MATH | Standards for Mathematical Practice in Action

Practice	Sample Student Evidence	Sample Teacher Actions
1. Make sense of problems and persevere in solving them.	☐ Display sense-making behaviors. ☐ Show patience and listen to others. ☐ Turn and talk for first steps or generate a solution plan. ☐ Analyze information in problems. ☐ Use and recall multiple strategies. ☐ Self-evaluate and redirect. ☐ Assess the reasonableness of process and answer.	☐ Provide open-ended problems. ☐ Ask probing questions. ☐ Probe student responses. ☐ Promote and value discourse. ☐ Promote collaboration. ☐ Model and accept multiple approaches.
2. Reason abstractly and quantitatively.	☐ Represent abstract and contextual situations symbolically. ☐ Interpret problems logically in context. ☐ Estimate for reasonableness. ☐ Make connections, including real-life situations. ☐ Create and use multiple representations. ☐ Visualize problems. ☐ Put symbolic problems into context.	☐ Model context to symbol and symbol to context. ☐ Create problems such as, "What word problem will this equation solve?" ☐ Give real-world situations. ☐ Offer authentic performance tasks. ☐ Place less emphasis on the answer. ☐ Value invented strategies. ☐ Think aloud.
3. Construct viable arguments and critique the reasoning of others.	☐ Question others. ☐ Use examples and nonexamples. ☐ Support beliefs and challenges with mathematical evidence. ☐ Form logical arguments with conjectures and counterexamples. ☐ Use multiple representations for evidence. ☐ Listen and respond to others well. ☐ Use precise mathematical vocabulary.	☐ Create a safe and collaborative environment. ☐ Model respectful discourse behaviors. ☐ Provide find-the-error problems. ☐ Promote student-to-student discourse (do not mediate discussion). ☐ Plan effective questions or Socratic formats. ☐ Provide time and value discourse.
4. Model with mathematics.	☐ Connect math (numbers and symbols) to real-life situations. ☐ Symbolize real-world problems with math. ☐ Make sense of mathematics. ☐ Apply prior knowledge to solve problems. ☐ Choose and apply representations, manipulatives, and other models to solve problems. ☐ Use strategies to make problems simpler. ☐ Use estimation and logic to check the reasonableness of an answer.	☐ Model reasoning skills. ☐ Provide meaningful, real-world, authentic, performance-based tasks. ☐ Make appropriate tools available. ☐ Model various modeling techniques. ☐ Accept and value multiple approaches and representations.
5. Use appropriate tools strategically.	☐ Choose appropriate tool(s) for a given problem. ☐ Use technology to deepen understanding. ☐ Identify and locate resources. ☐ Defend mathematically the choice of a tool.	☐ Provide a toolbox at all times with all available tools; students then choose as needed. ☐ Model tool use, especially technology for understanding.

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Practice	Sample Student Evidence	Sample Teacher Actions
6. Attend to precision.	☐ Communicate (orally and in writing) with precise vocabulary. ☐ Carefully formulate questions and explanations (not retelling steps). ☐ Decode and interpret the meaning of symbols. ☐ Pay attention to units, labeling, scale, and so forth. ☐ Calculate accurately and effectively. ☐ Express answers within context when appropriate.	☐ Model problem-solving strategies. ☐ Give explicit and precise instruction. ☐ Ask probing questions. ☐ Use English language arts strategies of decoding, comprehending, and text-to-self connections for interpreting symbolic and contextual math problems. ☐ Guided inquiry.
7. Look for and make use of structure.	☐ Look for, identify, and interpret patterns and structures. ☐ Make connections to skills and strategies previously learned to solve new problems and tasks. ☐ Breakdown complex problems into simpler and more manageable chunks. ☐ Use multiple representations for quantities. ☐ View complicated quantities as both a single object and a composition of objects.	☐ Let students explore and explain patterns. ☐ Use open-ended questioning. ☐ Prompt students to make connections and choose problems that foster connections. ☐ Ask for multiple interpretations of quantities.
8. Look for and express regularity in repeated reasoning.	☐ Design and state shortcuts. ☐ Generate rules from repeated reasoning or practice (e.g., integer operations). ☐ Evaluate the reasonableness of intermediate steps. ☐ Make generalizations.	☐ Provide tasks that allow students to generalize. ☐ Don't teach steps or rules, but allow students to explore and generalize to discover and formalize. ☐ Ask deliberate questions. ☐ Create strategic and purposeful check-in points.

Source: Adapted from "Common Core Look Fors (CCL4s)" (iPad App). Adapted from NCSM Summer Leadership Academy, June, 2011, Atlanta, Ga.