

**Preparing New Teachers for Common Core
CCSS Math Resources
Math Instructional Shifts Chart**

Shift #1--Focus strongly where the Standards focus	
Shift from:	To:
<ul style="list-style-type: none"> • Cover topics in mile-wide, inch-deep fashion • Skills repeated in Standards from grade-to-grade • Progression through Standards, often neglecting foundational skills • Math skills in isolation 	<ul style="list-style-type: none"> • Narrow and deepen the way time and energy is spent in the math classroom • Major work of each grade: K-2: Addition and subtraction; concepts, skills, and problem solving 3-5: Multiplication and division of whole numbers and fractions; concepts, skills, and problem solving 6: Ratios and proportional relationships; early expression and equations 7: Ratios and proportional relationships; arithmetic of rational numbers 8: Linear algebra 9-12: Number and quantity; algebra, functions, modeling, geometry, statistics, and probability • Strong foundations, solid conceptual understanding, and a high degree of procedural skill and fluency • Apply math skills to solve problems inside and outside the math classroom
Shift #2--Coherence: think across grades, and link to major topics within grades	
Shift from:	To:
<ul style="list-style-type: none"> • Standards not coherently linked from grade to grade • Cycle of review of basic skills/presentation of new skill/practice of new skill • Each standard a new event • Major topics detract from focus of grade level work 	<ul style="list-style-type: none"> • Coherent progression from grade to grade • Carefully connected learning across grades so that students can build new understanding onto foundations built in previous years • Extension of previous learning • Major topics support grade level work

Shift #3--Rigor: in major topics pursue: **conceptual understanding**, procedural skill and **fluency**, and **application** with equal intensity

Shift from:

- Math as a set of mnemonics or discrete procedures
- Drill and kill practices
- Math problems often out of context
- Math is only taught in Math class

To:

- Ability to access concepts from a number of perspectives
- Structure class time and/or homework time for practice on core functions; students have access to more complex concepts and procedures
- Apply math in context
- Teachers in other content areas ensure that students are using math to make meaning of and access content.

Emphasis on 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.