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Math Common Core Standards

"Toward Greater Focus and Coherence"

Focus Schools: Gr. 3-5
Professional Learning
Session I

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Agenda

I. Setting the Stage

II. The Characteristics of Learners

III. Trying on the Math

Break

IV. Pre-Assessment

V. Orientation to the Math Common Core Standards

Lunch

VI. Math Practices in Action

VII. Collaborative Planning Time

VIII. Reflection and Evaluation

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Setting the Stage

- Welcome
- Rationale & Purpose
- Grant Expectations
- Smarter Balanced Update
- Workshop Norms

Strategic Plan 2010-14

Pillar One:

Career and College Ready Students

Common Core Standards (CCS) Focus

The focus of the CCS is to guarantee that all students are college and career ready as they exit from high school.

Cautions: Implementing the CCSS is…

- Not about "gap analysis"
- Not about buying a text series
- Not a march through the standards
- Not about breaking apart each standard

Mathematical Understanding

Looks Like…

"One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, *why* a particular mathematical statement is true or where a mathematical rule comes from."

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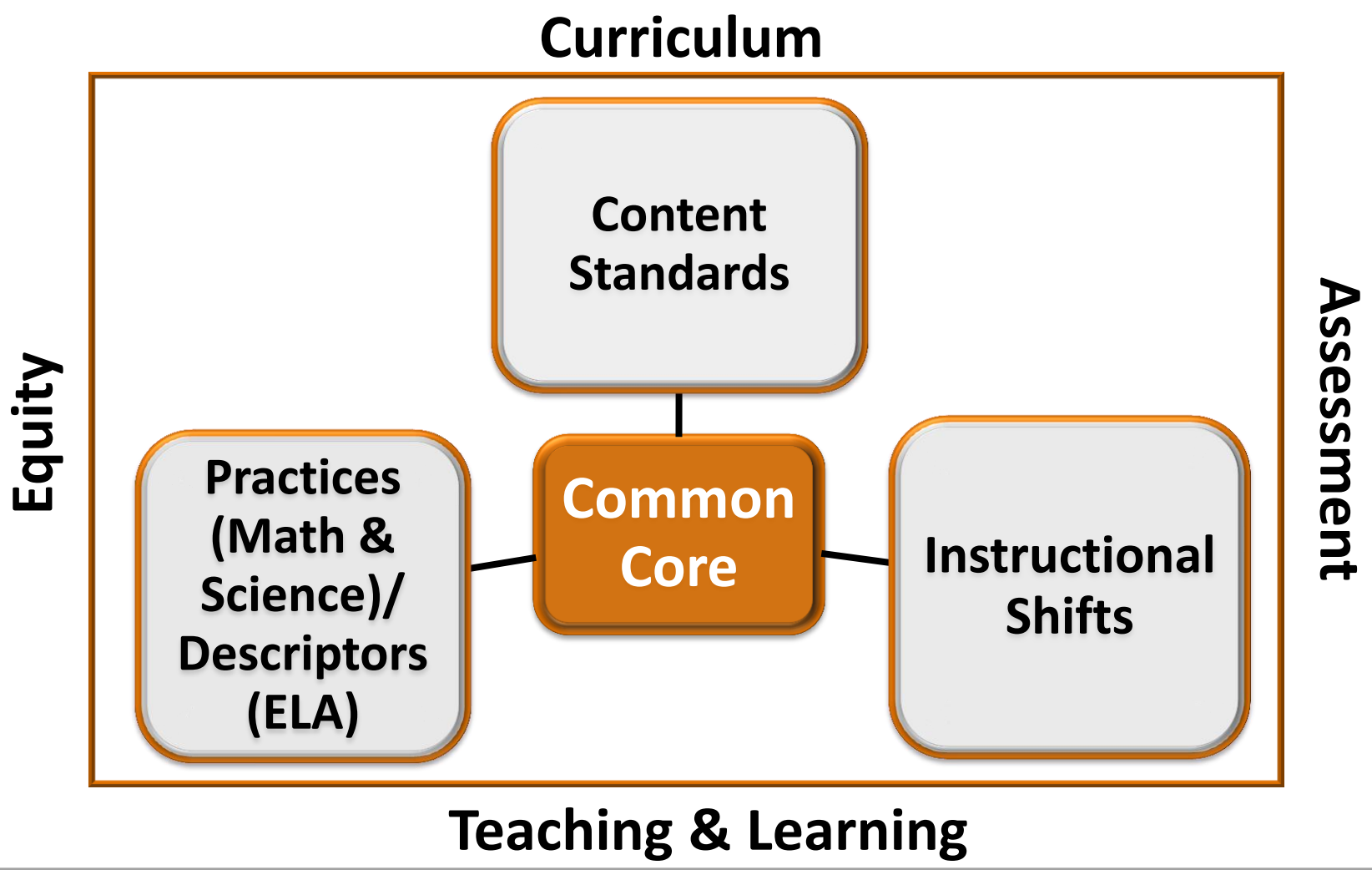
Common Core Standards Framework



2012-13 Focus Areas

- Domains
  - Gr. 3-5: Number and Operations - Fractions
  - Gr. 6-7: Ratios and Proportional Reasoning & The Number System
  - Gr. 8: Expressions and Equations & Functions
- Mathematical Practices
  1. Make sense of problems and persevere in solving them
  4. Model with mathematics
  6. Attend to precision

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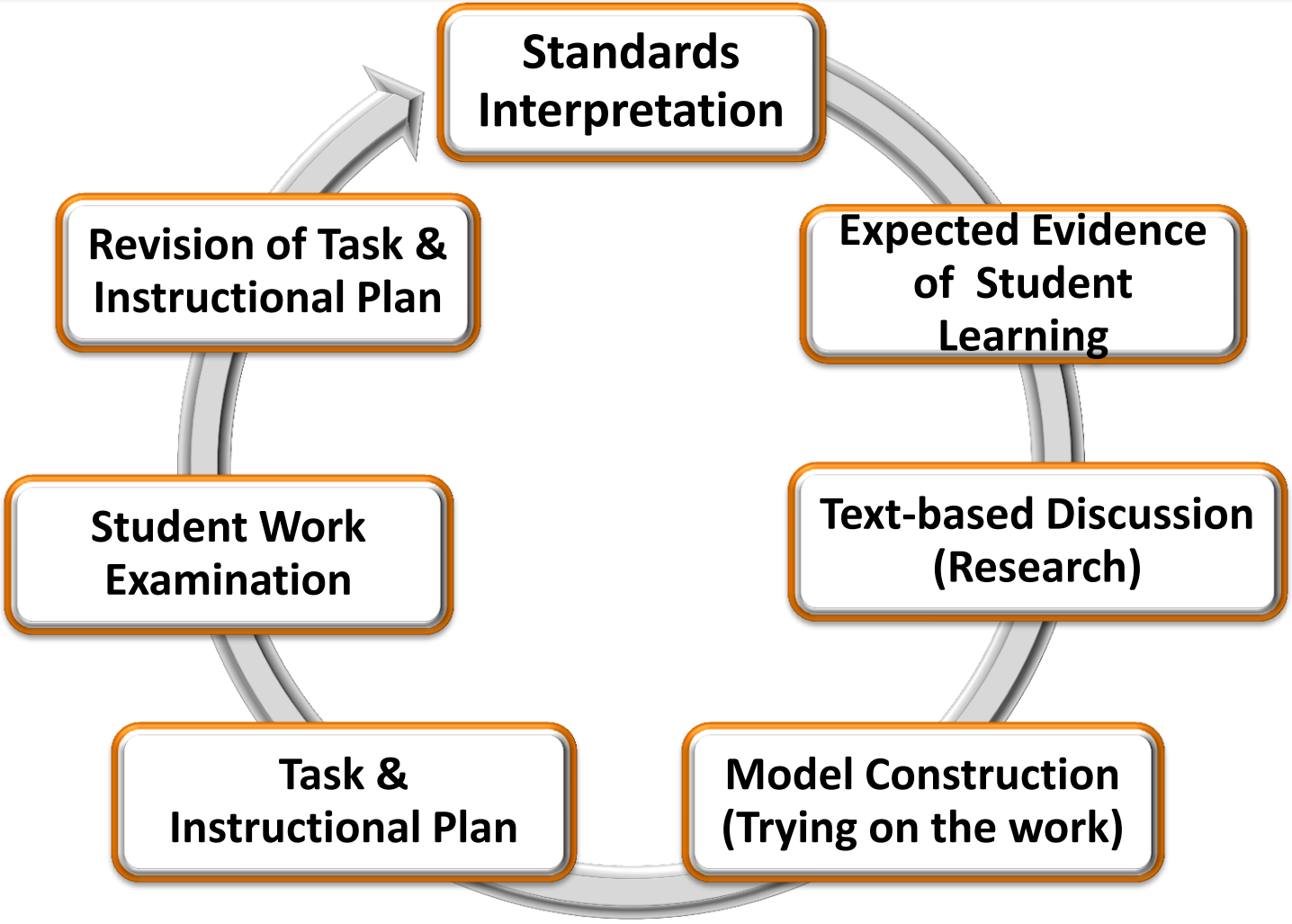
Design Methodology



Grant Expectations

- District PL: Oct. 8, Dec. 11, Feb. 15, & May 20
- On-site PL: Twice During the Year
  (When will be determined by each site)
- Monthly Coaching Support
- 8 Hours of Common Planning
- Pre-assessment
- Summer Institute: Date TBD

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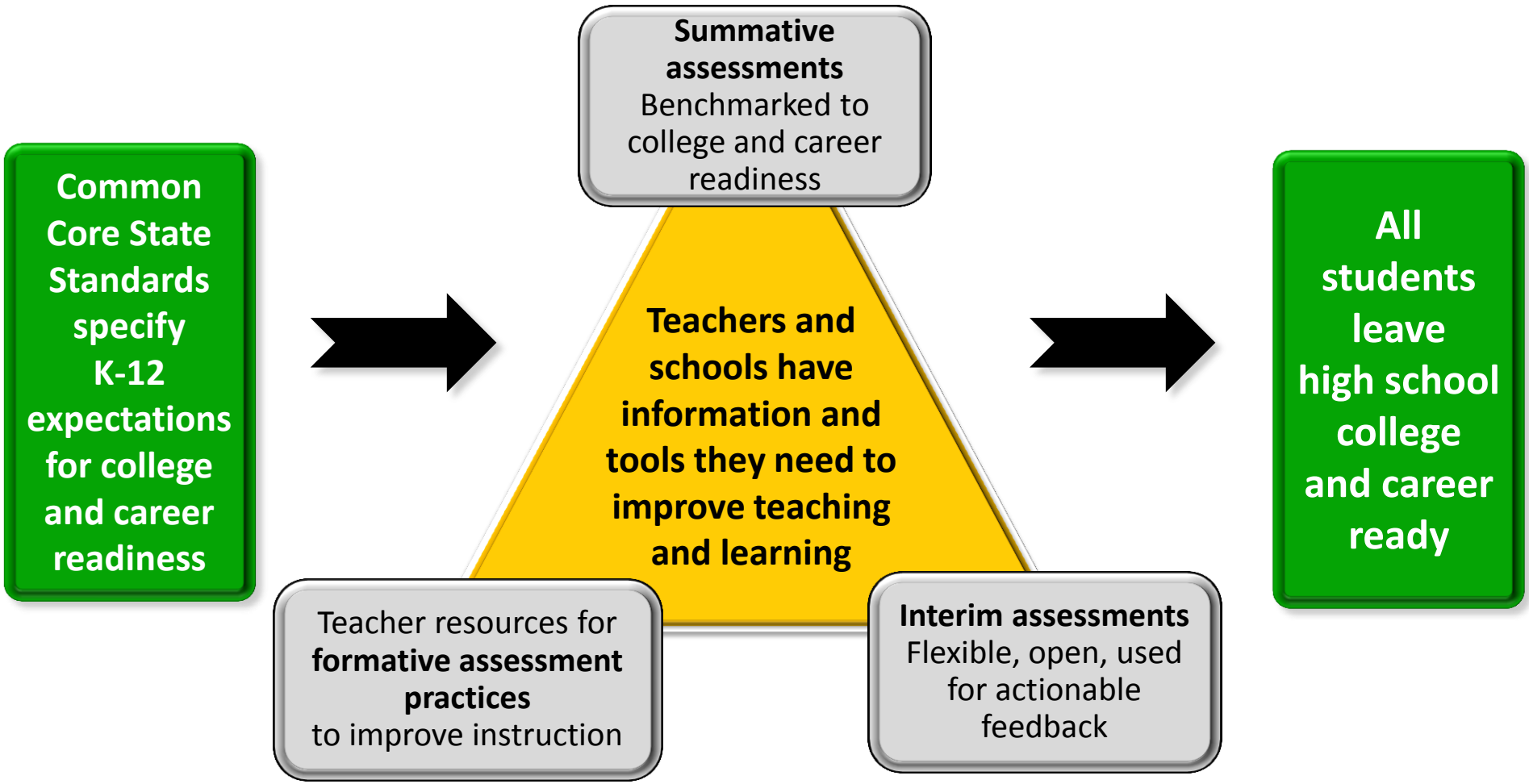
Smarter Balanced
A Balanced Assessment System



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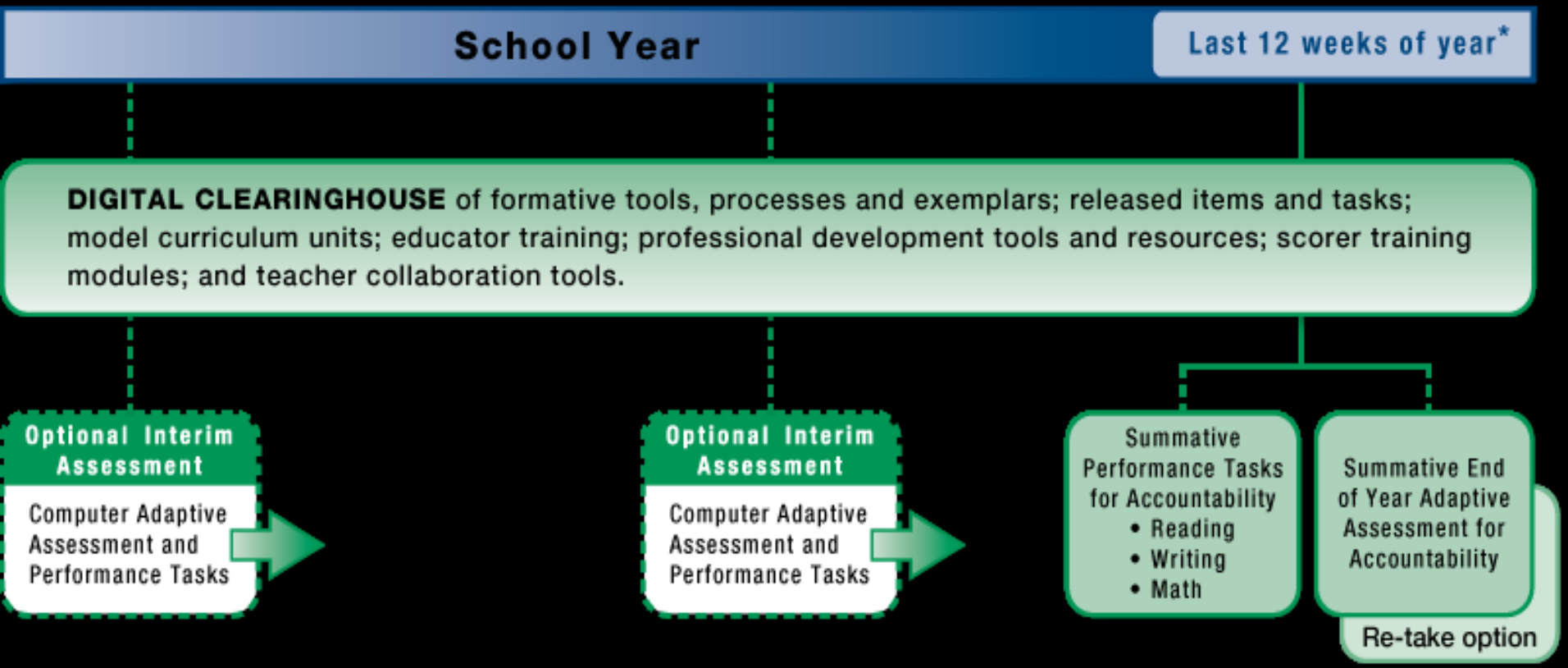
Smarter Balanced : A Balanced Assessment System



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Workshop Norms

- Actively Engage (phones off or on "silent")
- Ask questions
- Share ideas
- Focus on what we can do
- Learn with and from each other
- Have fun and celebrate!

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Introductions

Introduce yourself at your table:

- Name
- School
- Grade level

Characteristics of Learners

What are your perceptions of an excellent reader?

What are your perceptions of an excellent math learner?

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Trying on the Math – Math Puzzlers

- On your own, determine the value of the missing number on each number line.
- Share your thinking with your partner.
- With your partner, order the number lines from *easiest* to *hardest*
  - Use scissors to cut out and physically order your number lines
- Share your findings with your table

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Break

10 Minutes

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Pre-Assessment

- Rationale
- Anonymous
- Make your code: The first 2 letters of your mother's maiden name and one more than your birth date (*day* only)

Example: Maiden name: Gold

Birthday: March 24, 1974

Code = GO25

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Orientation to the CCSS

"Toward Greater Focus and Coherence"

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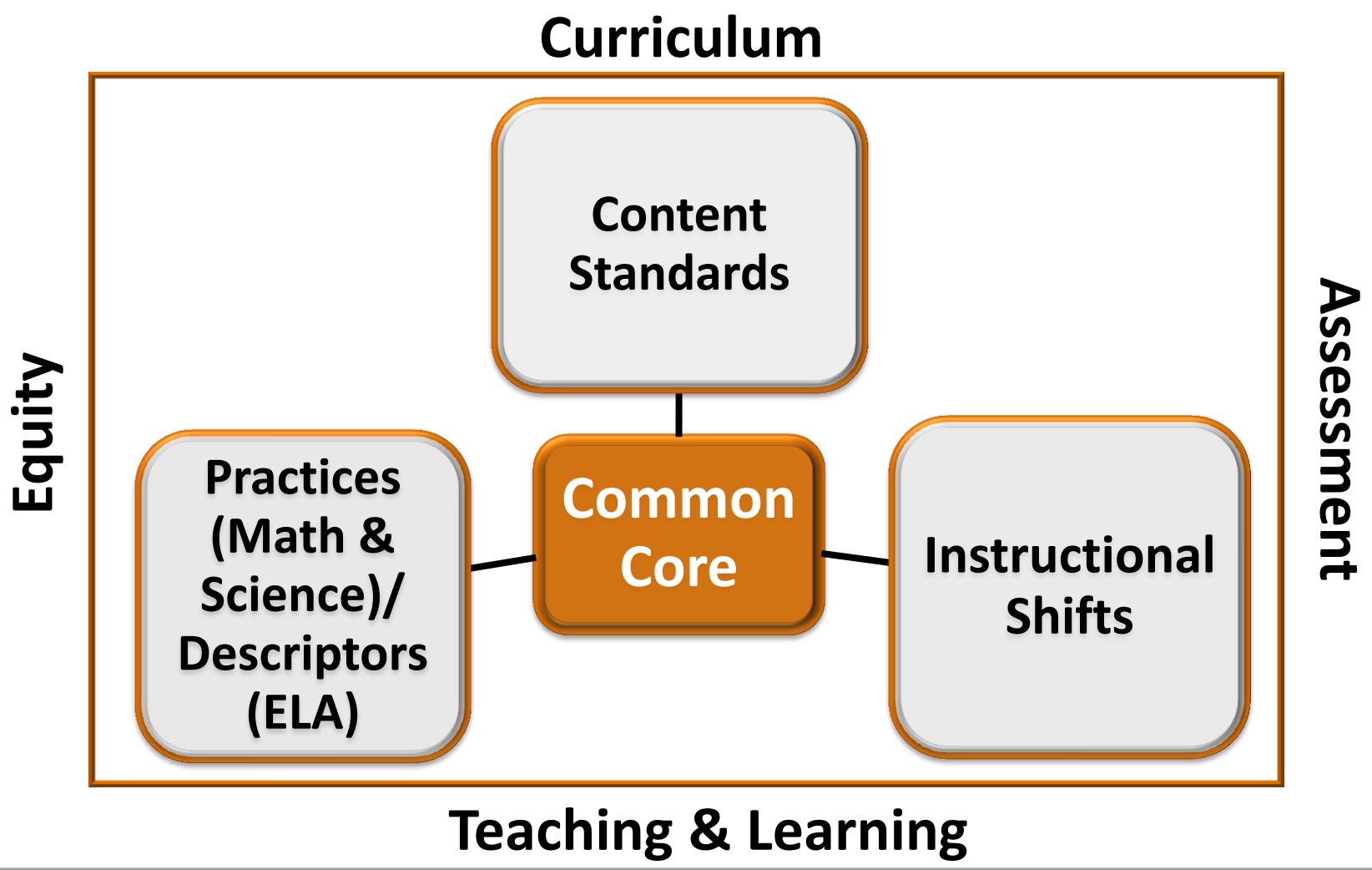
Common Core Standards Framework



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Standards for Mathematical Practice

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.

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Math Content Standards Format

- **Domains** are larger groups of related standards. Standards from different domains may sometimes be closely related.
- **Clusters** are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.
- **Standards** define what students should understand and be able to do.

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Format Example

Domain

Number and Operations in Base Ten **3.NBT**

Use place value understanding and properties of operations to perform multi-digit arithmetic.

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Standard

Cluster

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Learning Progression Across Domains

K	1	2	3	4	5	6	7	8	9-12
Counting & Cardinality									
Number and Operations in Base Ten						Ratios and Proportional Relationships			Number & Quantity
			Number and Operations – Fractions			The Number System			
Operations and Algebraic Thinking						Expressions and Equations			Algebra
							Functions		Functions
Geometry									Geometry
Measurement and Data						Statistics and Probability			Statistics & Probability

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Math Instructional Shifts

- Focus
- Coherence
- Fluency
- Deep Understanding
- Application
- Dual Intensity

Rigor

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Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them ***
6. Attend to precision ***

2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others

4. Model with mathematics ***
5. Use appropriate tools strategically

7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Legend

- Reasoning & Explaining
- Modeling & Using Tools
- Seeing Structure & Generalizing
- Overarching Habits of Mind of a Productive Mathematical Thinker

Digging into the Math Practices

- Silently, read *Math Practice 1. Make Sense of Problems and Persevere in Solving Them*
- Note 2-3 key ideas that struck you

Digging into the Math Practices

- At your table:
  - –Paraphrase what the person before you shared
  - –Share 1 key idea

  (first speaker will paraphrase the last speaker)

Digging into the Math Practices

Connect Practice #1 back to Math Puzzlers

- Identify times when you were making sense of the problem
- Identify times when you were persevering
- What things prompted you to make sense of problems and persevere in solving them?
- What else is evident in Practice #1 that you did not identify from the Math Puzzlers activity?

Digging into the Math Practices

- Silently, read *Math Practice #6: Attend to Precision*
- Note 2-3 key ideas that struck you

Digging into the Math Practices

- At your table:
  - Paraphrase what the person before you shared
  - Share 1 key idea

  (first speaker will paraphrase the last speaker)

Digging into the Math Practices

Connect Practice 6 back to Math Puzzlers

- Identify times when you were making sense of the problem
- Identify times when you were persevering
- What things prompted you to make sense of problems and persevere in solving them?
- What else is evident in Practice 6 that you did not identify from the Math Puzzlers activity?

Digging into the Math Practices

- Silently, read *Math Practice 4: Model with Mathematics*
- Note 2-3 key ideas that struck you

Digging into the Math Practices

- At your table:
  - Paraphrase what the person before you shared
  - Share 1 key idea

  (first speaker will paraphrase the last speaker)

Digging into the Math Practices

Connect Practice #4 back to Math Puzzlers

- Definition of “Model”

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Lunch

1 hour ~ Enjoy!

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Math Practices in Action

Fractions on a Number Line

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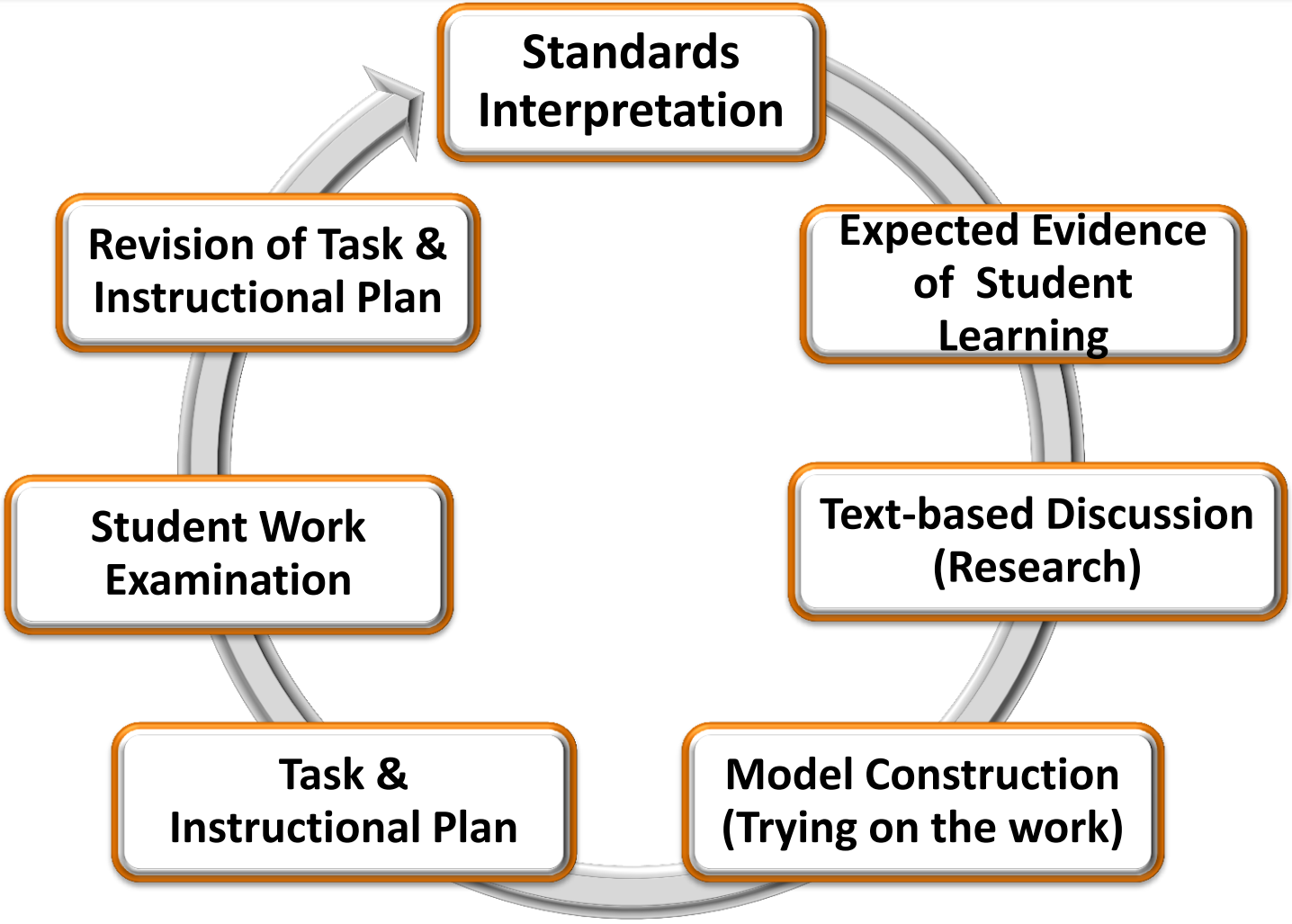
Design Methodology



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Collaborative Planning

To be continued on your released day at your site:

- Choose a standard that you will be teaching in the next few weeks.
- Collaboratively with your colleagues, build a lesson that:

  Demonstrates 1 or more of the focused Math Practices: 1, 4, 6.
- Use the "Planning Guide" document to clearly describe your lesson.
- Engage your students in this lesson before we meet again.

For our next whole-group session, please bring:

- Your completed "Planning Guide" document
- Evidence from the lesson
  - Samples of student work from 3 focal students

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Resources

www.corestandards.org
www.illustrativemathematics.org
www.cmc-math.org
www.achievethecore.org
www.insidemathematics.org
www.commoncoretools.me
www.engageNY.org
http://www.smarterbalanced.org/smarter-balanced-assessments/#item

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Reflection and Evaluation

On the back of your evaluation form, please elaborate on Item #1 by answering the following question:

What is something that you know now about the Mathematics Common Core State Standards that you did not know when you got here this morning?