

Mathematical Learning in the Common Core Era

Common Core Instructional Shifts, Emphases and Best Teaching Practices

The 8 Standards for Mathematical Practice	<p>Math tasks should: (1) have a low entry and high ceiling; (2) promote discussion; (3) allow/require students to make decisions; (4) allow for different approaches and/or different solutions; (5) be “problematic”</p> <ul style="list-style-type: none"> • Transforming routine problems into non-routine tasks • Inquiry-based instruction • Effective questioning strategies • Teaching Math Practices as content and through content • Developing explicit general strategies of problem-solving • Facilitating productive struggle • Developing a growth mindset and perseverance through productive struggle
Rich, challenging, non-routine tasks	<ul style="list-style-type: none"> • Student presentation/representation (and revision) of their work • Making student thinking visible • Analyzing student work – providing focused feedback • <i>Student</i> analysis of <i>student</i> reasoning and methods • Productive eliciting and use of misunderstandings and mistakes. They are the growing pains of experimentation and learning. • Emphasis on process/method • Writing as thinking/Math logs
Application & Targeting deep conceptual understanding	<ul style="list-style-type: none"> • Presenting problems before offering explanations – Students “learning on the job” (as opposed to only giving problems after you’ve showed them how to solve similar problems) • Focus on fewer math topics and go deeper into the topics you teach. Teach “less” so students can learn more. • Approach concepts from multiple perspectives and apply them in new situations (both within and outside of the study of mathematics) • Make deep and real world connections through mathematics.
Coherence	<ul style="list-style-type: none"> • Building on the knowledge students bring to each activity/concept/class • Connections between mathematical topics
Fluency	<ul style="list-style-type: none"> • Number Talks • Mental math

