Day 1 Objectives

COMMON CORE STATE STANDARDS INITIATIVE

WHAT?

Overview of the Core & the 8 Practices:
Share one new understanding of the SMP.

WHEN?

Explicit Teaching of Critical Thinking:
Share how to combine Content and the Practices.

WHY?

Tasks & SBAC Samples:
Share how our purpose has changed.

GET to the CORE OF THE CORE

COMMON CORE STATE STANDARDS INITIATIVE

Teach students to THINK and COMMUNICATE their thinking.

These are the 21st Century Skills.

MPJ

GET to the CORE OF THE CORE

Think & Communicate

are the 21st Century Skills.

Obtain & Retain

were the 20th Century Skills.

MPJ

The 6 Shifts

engage^ny

We are redefining RIGOR.

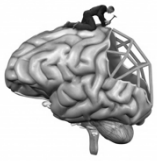
Shift 1	Focus	Teachers significantly narrow and deepen the scope of how time and energy is spent in the math classroom. They do so in order to focus deeply on only the concepts that are prioritized in the standards.
Shift 2	Coherence	Principals and teachers carefully connect the learning within and across grades so that students can build new understanding onto foundations built in previous years.
Shift 3	Fluency	Students are expected to have speed and accuracy with simple calculations; teachers structure class time and/or homework time for students to memorize, through repetition, core functions.
Shift 4	Deep Understanding	Students deeply understand and can operate easily within a math concept before moving on. They learn more than the trick to get the answer right. They learn the ma
Shift 5	Application	Students are expected to use math and choose the appropriate concept for application even when they are not prompted to do so.
Shift 6	Dual Intensity	Students are practicing and understanding. There is more than a balance between these two things in the classroom – both are occurring with intensity.

MPJ

The 4 C's

EdLeader21

We are redefining LEARNING and SCHOOL.



Critical Thinking

Communication

Collaboration

Creativity

60%

MPJ

The 4 Claims

Smarter Balanced Assessment Consortium

We are redefining ASSESSMENT.

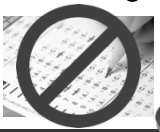
Concepts & Procedures

30%

Critical Thinking

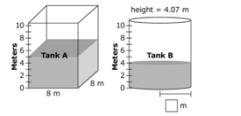
Communicate Reasoning

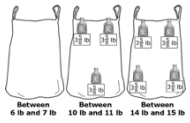
Construct Models



MPJ

What Does This Say About Your New Job Description?





Car	Cost	Miles Per Gallon (MPG)	Estimated Immediate Repairs
Car A	$3200	18	$700
Car B	$4700	24	$300

$5\sqrt{7}$

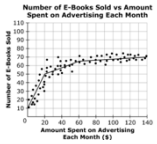
$\sqrt{13}$

$\frac{3^8}{3^6}$

$20-\sqrt{20}$

$(4-2)^{-\frac{1}{2}}$

$8^{\frac{1}{3}}$



23.42
23.18
23.21
23.35
23.24
Men's 50 Meter Freestyle

MPJ

The 8 Practices

COMMON CORE STATE STANDARDS INITIATIVE

We are redefining STANDARDS (expectations) and INSTRUCTION.

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.

MPJ

The 8 Practices

COMMON CORE STATE STANDARDS INITIATIVE

Standards of Content vs Standards of Practice

Fluency

Deep Understanding

Multiplication as Grouping

ELEMENTARY

Multi-Step Word Problems

Explain Reasoning

Algebra 1 Grades 6-9

Statistics

Transformations

Secondary

Exponential Relations

Functions

MPJ

GET to the CORE OF THE CORE

The 6 Shifts
+ The 4 C's
+ The 4 Claims
+ The 8 Practices

= The 21st Century Skills

MPJ

The New Classroom

by Achieve the Core

"In a nutshell, the CCSS expect that, instead of knowing the answer, students must now be able to create the answer, make claims and produce evidence from text to support their claims. Instead of working mathematics problems, students must be able to apply mathematics concepts to real-world situations and write about their thinking in moving to a solution. This change requires a different style of instruction than what many have come to call "sit and get." That means that, in most cases, teachers will have to encourage much more student work and student discourse and engage in far less teacher talk."

MPJ

Practices Posters




What did these posters teach you about the 8 Standards of Practice?




MPJ

Wordle Practices

Match the *Wordle* poster to its corresponding CC Standard of Mathematical Practice?

MPJ

Explicit Teaching of Thinking

HOTS

Dr. John Star

"Math does not teach Problem Solving."

"Only the explicit teaching of thinking teaches thinking."

MPJ

Defining Problem Solving

Exercise	**Problem**	**Crisis**
		
Know How **Have the Ability**	**Don't Know How** **Have the Ability**	**Don't Know How** **Don't Have the Ability**

MPJ

Re-Orientation

Notes-Oriented → **Task-Oriented**

30% ***Dual Targets*** **70%**

Content & Practice

Daily!

MPJ

Being Task-Oriented

What is a Task?

30%

Notes & Drill

70%

"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)

8 Practices

MPJ

Being Task-Oriented

What is a Task?

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

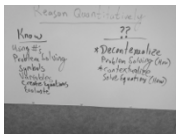
-- Adding it up (2001)

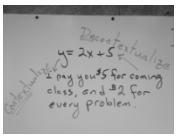
Tasks = Problems used to teach Content & Practices

MPJ

Explicit Instruction in Algebra

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





MPJ

Explicit Instruction in Geometry

"not quit"

Target: We will persevere in solving problems with trigonometry.

Use Formulas	***Common Sense***
Substitute	***Fight the Gravity Storm***
Plot Points	***Use Tools***
Use Ratios	***Reverse the Steps***
Test Assumptions	***Draw***
Write an Equations	***Use Properties***
Guess-n-Check	***Teamwork***
Measure	***Wrestle the Bear***

MPJ

The Take-aways

The Common Core is all about teaching students to *think & communicate,*

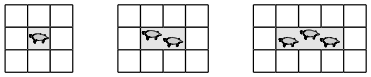
so your *job description* has changed …

to the *explicit teaching* of the Standards of Content & the Standards of Practice by being *task-oriented.*

MPJ

Pig Pen Algebra

p 24



Pig Pen Content Standards

6.EE.6 Use variables to represent numbers.
6.EE.9 Use Variables to represent independent and dependent quantities in a real-world problem.

7.EE.4 Solve words problems leading to the form $px + q = r$.

8.F.4 Construct a function to model a linear relationship between two quantities.

A.SEE.1 Interpret parts of an expression.
A.CED.1 Understand that the graph of an equation in two variables is the set of all solutions.

Lesson Reflection

Desmos

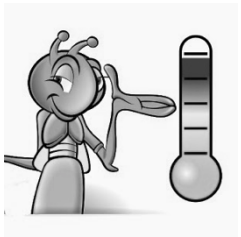
MPJ

Cool Shoes

MPJ

The SBAC Task

Smarter Balanced Assessment Consortium



MPJ

The SBAC Task

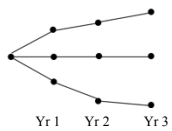
How does this redefine math education?

MPJ

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



MPJ

Teach students to *think & communicate, explicitly* through *tasks* …

…with the faith that they can learn it,

and that we can teach it to them,

because what we do matters the most.

www.mathprojects.com

MPJ