

## What to see in the Mathematics Classroom...

<b>STUDENTS</b> who are:	Rather than:
<b>Working together</b> solving <b>problems with real-world applications</b> of mathematical concepts	Doing problems in isolation
<b>Actively engaged</b> in mathematics through reading, writing and oral communication	Sitting and listening
<b>Communicating</b> mathematical concepts to one another	Finding answers alone
<b>Reasoning</b> through problems to reach solutions	Memorizing procedures
<b>Listening</b> to one another and <b>questioning</b> each other	Answering only teacher questions
<b>Using technology</b> for exploration and insight	Using technology for simple calculations

<b>TEACHERS</b> who are:	Rather than:
<b>Engaging students</b> in concepts through <b>investigations</b> and discovery learning	Emphasizing correct answers
<b>Using questions</b> such as "why", "explain", "justify", "elaborate", to draw out higher level thinking	Telling and explaining
<b>Using multiple representations</b> to relate skills and symbol manipulations to functions, tables, and graphs	Emphasizing rote multi-step manipulations
<b>Making connections</b> and building upon previous knowledge in mathematics and other disciplines	Talking about mathematics in isolation
<b>Facilitating and guiding</b> learning through questioning, monitoring, and evaluating	Disseminating knowledge
<b>Assessing</b> student achievement in multiple ways including reports, demonstrations, projects, portfolios, performance assessments, tests (both oral and written), and total physical response for English Language Learners	Relying solely on written tests
<b>Using assessments</b> to guide instruction and evaluate students	Assessing to assign grades
<b>Grading students using rubrics</b> that are clearly understood by all students	Grading using unclear or undefined criteria
<b>Planning</b> with objectives, expectations, and assessments in mind	Following the textbook

## 8 Standards of Mathematical Practice

<u>Practice:</u>	<u>Kid Friendly Language:</u>
<b>1. Make sense of problems and persevere in solving them.</b>	When given a problem, I can make a plan, carry out my plan, evaluate its success, and try again if needed.
<b>2. Reason abstractly and quantitatively.</b>	I can take numbers and put them in a real-world context.  I can take numbers out of context and work mathematically with them.
<b>3. Construct viable arguments and critique the reasoning of others.</b>	I can construct, justify, and communicate arguments.  I can critique the reasoning of others.
<b>4. Model with mathematics.</b>	I can recognize math in life.  I can use math I know to solve problems in a variety of ways.
<b>5. Use appropriate tools strategically.</b>	I know how and when to use tools to help me explore and deepen my math understanding.
<b>6. Attend to precision.</b>	I can solve problems accurately and efficiently.  I can communicate my ideas using clear, mathematical language.
<b>7. Look for and make use of structure.</b>	I can break problems into smaller pieces to see the whole.  I can look at situations in more than one way and use what I already know to learn something new.
<b>8. Look for and express regularity in repeated reasoning.</b>	I notice similarities within and between problems.  I look for patterns and draw conclusions.  I ask myself if my answer makes sense.