**Domain: Statistics & Probability Standard Code: SP 2, 3 & 4 Teacher Name: Amy Baird, Issac Gastelum, Sherri Hodson, Olivia Jackson**

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. “Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks.”

*Mathematics Teaching in the Middle School 14* (October 2008): 132-138.

**Task Lesson: HOW AM I DOING IN MATH?**

|  |  |
| --- | --- |
| **PART 1: SELECTING AND SETTING UP A MATHEMATICAL TASK** | |
| What are your mathematical goals for the lesson? (i.e., what do you want  students to know and understand about mathematics as a result of this lesson?) | **Background: This lesson task should be implemented after students have had plenty of experience with average and review types of graphs.**  **Goals for this lesson:**  1. Identify and understand the mean, median, mode, and range in a set of data.  2. Visually interpret and represent the set of data.  3. Recognize & communicate the meaning of the data. |
| * What are your expectations for students as they work on and complete this task? * What resources or tools will students have to use in their work that will give them entry into, and help them reason through, the task? * How will the students work—   independently, in small groups, or in pairs—to explore this task?   * How will students record and report their work? | **What are the expectations for students as they work to complete this task?**  1. Tools: task worksheet, calculator, centimeter grid paper, colored pencils  **2.** Students will work with partners for this activity.  **3.** Students will complete and record the work for this task in math journals. |
| How will you introduce students to the activity so as to provide access to *all*  students while maintaining the cognitive demands of the task? | **Launch:**  Announce that parent/teacher conferences are coming up, and students will be presenting to their parents how they are doing in math. (can be adapted to any graded subject)  Teacher can read aloud key information from the task sheet with students. |

|  |  |
| --- | --- |
| **PART 2: SUPPORTING STUDENTS’ EXPLORATION OF THE TASK** | |
| As students work independently or in small groups, what questions will you ask to—   help a group get started or make progress on the task?   focus students’ thinking on the  key mathematical ideas in the task?   assess students’ understanding of  key mathematical ideas, problem- solving strategies, or the representations?   advance students’ understanding  of the mathematical ideas? | **Questions and Strategies:**  1. Tell me what you know about average.  2. How is knowing the average going to help?  3. How can you find the total of all scores?  4. What are you doing each time you guess & check? (Totaling scores)  5. How can you show the data by drawing it in a visual?  6. What types of graphs do you know how draw and label?  7. In discussion with students encourage use of key vocabulary:  So what is another word for middle, most, or average? |
| How will you ensure that students remain engaged in the task?   What assistance will you give or what questions will you ask a  student (or group) who becomes  quickly frustrated and requests more direction and guidance is  solving the task?   What will you do if a student (or group) finishes the task almost  immediately? How will you  extend the task so as to provide additional challenge? | **How to know students are engaged in task:**  1. The students are asking questions and math talking with partners.  2. Students are writing and recording in their math journals.  3. Intervene with questions from **Questions and Strategies**. (See Above)  **Early Finishers:**  1. Represent the data in another visual.(Draw it in another way)  2. Write in words how you would explain this information to your parents. |

|  |  |
| --- | --- |
| **PART 3: SHARING AND DISCUSSING THE TASK** | |
| How will you orchestrate the class discussion so that you accomplish your mathematical goals?   Which solution paths do you want to have shared during the  class discussion? In what order will the solutions be presented? Why?   What specific questions will you ask so that students will—  1. make sense of the  mathematical ideas that you want them to learn?  2. expand on, debate, and question the solutions being shared?  3. make connections among the different strategies that are presented?  4. look for patterns?  5. begin to form generalizations?  What will you see or hear that lets you know that *all* students in the class  understand the mathematical ideas that  you intended for them to learn? | **Sharing and class discussion to accomplish math goals:**  Students will show their math journals (doc camera) and explain how they found the data set values and how they chose to display their data.  1. Correctly find the values (scores)  2. Emphasize vocabulary (Mean, median, mode, range)  3. Information learned from the data set- Is this student understanding the concepts?  4. Have a student explain what another student has shared in his or her presentation.  5. Emphasize how important it was to know the total that all nine numbers add up  to(average). |

How Am I Doing in Math?

It is time to figure out how you are doing in math!

Your average quiz score is 85%! You have completed nine quizzes this term.

When putting the scores in order from least to greatest, the middle score of your quizzes is an 80%, the most frequent score is a 75%, and the lowest and highest scores have a difference of 30 points.

Using this information, come up with your nine quiz scores for the term, and produce a visual to represent your scores.

\*\*Once you gather your information and produce your visual representation, you will be explaining your data to your parents at SEP conferences. As you are gathering your information, be sure to explain how you feel about your progress in math.

