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| **Mathematical Practices** | **Teachers** |
| **1. Make sense of problems and persevere in solving them** | **⬜ A. Involve students in rich problem-based tasks that encourage them to persevere in order to reach a solution****⬜ B. Provide opportunities for students to solve problems that have multiple solutions.** **⬜ C. Encourage students to represent their thinking while problem solving****NOTE: Task must be a grade-level/developmentally-appropriate problem. That is, a solution is not readily apparent, the solution pathway is not obvious, and more than one pathway is possible.** **Comments:** |
| **2. Reason abstractly and quantitatively** | **⬜ A. Facilitate opportunities for students to discuss representations or use representations to make sense of quantities and their relationships****⬜ B. Encourage the flexible use of properties of operations, tools, and solution strategies when solving problems****⬜ C1. Provide opportunities for students to decontextualize (abstract a situation) the mathematics within a mathematics task.** **⬜ C2. Provide opportunities for students to contextualize (identify referents for symbols involved) the mathematics within a mathematics task.****NOTE: Must have C1 and C2 to receive credit for indicator.** **Comments:** |
| **3. Construct viable arguments and critique the reasoning of others** | **⬜ A. Provide and orchestrate opportunities for students to listen to the solution strategies of others, discuss alternative strategies or solution(s), and defend their ideas****⬜ B. Ask higher-order questions which encourage students to defend their ideas, consider student(s) response(s) before making code****⬜ C. Provide prompts/tasks that encourage students to think critically about the mathematics they are learning, must be related to argumentation or proving events.** **⬜ D. Engage students in proving events that encourage students to develop and refine mathematical arguments (including conjectures) or proofs.** **Comments:** |
| **4. Model with mathematics** | **⬜ A. Use mathematical models appropriate for the focus of the lesson****⬜ B. Encourage student use of developmentally and content-appropriate mathematical models (e.g., variables, equations, coordinate grids)****⬜ C. Remind students that a mathematical model used to represent a problem’s solution is ‘a work in progress,’ and may be revised as needed****⬜ D. Employ problems arising from everyday life, the local community, society, and workplace such that the solution is a model to reuse.** **NOTE: Must have D to be considered a task embedded within instruction promoting modeling with mathematics.** **Comments:** |
| **5. Use appropriate tools strategically** | **⬜ A. Use appropriate physical and/or digital tools to represent, explore and deepen student understanding****⬜ B. Help students make sound decisions concerning the use of specific tools appropriate for the grade level and content focus of the lesson****⬜ C. Provide access to materials, models, tools, and/or technology-based resources that assist students in making conjectures necessary for solving problems. Students must use the resources.** **NOTE: Representations do NOT count as tools.** **Comments:** |
| **6. Attend to precision** | **⬜ A. Emphasize the importance of precise communication by encouraging students to focus on clarity of the definitions, notation, and/or vocabulary used to convey their reasoning****⬜ B. Encourage accuracy and efficiency in computation and problem-based solutions, expressing numerical answers, data and/or measurements with a degree of precision appropriate for the context of the problem****⬜ C. Foster explanations and justifications using clearly articulated oral and/or written communication and grade-level appropriate conventions. Explanation or justification must go beyond IRE.** **Comments:** |
| **7. Look for and make use of structure** | **⬜ A. Engage students in discussions emphasizing relationships between particular topics within a content domain or across content domains****⬜ B. Recognize that the quantitative relationships modeled by operations and their properties remain important regardless of the operational focus of a lesson****⬜ C. Provide activities in which students demonstrate their flexibility in representing mathematics in a number of ways e.g., 76 = (7 x 10) + 6; discussing types of quadrilaterals, etc.****⬜ D. Encouraging examinations of a ‘signal’ and ‘noise’ in statistics-related tasks.** **Comments:** |
| **8. Look for express regularity in repeated reasoning** | **⬜ A. Engage students in discussion related to repeated reasoning that may occur while executing a problem-solving strategy or in a problem’s solution****⬜ B. Draw attention to the prerequisite steps necessary to consider when solving a problem****⬜ C. Urge students to continually evaluate the reasonableness of their results during problem solving****Comments:** |

Bostic, J., Matney, G., & Sondergeld, T. (in press).  A lens on teachers’ promotion of the Standards for Mathematical Practice. *Investigations in Mathematics Learning*.

Bostic, J., & Matney, G. (2016). Leveraging modeling with mathematics-focused instruction to promote other standards for mathematical practice. *Journal of Mathematics Education Leadership, 17*(2), 21-33