

# Implementing the Common Core: What Does It Look Like, Sound Like and Feel Like?

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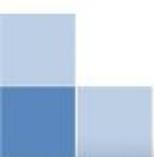


# Framework for Success

- Engaged Leadership
- Engaged Teachers
- Engaged Students



# Instructional Shifts in Mathematics



# Shift #1: Focus Strongly where the Standards Focus



- Significantly narrow the scope of content and deepen how time and energy is spent in the math classroom.
- Focus deeply on what is emphasized in the standards, so that students gain strong foundations.

# Traditional U.S. Approach



**K**

**12**

**Number and  
Operations**



**Measurement  
and Geometry**



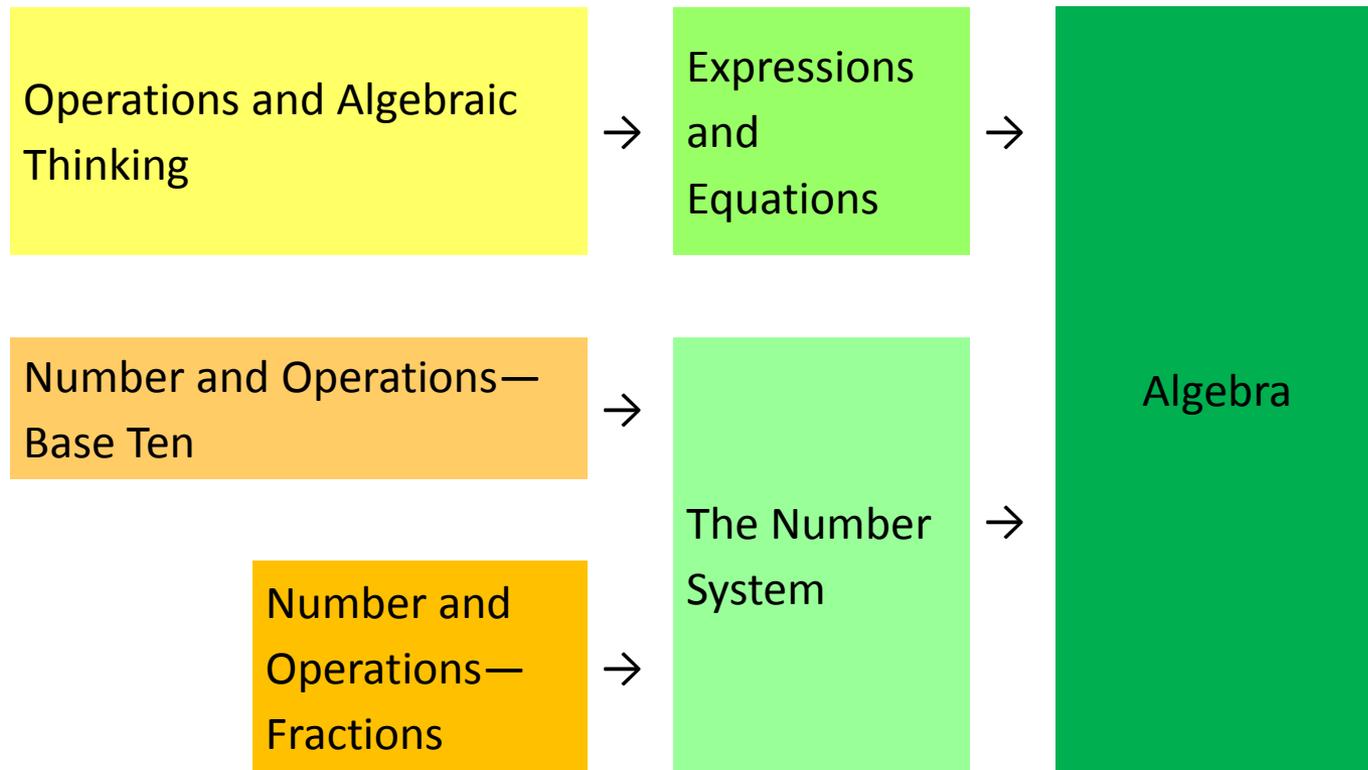
**Algebra and  
Functions**



**Statistics and  
Probability**



# Focusing Attention Within Number and Operations



K 1 2 3 4 5 6 7 8 High School



# Shift #2: Coherence: Think Across Grades, and Link to Major Topics Within Grades

- Carefully connect the learning within and across grades so that students can build new understanding on foundations built in previous years.
- Begin to count on solid conceptual understanding of core content and build on it. Each standard is not a new event, but an extension of previous learning.



# Coherence: *Think* Across Grades

## *Example: Fractions*

“The **coherence** and sequential nature of mathematics dictate the foundational skills that are necessary for the learning of algebra. The most important foundational skill not presently developed appears to be proficiency with fractions (including decimals, percents, and negative fractions). **The teaching of fractions must be acknowledged as critically important and improved before an increase in student achievement in algebra can be expected.**”

Final Report of the National Mathematics Advisory Panel (2008, p. 18)



# Coherence: *Link* to Major Topics Within Grades

## *Example: Data Representation*

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

Standard  
3.MD.3

# Coherence: *Link* to Major Topics Within Grades



*Example: Geometric Measurement*

**Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**

3.MD, third  
cluster

# Shift #3: Rigor: In Major Topics, Pursue Conceptual Understanding, Procedural Skill and Fluency, and

## Application

- The CCSSM require a balance of:
  - Solid conceptual understanding
  - Procedural skill and fluency
  - Application of skills in problem solving situations
- Pursuit of all three requires equal intensity in time, activities, and resources



# 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.

**Don't Bureaucratize**

# Leadership





# Leadership

- *“If you attempt to implement reforms but fail to engage the culture of a school, nothing will change.”*

— *Seymour Sarason*



# Leadership

Schools with strong cultures have leaders who focus on four general areas:

- Through frequent conversations, school leaders keep the focus on learning by acting as a catalyst to build partnerships with teacher leaders, instructional and literacy coaches, and technology specialists.
- Build collaborative cultures characterized by conversations centered around student learning and reflective inquiry, shared ownership, and short- and long-term thinking.



# Leadership

Schools with strong cultures have leaders who focus on four general areas:

- Build trust through shared decision making, frequent communications, frequent visits to classrooms and consistency over time.
- Grow leaders by creating opportunities for teacher leadership to emerge and by sharing and distributing leadership throughout the school. This prepares schools for the reality that “many tasks... require many leaders.”

# Teachers

A decorative graphic consisting of several overlapping, parallel, slanted rectangular bars in shades of yellow, gold, and brown, extending from the left edge of the slide towards the center.

When you're finished changing,  
you're finished.

-Ben Franklin

A decorative graphic consisting of several overlapping, parallel, slanted rectangular bars in shades of yellow, orange, and brown, extending from the left edge of the slide towards the center.



# Teachers

- The CCSS include much greater **focus**: Students have less content to learn in a particular year, yet the expectation for the content to be learned is deeper.
- The expectations are more **coherent**: Standards within a grade work together to deepen student learning and also logically progress across grades to support content development, and the extent to which these two types of coherence exist will not be easily seen through common methods of cross-walking old standards with the CCSS. Rather, deep study of the CCSS is necessary.



# Teachers

- There is a much stronger **balance** among procedure, application and understanding: Students will be expected to know not only *how* to do mathematics (e.g., work problems) but also *how* and *why* to apply mathematics concepts to real-world situations. Most state standards expect procedure from students, making school mathematics a 12-year process of learning tricks. The CCSS expect students to deeply understand why mathematics functions as it does and how to apply mathematics to novel situations, particularly through the **modeling** expectations.



# Teachers

What Does This Mean  
for Our Teachers?



Collaboration  
Collaboration  
Collaboration



# Teachers

- Collaborative Professional Development
- Collaborative Professional Learning Communities
- Collaborative Planning
- Collaborative Classroom



# Professional Development

- Small group, collaborative models
- Work from both the student and teacher perspective on classroom mathematics and beyond
- Just in time, embedded instructional PD
- Peer observation and feedback



# Professional Learning Communities/Planning

- Vertical and horizontal planning
- Collaborate with colleagues to create action plans (pacing guides, curriculum maps, data walls to drive instruction, etc.)
- Do the Math! Teachers should spend time doing the mathematics in order to prepare good questions and anticipate student misconceptions
- Meet frequently and consistently



# Classroom Collaboration

What Does This Look Like?



# Look Like

- Small groups working collaboratively to solve authentic high level tasks
- More teacher facilitating, less direct instruction
- Frequent formative assessment
- High student engagement



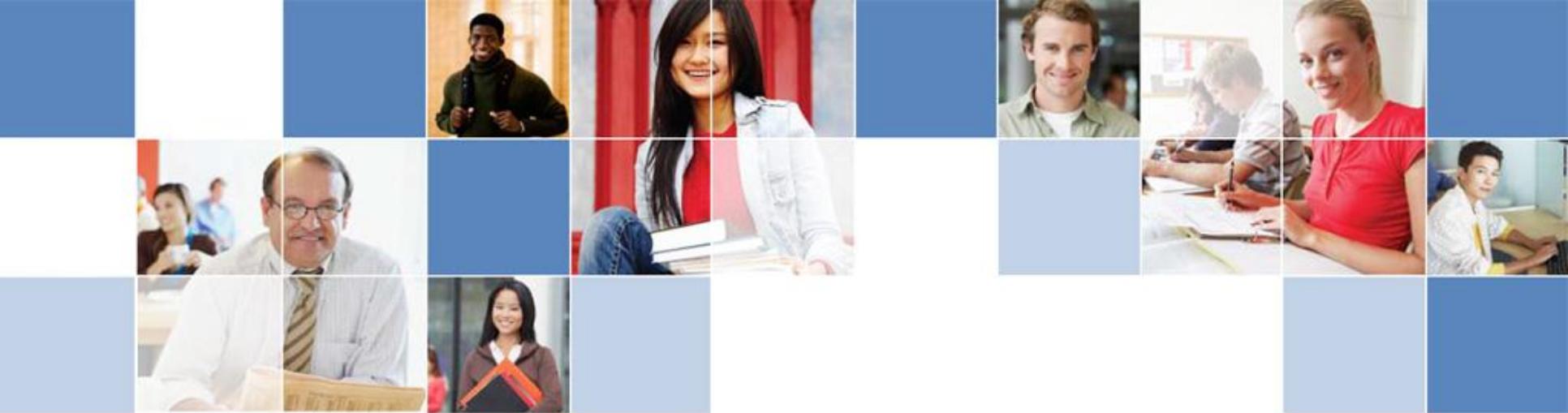
# Sound Like

- Productive noise
- On task student discourse
- Teacher providing appropriate scaffolding and support in the form of prompts and good questioning



# Feel Like

- Safe environment where all students feel valued
- Environment where students are excited to learn and eagerly participate
- Environment where teacher serves as lead learner



# Classroom



# Classroom

- How does the simple use of a timer or stop watch enhance the activity?
- How is this memorization activity" more effective than typical rote memory activities?
- Notice how this activity sets the stage for student discourse and group problem-solving



# Collaboration Strategies

- Establish group agreements
  - Decide on flexible group norms
  - Keep groups midsized (4-5)
  - Assign roles if necessary
    - For larger groups
    - To assure individual accountability
  - Create a pre-test and post-test
    - Gives group a goal to work towards



# Collaboration Strategies

- Teach Them How to Listen
  - Save the Last Word
    - First student speaks, other students speak in turn, first student gives last word
  - Three Then Me
    - After a student speaks, then the other three must contribute before that student speaks again



# Collaboration Strategies

- Teach Them the Art of Asking Good Questions
  - Open-ended
  - Prompts
    - When you think about \_\_\_\_\_, what comes to mind?
    - Considering what we already know about \_\_\_\_\_, how will we \_\_\_\_\_?
  - WAIT TIME!



# Collaboration Strategies

- Teach Them How to Negotiate
  - Build a Consensus
    - Compromise
    - Listen
    - Consider group goals



# Collaboration Strategies

- Teach Them How to Build Trust
  - Promote open communication
    - Assignments should encourage team members to explain concepts thoroughly to each other
  - Allow groups to reduce anxiety
    - Group learning may provide a source of support
    - Peer to peer teaching



# Collaboration Strategies

- Model What We Expect
  - Model listening
  - Paraphrasing
  - Artful Questioning
  - Negotiation



# Collaboration Strategies

- Choosing Tasks
  - Use real world problems
  - Focus on enhancing problem solving and critical thinking skills
  - Use technology whenever you can
  - Consider the learning process itself as part of assessment
    - Assessing the process itself provides motivation for students to learn how to behave in groups.



# How Do I Get Quality Student Work?

# How Do We Get High Quality Student Work?



- **Did I use rubrics and exemplars to help students understand the quality of work expected?**
  - Find exemplars of the kind of work required
  - Have students help create rubrics



# How Do We Get High Quality Student Work?

- **Did my task include effective formative assessment?**
  - **Revision and Reflection**
    - **Give and receive feedback – and use it to improve work**
      - Peer critique
      - Critical Friends
      - Gallery Walks

# How Do We Get High Quality Student Work?



- **Did students have enough time to revise and polish their work?**
  - Resist the need to “cover” material and allow students time to reflect and revise after feedback is given thus giving students more opportunity to master concepts

# How Do We Get High Quality Student Work?



- **Did the task feel authentic enough to motivate students – did they care?**
  - Moving student attitudes from getting it done to doing it well

# How Do We Get High Quality Student Work?



- **Does my classroom – and my school – cultivate a culture of quality?**
  - **Classroom structures and rituals**
  - **Expectations and beliefs**

“We are what we repeatedly do. Excellence, therefore, is not an act but a habit.”

-Aristotle



# References

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