

Math Classroom Observation Checklist

Taken from the Common Core Institute at www.commoncoreinstitute.org.

Mathematical Practices	Observations
<p>MP.1 Make sense of problems and persevere in solving them</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Engage in solving problems. <input type="checkbox"/> Explain the meaning of a problem and restate it their own words. <input type="checkbox"/> Analyze given information to develop possible strategies for solving the problem. <input type="checkbox"/> Identify and execute appropriate strategies to solve the problem. <input type="checkbox"/> Check their answers using a different method and continually ask, "Does this make sense?" <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide time for students to discuss problem solving.
<p>MP.2 Reason abstractly and quantitatively</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Connect quantity to numbers and symbols (decontextualize the problem) and create a logical representation of the problem at hand. <input type="checkbox"/> Recognize that a number represents a specific quantity (contextualize the problem). <input type="checkbox"/> Contextualize and decontextualize within the process of solving a problem. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide appropriate representations of problems.
<p>MP.3 Construct viable arguments and critique the reasoning of others</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Explain their thinking to others and respond to others' thinking. <input type="checkbox"/> Participate in mathematical discussions involving questions such as, "How did you get that?" and "Why is that true?" <input type="checkbox"/> Construct arguments that utilize prior learning. <input type="checkbox"/> Question and problem pose. <input type="checkbox"/> Practice questioning strategies used to generate information. <input type="checkbox"/> Analyze alternative approaches suggested by others and select better approaches. <input type="checkbox"/> Justify conclusions, communicate them to others, and respond to the arguments of others. <input type="checkbox"/> Compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and if there is a flaw in an argument, explain what it is. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide opportunities for students to listen to or read the conclusions and arguments of others.

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<p>MP.4 Model with mathematics</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. <input type="checkbox"/> Make assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. <input type="checkbox"/> Experiment with representing problem situations in multiple ways, including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. <input type="checkbox"/> Identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas. <input type="checkbox"/> Evaluate their results in the context of the situation and reflect on whether their results make sense. <input type="checkbox"/> Analyze mathematical relationships to draw conclusions. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide contexts for students to apply the mathematics learned.
<p>MP.5 Use appropriate tools strategically</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use tools when solving a mathematical problem and deepen their understanding of concepts (<i>e.g., pencil and paper, physical models, geometric construction and measurement devices, graph paper, calculators, computer-based algebra or geometry systems</i>). <input type="checkbox"/> Consider available tools when solving a mathematical problem and decide when certain tools might be helpful, recognizing both the insight to be gained and their limitations. <input type="checkbox"/> Detect possible errors by strategically using estimation and other mathematical knowledge. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Model the use of appropriate tools (<i>e.g. manipulatives</i>) instructionally.
<p>MP.6 Attend to precision</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use clear and precise language in their discussions with others and in their own reasoning. <input type="checkbox"/> Use clear definitions and state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. <input type="checkbox"/> Specify units of measure and label parts of graphs and charts. <input type="checkbox"/> Calculate with accuracy and efficiency based on a problem’s expectation. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Emphasize the importance of precise communication.

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<p>MP.7 Look for and make use of structure</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe a pattern or structure. <input type="checkbox"/> Look for, develop, generalize, and describe a pattern orally, symbolically, graphically and in written form. <input type="checkbox"/> Relate numerical patterns to a rule or graphical representation. <input type="checkbox"/> Apply and discuss properties. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide time for applying and discussing properties.
<p>MP.8 Look for and express regularity in repeated reasoning</p>	<p>Students are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe repetitive actions in computation. <input type="checkbox"/> Look for mathematically sound shortcuts. <input type="checkbox"/> Use repeated applications to generalize properties. <input type="checkbox"/> Use models to explain calculations and describe how algorithms work. <input type="checkbox"/> Use models to examine patterns and generate their own algorithms. <input type="checkbox"/> Check the reasonableness of their results. <hr/> <p>Teachers are expected to _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Encourage students to look for and discuss regularity in reasoning.

Advanced Practices / Teachers:

- Standards Routine:** Begins with the Standard(s), identifies the skill(s) to be taught.
- Cognitive Demand:** Is aware of and can articulate the level of cognitive demand associated with the skills taught within the lesson.
- Vocabulary:** Uses appropriate mathematical vocabulary, including vocabulary from more advanced grades. Is aware of the importance of vocabulary usage.
- Assessment:** Selects assessment methods in the classroom appropriate for the level of cognitive demand.
- Priority Overlays:** Is aware of the priority standards overlays associated with their assessment consortia and reiterates / reinforces those content areas within the lesson.
- Problem Choice:** Selects complex problems for whole classroom work from the middle and end of units or chapters.
- Utilizes **questioning techniques** to elicit discussion, brainstorming, and investigation of multiple methods of problem solving.
- Uses methods such as paraphrasing and translation of word problems into mathematical symbols.
- Problem Translation:** Leads the classroom from word-based problems, to symbolic representation of the problem, back to word-based problems.
- Fluency:** Can articulate the Fluency Standards within their grade and teaches them early and often, including repetitive problems in different forms throughout the Scope & Sequence.
- Multiple representations:** Uses multiple representations including graphs, number lines, pictures, and manipulatives to represent problems.
- Utilizes **cooperative learning in a safe environment**, such as paired answer discussion, as compared to calling on students in front of the entire classroom.
- Utilizes **close reading techniques** for problem deconstruction and deep understanding.
- Utilizes exemplar questions and assessment items. Displays the ability to extend an operation from an exemplar to other parts of the curriculum.
- Utilizes real-world content and problems, including problems drawn from Science, Technology, and Social Studies.
- Utilizes content that stimulates student interest in, and understanding of, STEM careers.
- Presents the negative case and inappropriate or insufficient methods of problem solving, along with accurate and adequate reasoning.