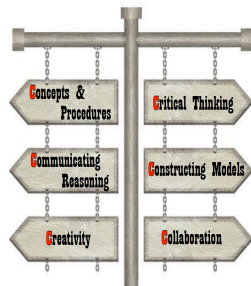
Communicate Reasoning

Creativity

Collaboration

The 6 C's of the Math Mission

Chris Shore's one original thought.



The 8 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.



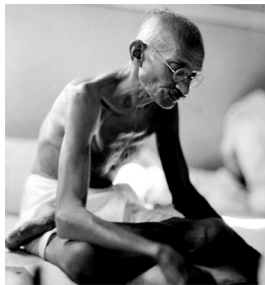
What is your Vision?

VISION



TVUSD: Expertly teach all 21st Century math learners to think and communicate collaboratively and creatively.





FOLLOWERS

Gandhi



Relationship Models

- Invitation
- Rotation
- ~~Prescription~~
- PLC Support
- PLC Participation
- Social Hangouts
- Cross Traffic
- Working Observations
- Handshake Introductions
- Visitations
- Email
- Elbow Coaching
- Helper



Knight's Principles of Partnership

Where are you nailing it?

- ① Equity
- ② Choice
- ③ Voice
- ④ Dialogue
- ⑤ Reflection
- ⑥ Praxis
- ⑦ Reciprocity

Where are you missing it?



Coaching Roles

Agent of Change: Must Produce Results

Classroom Support: Strategies

Instructional Support: Intervention

Curriculum Specialist: Resources

Trainer: Professional Development

Learner: Expand Your Knowledge

Liaison: to District, Admin & Staff

Data Handler: Collect, Compile & Report

The Goto: for Everything

Which of these is you?



How will you build relationships?

FOLLOWERS







HUMILITY

Mother Theresa



Principles to Action



Principles to Action

Guiding Principles

- **Teaching & Learning**
- Access & Equity
- Curriculum
- Tools & Technology
- Assessment
- Professionalism

Teaching Practices

- Math Goals
- Tasks
- Representations
- Discourse
- Questioning
- Conceptual to Procedural
- Productive Struggle
- Student Thinking

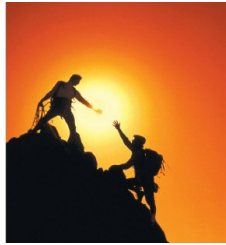


Lesson Reflection



Ask the All Important Question

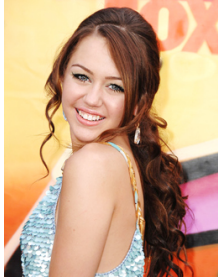
How can I best serve you?



How will you serve
the 21st Century
Classroom?

HUMILITY



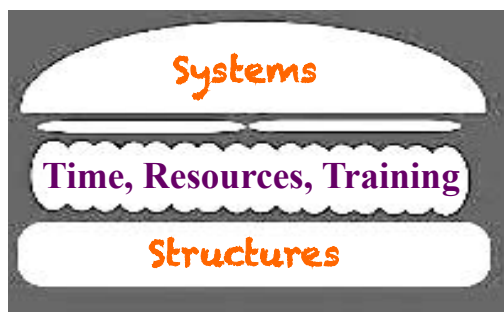


INFLUENCE

Miley Cyrus



The 3 GIANT Needs



The 3 GIANT Needs



The 3 GIANT Needs

"Curate, don't Create
your Curriculum"

Resources: Tasks & Activities, Textbooks,
Unit Planning Organizers, Common Assessments

Google Drive, Web Site,
L.M.S. (Haiku)

The 3 GIANT Needs

Elbow Coaching, Observations
Long-term P.D. around lessons

Training: "What does it look like?"
Tasks, Practices & Content, Strategies

Lesson Study, Learning
Walks, Hotties, Peer Fairs

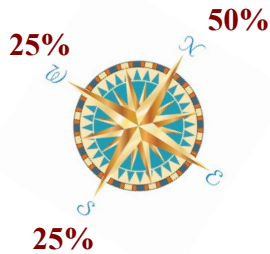
The Coaches' Survey Results

7 of the Top 10 fit under the 3 Giant Needs.

THIS WEEK'S
**TOP
20**



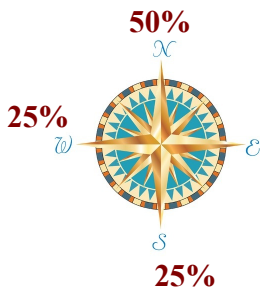
Influence Your North



Advocate for
the 3 Giant Needs



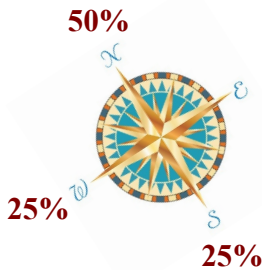
Influence Your East/West



Meet & Learn with
your Coaching
Colleagues.



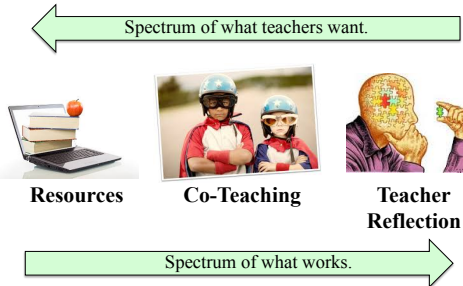
Influence Your South



- Frame the Dialogue
- Communicate Best Practices
- Fulfill their 3 Giant Needs
- Relentlessly Advertise
- Show & Share Results
- Teach like a 21st Century Champion



The Spectrum of Coaching Effectiveness

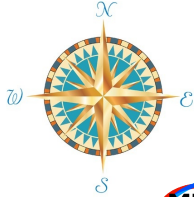



Resources Co-Teaching Teacher Reflection


Dr. Maggie McGatha, University of Louisville, NCSM, Boston, 2015

How will you influence your North? East/West? South?


INFLUENCE

Lunch



Up next:
Making an Impact!





PASSION

Pete Carroll



The 3 Foci

Engagement



Boot Camp

HOTS (Tasks)



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)

Boot Camp

Refresh
Warm-ups

Refine
Numeracy

Accelerate
Intervention
(pre-emptive)


Explicit Teaching of Thinking

HOTS


Dr. John Star


“Math does not teach Problem Solving.”


“Only the explicit teaching of thinking teaches thinking.”



Explicit Teaching of **H.O.T.S.**







Dr. Peg Smith

“It’s all about the task.
It’s all about the task.
It’s all about the task.”

H.O.T.S. Are For All Kids!

Math Practices open doors to struggling math students.

Amy Lucenta & Grace Kelemanik of the Boston Plan for Excellence,
NCTM Boston, 2015

H.O.T.S. Are For All Kids!

“Accelerated” Remedial Math Students with Rich & Robust Tasks

Dave Foster

Dr. Uri Treisman

50% False Positives
Among 8th Grade Geometry
From CST to SBAC

Re-Orientation

Notes-Oriented Task-Oriented

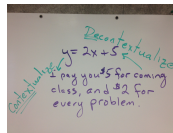
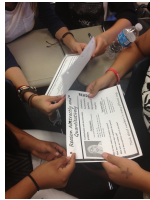
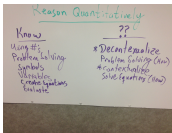
30% *Dual Targets* 70%

Content & Practice

Daily!

Explicit Instruction in Algebra

Target: We will use **order of operations** and **quantitative reasoning** to write expressions for a given value.



Explicit Instruction in Geometry

Target: We will **persevere** in solving problems with **trigonometry**.
"not quit"



*Use Formulas
Substitute
Plot Points
Use Ratios
Test Assumptions
Write an Equations
Guess-n-Check
Measure*

*Common Sense
Fight the Gravity Storm
Use Tools
Reverse the Steps
Draw
Use Properties
Teamwork
Wrestle the Bear*



Let's Teach a Performance Task

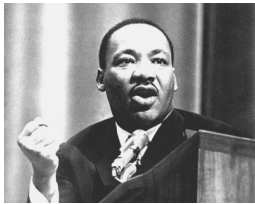
Target: Let's write one!



Which resonates
with you the most?

PASSION





FAITH

Martin Luther King, Jr.



With the *faith* that they can learn
it, and that we can teach it to them.



GOAL = MOVE THE WHOLE TRAIN



Close the True Gap

21st Century Standards

Focus
Gap

Majority Group
Sub-Groups

} True
Gap



Collect and Reflect



Compare
Team Data to the Goal

not
Teacher Data to Teacher Data



Set the Goal

What is the ultimate task that you
would like to see ALL your students do?



TVUSD: Mile Markers



**What will be your
progress monitoring
protocols?**

FAITH



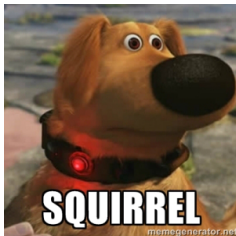


FOCUS

Patton



The Common Scourge



SQUIRREL

[video](#)



What Are Your Donkeys?



*What excuses or
issues do you need
to eliminate?*

*What Priorities do
you need to set?*

FOCUS



The Quiz



The Action Plan

How will you ...

- communicate your **vision**?
- build **relationships**?
- serve your teachers in **The New Classroom**?
- influence your **North**?
- fire up teachers for **Engagement, Boot Camp, & HOTS**?
- develop your **PLC/Data Protocols**?
- clear the **Donkeys** from the Bridge?

A Model

Next Steps



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- How do we write dual targets?
- How do we improve teacher knowledge of content & pedagogy?



Plow Horse

or



Racehorse



Studio Model

not



Factory Model



Coaching Makes a Difference, too.

“Few people can be more confident that they are making a difference than a coach.”

“If you want to make our world a better place, there are few ways more powerful than being a coach.”

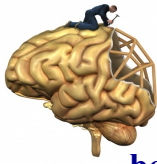


Teachers need their coaches.

-- Jim Knight, University of Kansas



Coach that 21st Century Classroom ...



...with the faith that they
can learn it,
and that we can teach
it to them,

because what teachers do
matters the most;

and they can't do it without you.

www.mathprojects.com



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