

**Title:** *Considerations for Implementing the New Illinois Learning Standards for Mathematics*



**Intended Audience:** Teachers, Administrators, Professional Development Coordinators

**Description:** This rubric helps determine level of implementation for the New Illinois Learning Standards based on 23 specific education concepts, including: Classroom, Assessment, Key Shifts, and Mathematical Practice Standards. This document can be used as a guide to navigate the full spectrum of implementation of the New Illinois Learning Standards for Mathematics. This rubric is differentiated by grade band, including K-2, 3-5, 6-8, and High School documents.

**Suggested Use for these Documents:**

- Professional development coordinators could use this to lead a professional development workshop.
- Teachers, administrators or other stakeholders could use this to get an overview of the Implementation Considerations.
- Teachers could use this to determine what professional development they need or what classroom changes they still need.

**Materials Necessary:**

Considerations for Implementing the New Illinois Learning Standards for Mathematics

**Send questions and comments to:**

[plscomments@gmail.com](mailto:plscomments@gmail.com)

**Resource Links:**

- [K-2 Considerations for Implementation](#)
- [3-5 Considerations for Implementation](#)
- [6-8 Considerations for Implementation](#)
- [High School Considerations for Implementation](#)



**Illinois State Board of Education**  
[www.isbe.net](http://www.isbe.net)

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## General Characteristics of the New Illinois Learning Standards Leadership Team:

- Communicates expectations for instruction and outcomes regarding the New Illinois Learning Standards for Mathematics.
- Professional development is aligned with the needs of the school/district with the implementation of the New Illinois Learning Standards for Mathematics.
- Considers how professional development courses or workshops need to be differentiated in order to best suit the teachers. While some may be ready for advanced methods, others may need further assistance.
- District leaders should identify student learning priorities to target professional development that promotes the best practices to address student needs. The professional development plan must be systemic—long-range as well as short-range and fully articulated across the entire staff and grade spans.
- Meets regularly to discuss, update and plan for communications regarding upcoming PARCC assessments:
  - Performance Level Descriptors
  - Rubrics
  - Item Task Prototypes
  - Model Content Frameworks
  - Evidence Statements
  - Student Claims
- Meets regularly to plan how to communicate New Illinois Learning Standards for Mathematics with stakeholders such as the community, school board and parents.
- Determines how they can facilitate and support collaboration among teachers that is focused on implementation of the standards.
- Dedicates staff to determine technology needs and how to integrate into the New Illinois Learning Standards for Mathematics classroom.
- Develops a timeline to implement varied modes of assessments, including a range of pre, formative, summative and self-assessment measures.
- Analyze the current state of the school from a mathematics perspective with data from standardized test scores, state assessments, grades, and quantitative measures of student mathematics comprehension.

## Materials

Determine to what extent the existing instructional materials align with the standards and make a plan to address gaps, redundant content or unnecessary curriculum.

Update instructional resources to align with the New Illinois Learning Standards for Mathematics; evaluate resources for effectiveness.

Examine the Publisher’s Criteria before purchasing any new materials.

<http://achievethecore.org/page/267/publishers-criteria-for-mathematics>

## Climate and Culture

- ❑ Through frequent conversations, keep the focus on learning by acting as a catalyst to build partnerships with teacher leaders, instructional coaches, and technology specialists.
- ❑ Build collaborative cultures characterized by conversations centered around student learning and reflective inquiry, shared ownership, and short- and long-term thinking.
- ❑ Build trust through shared decision making, frequent communications, frequent visits to classrooms and consistency over time. In these cases, trust becomes a key driver toward a strong culture.
- ❑ Grow leaders by creating opportunities for teacher leadership to emerge and by sharing and distributing leadership throughout the school. This prepares schools for the reality that “many tasks... require many leaders.”
- ❑ Build a Leadership Team for the New Illinois Learning Standards for Mathematics implementation  
Examine ISBE’s Comprehensive System of Learning Supports page for more information. <http://www.isbe.net/learningsupports/climate/climate-resources.htm>

## Instructional Environment:

- ❑ Engages student interests in mathematics.
- ❑ Establishes expectations that are easy to understand and meet.
- ❑ Provides all students with opportunities to engage with mathematics of appropriate complexity for the grade level.
- ❑ Engages students in a productive struggle through discussion and other supports that build towards independence.
- ❑ Includes appropriate supports for students who are ELL, have disabilities, or read or write well below grade level.
- ❑ Includes extensions and/or more advanced math tasks for students who are well above grade level.
- ❑ Integrate available technology and media throughout curriculum and instruction.

**A research base is connected to this instrument that does include Charlotte Danielson’s Framework for evaluation, however, this tool is not meant to serve as an evaluation tool. This tool is only meant to serve as a connection in thinking for the teacher or administrator to formulate a synthesis from the shifts of the New Illinois Learnings Standards to practice in the classroom. Therefore, in no way should it be implied that a beginning implementation level serve as an unsatisfactory or basic level of teacher performance.**

# Charlotte Danielson's FRAMEWORK FOR TEACHING

## DOMAIN 1: Planning and Preparation

- 1a Demonstrating Knowledge of Content and Pedagogy**
  - Content knowledge • Prerequisite relationships • Content pedagogy
- 1b Demonstrating Knowledge of Students**
  - Child development • Learning process • Special needs
  - Student skills, knowledge, and proficiency
  - Interests and cultural heritage
- 1c Setting Instructional Outcomes**
  - Value, sequence, and alignment • Clarity • Balance
  - Suitability for diverse learners
- 1d Demonstrating Knowledge of Resources**
  - For classroom • To extend content knowledge • For students
- 1e Designing Coherent Instruction**
  - Learning activities • Instructional materials and resources
  - Instructional groups • Lesson and unit structure
- 1f Designing Student Assessments**
  - Congruence with outcomes • Criteria and standards
  - Formative assessments • Use for planning

## DOMAIN 2: The Classroom Environment

- 2a Creating an Environment of Respect and Rapport**
  - Teacher interaction with students • Student interaction with students
- 2b Establishing a Culture for Learning**
  - Importance of content • Expectations for learning and behavior
  - Student pride in work
- 2c Managing Classroom Procedures**
  - Instructional groups • Transitions
  - Materials and supplies • Non-instructional duties
  - Supervision of volunteers and paraprofessionals
- 2d Managing Student Behavior**
  - Expectations • Monitoring behavior • Response to misbehavior
- 2e Organizing Physical Space**
  - Safety and accessibility • Arrangement of furniture and resources

## DOMAIN 4: Professional Responsibilities

- 4a Reflecting on Teaching**
  - Accuracy • Use in future teaching
- 4b Maintaining Accurate Records**
  - Student completion of assignments
  - Student progress in learning • Non-instructional records
- 4c Communicating with Families**
  - About instructional program • About individual students
  - Engagement of families in instructional program
- 4d Participating in a Professional Community**
  - Relationships with colleagues • Participation in school projects
  - Involvement in culture of professional inquiry • Service to school
- 4e Growing and Developing Professionally**
  - Enhancement of content knowledge and pedagogical skill
  - Service to the profession
- 4f Showing Professionalism**
  - Integrity/ethical conduct • Service to students • Advocacy
  - Decision-making • Compliance with school/district regulations



## DOMAIN 3: Instruction





- 3a Communicating With Students**
  - Expectations for learning • Directions and procedures
  - Explanations of content • Use of oral and written language
- 3b Using Questioning and Discussion Techniques**
  - Quality of questions • Discussion techniques • Student participation
- 3c Engaging Students in Learning**
  - Activities and assignments • Student groups
  - Instructional materials and resources • Structure and pacing
- 3d Using Assessment in Instruction**
  - Assessment criteria • Monitoring of student learning
  - Feedback to students • Student self-assessment and monitoring
- 3e Demonstrating Flexibility and Responsiveness**
  - Lesson adjustment • Response to students • Persistence





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## Mathematics High School: General Considerations for a New Illinois Learning Standards Classroom

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<b>Primary Resources</b> 	<p>The teacher has read, references when appropriate, and bases their instruction on the <a href="#">New Illinois Learning Standards for Mathematics</a>, <a href="#">Progression documents</a>, <a href="#">The Publishers' Criteria</a>, <a href="#">EQuIP Rubric</a>, <a href="#">PARCC Model Content Frameworks</a>, and the <a href="#">PARCC Evidence Tables</a>.</p>	<p>The teacher has read and bases their instruction on the <a href="#">New Illinois Learning Standards for Mathematics</a>, appropriate <a href="#">Progression documents</a>, and the <a href="#">PARCC Model Content Frameworks</a>.</p>	<p>The teacher has read and bases their instruction on the <a href="#">New Illinois Learning Standards for Mathematics</a></p>
<b>Materials (Curriculum)</b> 	<ul style="list-style-type: none"> <li>The teacher has researched alignment of all coursework material to the appropriate grade-level of the New Illinois Learning Standards for Mathematics.</li> <li>The teacher has utilized the <a href="#">Toolkit for Evaluating the Alignment of Instructional and Assessment Materials to the CCSS</a> to identify common pitfalls and necessary steps in creating a curriculum that is truly aligned to the letter and spirit of the New Illinois Learning Standards for Mathematics.</li> </ul>	<p>The teacher occasionally utilizes the <a href="#">Toolkit for Evaluating the Alignment of Instructional and Assessment Materials to the CCSS</a> to identify common pitfalls and necessary steps in creating a curriculum that is truly aligned to the letter and spirit of the New Illinois Learning Standards for Mathematics.</p>	<p>The teacher has not read or does not use the <a href="#">Toolkit for Evaluating the Alignment of Instructional and Assessment Materials to the CCSS</a>.</p>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<b>Classroom Culture</b> 	<ul style="list-style-type: none"> <li>The teacher provides a safe and welcoming classroom environment that promotes interaction, communication, collaboration, and intellectual risk taking.</li> <li>The teacher directs the communication and discovery of mathematical ideas by posing good questions, engaging students in worthwhile tasks, creating a culture that fosters students' creativity and understanding of mathematics.</li> <li>The teacher frequently uses a student-centered approach, where the teacher's role is facilitator.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher provides a safe and welcoming classroom environment that often promotes interaction, communication, and collaboration.</li> <li>The teacher often provides direct instruction and expects students to answer similar problems with the same process. Students rarely feel comfortable taking intellectual risks.</li> <li>The teacher provides students with worthwhile tasks and classroom time to work in pairs or small groups to find the solutions.</li> <li>The teacher sometimes uses a student-centered approach, where the teacher's role is facilitator.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher provides a safe classroom environment where students are expected to remain silent unless called upon, take good and accurate notes, follow all directions, and work independently.</li> <li>The teacher often provides direct instruction to students and expects students to answer similar problems with the same process that was demonstrated.</li> <li>The teacher rarely provides time for students to collaborate or communicate with one another.</li> <li>The teacher rarely uses a student-centered approach, where the teacher's role is facilitator.</li> </ul>
<b>Assessment Literacy</b>	<ul style="list-style-type: none"> <li>The teacher consistently uses assessment concepts and terminology correctly. [As defined in the Guidelines for Classroom Assessment]</li> </ul>	<ul style="list-style-type: none"> <li>The teacher does not consistently use assessment concepts and terminology correctly.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher does not use assessment concepts or terminology correctly.</li> </ul>
<b>Linking instruction and assessment</b> 	<ul style="list-style-type: none"> <li>The teacher implements both standards-aligned instruction and ongoing assessment aligned to standards to promote learning.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently implements both standards-aligned instruction and ongoing assessment aligned to standards to promote learning.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher does not implement both standards-aligned instruction and ongoing assessment aligned to standards to promote learning.</li> </ul>
<b>Selecting and designing assessment</b> 	<ul style="list-style-type: none"> <li>The teacher consistently selects and designs assessments based on the purpose for the assessment including what decisions will be influenced by the results and the best method for assessing the expectations.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently selects and designs assessments based on the purpose for the assessment including what decisions will be influenced by the results and the best method for assessing the expectations.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher infrequently selects and designs assessments based on the purpose for the assessment including what decisions will be influenced by the results and the best method for assessing the expectations.</li> </ul>
<b>Administer and score assessment</b> 	<ul style="list-style-type: none"> <li>The teacher conscientiously administers and scores the New Illinois Learning Standards for Mathematics aligned assessments for the intended purpose, with accommodations as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently administers and scores assessments correctly.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher seldom administers and scores assessments correctly.</li> </ul>


	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<b>Feedback</b> 	<ul style="list-style-type: none"> <li>The teacher consistently provides constructive feedback based assessment data to students to support attainment of the New Illinois Learning Standards for Mathematics expectations.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently provides constructive feedback based assessment data to students to support attainment of the New Illinois Learning Standards for Mathematics expectations.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher seldom provides constructive feedback based assessment data to students to support attainment of the New Illinois Learning Standards for Mathematics expectations.</li> </ul>
<b>Analyzing and using data</b> 	<ul style="list-style-type: none"> <li>The teacher consistently administers assessments (formative, interim and summative) and accurately analyzes assessment data to inform instruction.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently administers assessments (formative, interim and summative) and analyzes assessment data to inform instruction.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher infrequently administers assessments (formative, interim and summative) and does not analyze assessment data to inform instruction.</li> </ul>
<b>Using data to identify trends</b> 	<ul style="list-style-type: none"> <li>The teacher independently and collaboratively works with team/grade level members to analyze data, identify trends in achievement, and suggest adjustments to curriculum to meet the New Illinois Learning Standards for Mathematics expectations.</li> </ul>		
<b>Reporting</b> 	<ul style="list-style-type: none"> <li>The teacher reports assessment data reflecting progress or attainment of the New Illinois Learning Standards for Mathematics expectations clearly and concisely to appropriate stakeholders in a timely manner.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher inconsistently reports assessment data reflecting progress or attainment of the New Illinois Learning Standards for Mathematics expectations clearly and concisely to appropriate stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher seldom reports assessment data reflecting progress or attainment of the New Illinois Learning Standards for Mathematics expectations clearly and concisely to appropriate stakeholders in a timely manner.</li> </ul>



	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>Vertical Alignment</b></p> 	<ul style="list-style-type: none"> <li>• The teacher has read the grade-level <a href="#">New Illinois Learning Standards for Mathematics</a> for the grade above and below the class they are teaching.</li> <li>• The teacher has met with other teachers in the same grade-level to discuss changes that have occurred, including new material to the grade-level and the material that is no longer in this grade.</li> <li>• The teacher team has met with representatives from the grade above and the grade below to discuss any necessary transition steps as students interact with changing curriculum.</li> <li>• The teacher recognizes what knowledge the students bring with them when entering the classroom and connects new information to what they will learn the following year.</li> <li>• The teacher always makes connections.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher has read the grade-level <a href="#">New Illinois Learning Standards for Mathematics</a> for the grade above and below the class they are teaching.</li> <li>• The teacher has noted changes to the curriculum, including new material to the grade-level and material that is no longer in this grade.</li> <li>• The teacher recognizes what knowledge the students bring with them when entering the classroom and connects new information to what they will learn the following year.</li> <li>• The teacher sometimes makes connections.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher has read the grade-level <a href="#">New Illinois Learning Standards for Mathematics</a> for the grade above and below the class they are teaching.</li> <li>• The teacher rarely makes connections.</li> </ul>






## Mathematics: Key Shifts



	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>Focus</b></p> 	<ul style="list-style-type: none"> <li>The teacher spends a significant amount of classroom time discussing course-level, content-aligned standards that have been designated Major work by the <a href="#">PARCC Model Content Frameworks</a>. In high school students focus on solidifying an understanding of functions and function-types, transformations in geometry, and the use of structure in expressions.</li> <li>The teacher revisits the critical areas (listed at the beginning of the grade-level standards in the New Illinois Learning Standards for Mathematics throughout the year.</li> <li>The teacher allows students time to explore these key ideas and develop a strong conceptual understanding and procedural skill in a connected and meaningful way related to the world around them.</li> <li>Teachers do not add curriculum that is not directly stated in the appropriate course as identified in the <a href="#">PARCC Model Content Frameworks</a>.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher spends classroom time discussing course-level, content-aligned standards that have been designated Major work by the <a href="#">PARCC Model Content Frameworks</a>.</li> <li>The teacher sometimes revisits the critical areas (listed at the beginning of the grade-level standards in the New Illinois Learning Standards for Mathematics) throughout the year.</li> <li>The teacher often allows students time to explore these key ideas and develop conceptual understanding, procedural skill, and application.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher has not read and/or is not developing units and lessons based on the Major work as defined by the <a href="#">PARCC Model Content Frameworks</a>.</li> <li>The teacher occasionally revisits the critical areas (listed at the beginning of the grade-level standards in the New Illinois Learning Standards for Mathematics) throughout the year.</li> <li>The teacher occasionally adds curriculum that is not stated in the appropriate grade-level standards.</li> </ul>


	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>Coherence</b></p> 	<ul style="list-style-type: none"> <li>The teacher creates and/or selects lessons that make natural connections to previous grade-level work, lay a natural foundation for subsequent grade-level work, and make apparent connections between standards, domains, clusters and other disciplines.</li> <li>Material is developed referencing the <a href="#">Progression documents</a>, the <a href="#">PARCC Model Content Frameworks</a> and the <a href="#">PARCC Evidence Tables</a> (specifically the integrated statements).</li> <li>High school teachers provide opportunity for students to explore connections between structure of expressions and the functions they define, statistical data and building models, and middle school concepts to high school mastery.</li> <li>Mathematics builds upon itself creating an inherent evolution that makes sense</li> </ul>	<ul style="list-style-type: none"> <li>The teacher creates and/or selects lessons that make some natural connections between grade-level work, subsequent grade-level work, or between standards, domains, and clusters.</li> <li>The teacher occasionally develops lessons or units that follow the <a href="#">Progression documents</a>.</li> <li>The teacher occasionally points out the connections to the students.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher creates and/or lessons that make little connection to previous grade-level work, subsequent grade-level work, or connections between standards, domains, and clusters.</li> <li>The teacher has not read or does not reference the <a href="#">Progression documents</a>.</li> <li>Mathematical information is presented in a disjointed fashion.</li> </ul>
<p><b>Rigor</b></p> 	<ul style="list-style-type: none"> <li>The teacher coherently combines understanding, skill, and application into all tasks and lessons whenever possible.</li> <li>The teacher creates lessons and assessments representing the difficulty level inherent in the PARCC <a href="#">sample tasks</a>, the <a href="#">Progression documents</a>, and <a href="#">Illustrative Mathematics</a> tasks.</li> <li>The teacher provides sufficient opportunities for students to develop their understanding of mathematical concepts, including similarity and congruence criteria, and transformations.</li> <li>Tasks provide opportunity for students to develop fluency in adding, subtracting, multiplying, and dividing polynomials, transforming expressions, and writing the equation of a line.</li> <li>Application tasks provide students an opportunity to model with functions.</li> <li>The teacher provides a myriad of tasks on assessments to address all three ideas.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher occasionally provides tasks for students to develop their understanding of mathematical concepts, become fluent with appropriate procedural skill, and recognize how and when mathematical concepts apply to the world around them.</li> <li>The teacher occasionally coherently combines these into a lesson.</li> <li>Occasionally the teacher only addresses one of the three ideas when it is appropriate to address more than one: understanding, skill, or application.</li> </ul>	<ul style="list-style-type: none"> <li>The teacher treats most mathematics and tasks as separate ideas in which a student only concentrates on learning conceptual understanding, procedural skill, or application.</li> <li>The teacher does not often coherently combine understanding, skill, and application into a task, lesson, or assessment.</li> </ul>





## The Standards for Mathematical Practice



	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP1 - Make sense of problems and persevere in solving them</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 1 by providing sufficiently difficult, worthwhile tasks that require students to work past the point that they would normally want to give up.</li> <li>• Students are asked to read and interpret a problem, analyze the given information, determine an appropriate course of action, execute their strategy, changing course as necessary.</li> <li>• When providing support, the teacher provides limited direct instruction or scaffolding to a problem, asks students to determine correct or incorrectness through mathematical proof and gives ample time for student discussion in the daily flow of the lesson.</li> <li>• Students may work independently or collaboratively and their product includes details of the journey the students took while solving the problem, including plans, failures and reattempts, the solution and proof that the solution is correct.</li> <li>• Students may show signs of frustration or struggle, but are obviously use to continuing to work through this.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 1 by occasionally providing sufficiently difficult, worthwhile tasks that require students to work past the point that they would normally want to give up.</li> <li>• The teacher provides many worthwhile tasks and sufficient wait time for students to engage with the mathematics independently or collaboratively.</li> <li>• The teacher often discusses and models the process to making sense of mathematical problems.</li> <li>• The teacher occasionally reminds students or prompts students of the process.</li> <li>• The teacher occasionally limits discussion or time on problems by providing direct instruction, answers, or demonstrating personal approach.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher rarely provides worthwhile tasks or appropriate wait time.</li> <li>• Often the teacher provides direct instruction on how to solve the problem.</li> <li>• The teacher does not encourage students to check their answers to see if they make sense.</li> <li>• Everyone in the classroom completes most tasks the same way with little to no discussion on the variety of strategies that could be used.</li> </ul>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP2 - Reason abstractly and quantitatively</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 2 by engaging students in grade-level worthwhile tasks that challenge students to contextualize and decontextualize.</li> <li>• The teacher provides tasks where students look at a given task abstractly and represent it using symbols, using properties of operations and objects to manipulate the symbols.</li> <li>• The teacher provides tasks where students coherently represent a problem with careful attention to the units and meaning of quantities and use quantitative reasoning to efficiently and effectively solve the problem.</li> <li>• The tasks challenge students across a wide range of learning styles and modalities while encouraging the use of quantitative reasoning.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• Often the teacher supports Mathematical Practice Standard 2 by engaging students in grade-level worthwhile tasks that challenge students to contextualize and decontextualize.</li> <li>• Occasionally the teacher provides tasks developed to make sense of quantities and their relationships in problem situations.</li> <li>• Some of the tasks challenge students across a wide range of learning styles and modalities while encouraging the use of quantitative reasoning.</li> </ul>	<ul style="list-style-type: none"> <li>• Occasionally the teacher provides tasks in which students must contextualize and decontextualize.</li> <li>• Little to no time is spent in understanding the relationships of the quantities, units involved, or properties of operations and objects.</li> <li>• Many of the tasks do not challenge students because they do not vary in their language, expectations, or abstract and quantitative reasoning skills.</li> </ul>
<p><b>MP3 - Construct viable arguments and critique the reasoning of others</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 3 by engaging students in worthwhile tasks that elicit and challenge students' mathematical communication skills.</li> <li>• Tasks provide opportunities for students to use assumptions, definitions, and previously established results in constructing arguments.</li> <li>• Tasks vary by incorporating conjectures, facts, counterexamples, and a myriad of justifications.</li> <li>• Tasks offer students the chance to compare the effectiveness of plausible arguments.</li> <li>• The teacher provides tasks that require students to distinguish correct logic or reasoning from that which is flawed, and if there is a flaw, explain what it is.</li> <li>• The teacher provides ample time and varied tasks that promote both written and oral communication.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher provides many worthwhile tasks that elicit and challenge students' mathematical communication skills.</li> <li>• The teacher often provides opportunities for students to use assumptions, definitions, and previously established results in constructing arguments.</li> <li>• The teacher often provides collaborative time in the classroom for students to practice supporting their mathematics with both written and oral communication.</li> </ul>	<ul style="list-style-type: none"> <li>• Occasionally the teacher provides tasks that elicit and challenge students' mathematical communication skills.</li> <li>• The teacher occasionally provides opportunities for students to work in pairs or small groups to develop their ability to construct a mathematical argument or to express their reasoning to others.</li> </ul>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP4 - Model with mathematics</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 4 by providing worthwhile tasks that incorporate a wide variety of mediums and tools to understand and solve problems arising in everyday life, society, and the workplace.</li> <li>• The teacher promotes the relationship between mathematics and the world around them in meaningful and appropriate ways, encouraging students to view mathematics and everyday life as connected.</li> <li>• The teacher encourages students to make connections from the math they are working on to their real-life circumstances.</li> <li>• The teacher provides tasks that demonstrate this connection and allows students to solve the problems using diagrams, two-way tables, graphs, flowcharts, formulas, and more.</li> <li>• The teacher provides tasks where students may use estimations, micro-models, and assumptions.</li> <li>• The teacher develops a natural practice of reflection, to see if results and models make sense.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher often provides worthwhile tasks that incorporate a variety of mediums and tools to understand and solve problems arising in everyday life.</li> <li>• The teacher encourages students to use any model they feel is most appropriate.</li> <li>• The teacher makes clear connections between the math students are working on to students' real-life circumstances.</li> <li>• The teacher reminds students to reflect and check their work.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher provides few worthwhile tasks involving the modeling of mathematics and the connections that exist between mathematical concepts and everyday life.</li> <li>• The teacher demonstrates several ways to model with mathematics but limits the resources available or acceptable solutions in an effort to maintain uniformity.</li> <li>• The teacher often reminds students to reflect and check their work.</li> </ul>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP5 - Use appropriate tools strategically</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 5 by engaging students in a myriad of worthwhile tasks, which require the student to identify and properly use the appropriate tool to solve the problem.</li> <li>• The teacher provides a classroom environment where students feel comfortable choosing from a wide variety of tools (paper and pencil, concrete models, rulers, protractors, calculators, spreadsheets, computer algebra systems, statistical packages, dynamic geometry software, etc.).</li> <li>• The teacher encourages students to communicate their reasoning for the tool they chose.</li> <li>• The teacher provides opportunities for students to understand the insight to be gained or the limitations of grade-appropriate tools.</li> <li>• The teacher provides tasks that develop a students' ability to identify and properly use relevant mathematical resources, including digital content.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher often engages students with worthwhile tasks, which require students to identify and properly use the appropriate tool.</li> <li>• The teacher has a wide variety of tools available in the classroom.</li> <li>• The teacher occasionally provides direct instruction of which tool to use and articulates his/her reasoning to the students.</li> <li>• The teacher often has students communicate their reasoning for the tool they chose.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher occasionally provides students with worthwhile tasks, which require students to identify and properly use the appropriate tool.</li> <li>• The teacher frequently provides specific tools to students.</li> <li>• The teacher rarely has students communicate their reasoning for the tool they chose.</li> <li>• The teacher does not address benefits or limitations of specific tools.</li> </ul>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP6 - Attend to precision</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 6 by communicating precisely using proper mathematical terms and definitions.</li> <li>• The teacher provides worthwhile tasks that develop students' knowledge and understanding of mathematical language and definitions, and encourages students to use precise language.</li> <li>• The teacher provides a variety of tasks that address the necessity for attention to detail with units, proper use of symbols, ability to calculate accurately and efficiently, ability to label axes to articulate the appropriate correspondence of quantities, and grade-level appropriate mathematical terminology when providing proof.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher often provides worthwhile tasks that develop students' knowledge and understanding of mathematical language and definitions.</li> <li>• The teacher occasionally encourages students to use precise language, units, and symbols.</li> <li>• The teacher occasionally uses non-precise language and sometimes teaches material using mnemonics and/or "tricks".</li> <li>• The teacher often discusses the importance of calculating accurately and efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher does not consistently communicate mathematics with precise or proper mathematical terminology.</li> <li>• The teacher rarely stresses the importance of using proper units and symbols.</li> <li>• The teacher rarely provides worthwhile tasks that develop students' understanding of mathematical language and definitions.</li> <li>• The teacher utilizes mnemonics and/or "tricks" when teaching new mathematical processes.</li> </ul>

	<b>Full Implementation</b>	<b>Partial Implementation</b>	<b>Beginning Implementation</b>
<p><b>MP7 - Look for and make use of structure</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 7 by providing worthwhile tasks that develop students’ ability to recognize patterns or structures in mathematics and then use those to efficiently solve a problem.</li> <li>• The teacher encourages students to communicate structures they see and how they use that knowledge in problem solving.</li> <li>• The teacher provides tasks that build up students' ability to recognize opportunities to see complicated things as a single object or as being composed of several objects.</li> <li>• The teacher encourages students to look closely at all problems and discern a pattern or a structure.</li> <li>• The teacher provides tasks where students use structure to create equivalent expressions, factor and solve equations, and compose functions.</li> <li>• The teacher provides tasks that require students to transform figures or use auxiliary lines to solve problems.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher often provides worthwhile tasks that develop students’ ability to recognize patterns or structures in mathematics.</li> <li>• The teacher often points out any structures in a task to the students and explains how this information can be useful when solving the problem.</li> <li>• The teacher occasionally encourages students to find structure on their own.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher occasionally provides worthwhile tasks that develop students’ ability to recognize patterns or structures in mathematics.</li> <li>• The teacher points out these structures and explains how the information can be useful when solving the problem.</li> <li>• The teacher provides little to no time for students to communicate structures they see and how they would use them in problem solving.</li> </ul>
<p><b>MP8 - Look for and express regularity in repeated reasoning</b></p> 	<ul style="list-style-type: none"> <li>• A high school teacher supports Mathematical Practice Standard 8 by engaging students in worthwhile tasks that provide opportunity for students to develop general methods and shortcuts by recognizing patterns.</li> <li>• Students recognize patterns in tables to determine an appropriate type of function.</li> <li>• Students maintain oversight of the process and determine when a pattern or property can be generalized to every case.</li> </ul> <p><a href="#">Example Task</a></p>	<ul style="list-style-type: none"> <li>• The teacher often provides worthwhile tasks that provide opportunity to develop general methods and shortcuts by recognizing patterns.</li> <li>• The teachers often point these short cuts out to the students.</li> <li>• The teacher occasionally provides tasks and time for students to develop general methods or shortcuts without direct instruction.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher occasionally provides worthwhile tasks that develop general methods and shortcuts.</li> <li>• The teacher often provides the students with the insight into the patterns and connects them to a general method or shortcut for the students.</li> </ul>