**Here is another observation tool that provides leveled indicators. While the numbered score language is not a direct match to the progress report, it does provide for a similar numbered score, for example, a 4, “Distinguished” could be interpreted as “Exceeds”. It can be used as a tool to to show developing proficiency across the math practices.**

**Overall: The mathematics tasks focus on developing CONCEPTUAL UNDERSTANDING and encouraging ALL students to make sense of the mathematics and to persevere in solving mathematical problems. As you provide cognitively demanding tasks and encourage sense making for ALL students, check to see if STUDENTS exhibited the following behaviors in solving mathematics problems.**

| **Students** | **Level 2**  | **Level 3** | **Level 4** |
| --- | --- | --- | --- |
| **1a. MAKES SENSE OF PROBLEMS**  | Explain their thought processes in solving a problem one way. | Explain their thought processes in solving a problem and representing it in several ways. | Discuss, explain, and demonstrate solving a problem with multiple representations and in multiple ways. |
| **1b. PERSEVERE IN SOLVING PROBLEMS** | Stay with a challenging problem for more than one attempt. | Try several approaches in finding a solution, and only seek hints if stuck. | Struggle with various attempts over time, and learn from previous solution attempts. |
| **2. REASON ABSTRACTLY AND QUANTITATIVELY** | Reason with models or pictorial representations to solve problems. | Are able to translate situations into symbols for solving problems. | Convert situations into symbols to appropriately solve problems as well as convert symbols into meaningful situations. |
| **3a. CONSTRUCT VIABLE ARGUMENTS** | Explain their thinking for the solution they found. | Explain their own thinking and thinking of others with accurate vocabulary. | Justify and explain, with accurate language and vocabulary, why their solution is correct. |
| **3b. CRITIQUE THE REASONING OF OTHERS** | Understand and discuss other ideas and approaches. | Explain other students’ solutions and identify strengths and weaknesses of the solution. | Compare and contrast various solution strategies and explain the reasoning of others. |
| **4. MODEL WITH MATHEMATICS** | Use models to represent and solve a problem, and translate the solution to mathematical symbols. | Use models and symbols to represent and solve a problem, and accurately explain the solution representation. | Use a variety of models, symbolic representations, and technology tools to demonstrate a solution to a problem. |
| **5. USE APPROPRIATE TOOLS STRATEGICALLY** | Use the appropriate tool to find a solution. | Select from a variety of tools the ones that can be used to solve a problem, and explain their reasoning for the selection. | Combine various tools to explore and solve a problem as well as justify their tool selection and problem solution. |
| **6. ATTEND TO PRECISION** | Communicate their reasoning and solution to others. | Incorporate appropriate vocabulary and symbols in others. | Use appropriate symbols, vocabulary, and labeling to effectively communicate and exchange ideas. |
| **7. LOOK FOR AND MAKE USE OF STRUCTURE** | Look for structure within mathematics to help them solve problems efficiently. | Compose and decompose number situations and relationships through observed patterns in order to simplify solutions. | See complex and complicated math expressions as component parts. |
| **8. LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING** | Look for obvious patterns, and useif/ then reasoning strategies for obvious patterns. | Find and explain subtle patterns. | Discover deep, underlying relationships that unify the various aspects of a problem such as a discovery of an underlying function. |