

<b>Making Sense</b> MP1: Make sense of problems and persevere in solving them MP6: Attend to precision	<b>Modeling and Using Tools</b> MP4: Model with mathematics MP5: Use appropriate tools strategically
<b>Reasoning and Explaining</b> MP2: Reason abstractly and quantitatively MP3: Construct viable arguments & critique the reasoning of others	<b>Seeing Structure and Generalizing</b> MP7: Look for and make use of structure MP8: Look for and express regularity in repeated reasoning

Math Practices	Student Behaviors
Making Sense (MP1 & MP6)	Students use multiple sentences to explain their thinking; they represent their solution in multiple ways, using symbols, academic vocabulary, and labeling to effectively communicate. Students actively engage in problem solving, persevering and asking themselves if their answers make sense.
Reasoning & Explaining (MP2 & MP3)	Students talk about each other's thinking; student work includes revisions, especially revised explanations and justifications; students compare and contrast various solution strategies. Students contextualize and decontextualize problems; and ask clarifying and probing questions.
Modeling & Using Tools (MP4 & MP5)	Students use a variety of models – diagrams, tables, graphs, formulas, symbolic representations, and tools including available technology to demonstrate their solution(s); they can justify their tool selection.
Seeing Structure & Generalizing (MP7 & MP8)	Students connect concepts to prior concepts and tasks; they can generate exploratory questions; they can compose and decompose situations and relationships through observed patterns in order to simplify solutions. Students look for methods and shortcuts in patterns and repeated calculations.

Math Practice	Teachers
1	<ul style="list-style-type: none"> <li>• Pose rich problems and/or ask open ended questions</li> <li>• Provide wait-time for processing/finding solutions</li> <li>• Provide opportunities and time for cooperative problem solving</li> <li>• Model solutions using perseverance and multiple representations, identifying the strengths of each</li> </ul>
2	<ul style="list-style-type: none"> <li>• Ask students to explain their thinking regardless of accuracy</li> <li>• Highlight flexible use of numbers</li> <li>• Facilitate discussion through guided questions and representations</li> <li>• Accept varied solutions/representations</li> </ul>
3	<ul style="list-style-type: none"> <li>• Provide opportunities for students to listen to or read the conclusions and arguments of others</li> <li>• Establish and facilitate a safe environment for discussion</li> <li>• Ask clarifying and probing questions</li> <li>• Avoid giving too much assistance</li> </ul>
4	<ul style="list-style-type: none"> <li>• Allow time for the process to take place (model, make graphs, etc.)</li> <li>• Model desired behaviors (think a-louds) and thought processes (questioning, revision, reflection/written)</li> <li>• Make appropriate tools available and model using the tools to find solutions</li> <li>• Provide meaningful, real world, authentic, performance-based tasks (non-traditional word problems)</li> </ul>
5	<ul style="list-style-type: none"> <li>• Make appropriate tools available for learning (calculators, concrete models, digital resources, pencil/paper, white board, compass, protractor, etc.)</li> <li>• Use a variety of tools with their instruction</li> </ul>
6	<ul style="list-style-type: none"> <li>• Model efficient and accurate strategies for computation</li> <li>• Use (and challenge students to use) mathematics vocabulary precisely and consistently</li> </ul>
7	<ul style="list-style-type: none"> <li>• Provide time for applying and discussing properties</li> <li>• Ask questions about the application of patterns and connections to other tasks</li> <li>• Model <u>overviewing</u> and then <u>shifting perspective</u> during the solving of a problem</li> </ul>
8	<ul style="list-style-type: none"> <li>• Provide tasks and problems with patterns, as well as connections to other tasks and problems</li> <li>• Ask about possible answers before, and reasonableness after – computations</li> <li>• Model finding and using shortcuts</li> </ul>