

Standards for Mathematical Practice: Activity Cards

<ul style="list-style-type: none"> ▪ Create a classroom environment where students can explore and explain patterns ▪ Use open-ended questioning that require students to make connections between previously worked problems that appeared difficult or complex ▪ Purposefully and intentionally help students make connections between different algorithms that incorporate different properties <p style="text-align: center;">CARD #1</p>	<ul style="list-style-type: none"> ▪ Display sense-making behaviors ▪ Show patience and listen to others ▪ Analyze the information in the problem ▪ Use and recall multiple strategies for solving a problem ▪ Self-evaluate and redirect ▪ Check their thinking by asking, “Does this make sense?” ▪ Assess reasonableness of process and answer ▪ Learning in a classroom environment where “struggle” is expected and okay <p style="text-align: center;">CARD #2</p>
<ul style="list-style-type: none"> ▪ Create and use multiple representations ▪ Represent contextual situations symbolically ▪ Interpret problems logically in context ▪ Make connections including real-life situations ▪ Visualize the problem ▪ Put symbolic problems into context ▪ Estimate for reasonableness <p style="text-align: center;">CARD #3</p>	<ul style="list-style-type: none"> ▪ Provide a “toolbox” at all times with all available tools ▪ Model the use of appropriate tools (especially the use of technology) and manipulatives for understanding ▪ Allow time for dialogue around tool selection ▪ Develop anchor charts when a new tool is used and is used in a different way <p style="text-align: center;">CARD #4</p>
<ul style="list-style-type: none"> ▪ Design and state “shortcuts” ▪ Generate rules from repeated reasoning or practice ▪ Evaluate the reasonableness of intermediate steps ▪ Make generalizations ▪ Engage in similar activities over several weeks that draw attention to repetition ▪ Through repeated exposure of a concept, discover rules without being told to memorize <p style="text-align: center;">CARD #5</p>	<ul style="list-style-type: none"> ▪ Communicate (orally and in writing) with previous vocabulary ▪ Carefully formulate questions and explanations (not retelling the steps) ▪ Decode and interpret meaning of symbols ▪ Pay attention to units, labeling of axes, scale, etc. ▪ Calculate accurately and effectively ▪ Use mathematical language and terminology correctly and appropriately <p style="text-align: center;">CARD #6</p>

<ul style="list-style-type: none"> ▪ Connect math to real-life situations ▪ Apply prior knowledge to solve problems ▪ Choose and apply representations, manipulatives, and other models to solve problems ▪ Use strategies to make problems simpler ▪ Seek and understand various modeling techniques <p>CARD #7</p>	<ul style="list-style-type: none"> ▪ Model problem solving strategies ▪ Give explicit and precise instructions ▪ Use ELA strategies of decoding, comprehending and text-to-self connections for interpretation of symbolic and contextual math problems ▪ Model consistency when solving and graphing <p>CARD #8</p>
<ul style="list-style-type: none"> ▪ 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 ▪ Think aloud when solving a problem <p>CARD #9</p>	<ul style="list-style-type: none"> ▪ Question others ▪ Use examples and non-examples ▪ Support beliefs and challenges with mathematical evidence ▪ Form logical arguments with conjectures and counterexamples ▪ Listen and respond to others ▪ Question where data comes from <p>CARD #10</p>
<ul style="list-style-type: none"> ▪ Model reasoning skills ▪ Provide meaningful, real world authentic performance-based tasks ▪ Make appropriate tools available ▪ Model various modeling techniques ▪ Provide real-world problems to be solved daily ▪ Allow students to go back and forth between different math tools (e.g. function tables, graphs, set of ordered pairs) where appropriate <p>CARD #11</p>	<ul style="list-style-type: none"> ▪ Create a safe and collaborate environment ▪ Model respectful discourse behaviors ▪ “Find the error” problems ▪ Promote student to student discourse (do not mediate the discussion) ▪ Plan effective questions or Socratic formats ▪ Provide time to look at solutions that are incorrect ▪ Provide time for discourse and value it <p>CARD #12</p>

<ul style="list-style-type: none"> ▪ Provide tasks that allow students to generalize ▪ Don't teach steps or rules, but allow students to explore and generalize in order to discover and formalize ▪ Ask deliberate questions that require conceptual understanding and fluency ▪ Create strategic and purposeful check-in points <p>CARD #13</p>	<ul style="list-style-type: none"> ▪ Choose appropriate tools for a given problem ▪ Use technology to deepen understanding where necessary and appropriate ▪ Identify and locate resources outside of the classroom that may assist in understanding ▪ Be able to defend the choice of tools ▪ Understand the limitations and effects of tools (or manipulatives) <p>CARD #14</p>
<ul style="list-style-type: none"> ▪ Provide open-ended problems that require students to probe their thinking and understanding of a problem ▪ Promote and value discourse ▪ Give students individual think time on all mathematical tasks ▪ Frame math challenges that are clear and explicit ▪ Check in periodically to check students' clarity and thought processes <p>CARD #15</p>	<ul style="list-style-type: none"> ▪ 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 ▪ Look for, identify, and interpret patterns and structures ▪ View complicated quantities as a single object and as a composition of objects <p>CARD #16</p>