Assessment Commentary

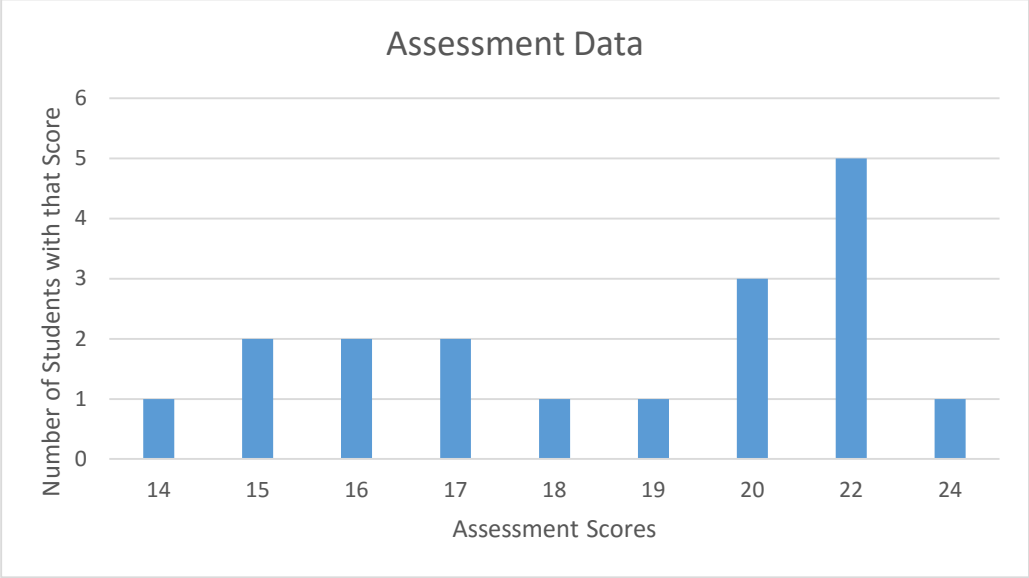
In Assessment Task 3, you will write a commentary, responding to the prompts below. Your commentary should be **no more than 10 single-spaced pages, including the prompts.** Attach the assessment used to evaluate student performance (**no more than 5 additional pages**) and, if necessary, a transcription of inaudible portions of a video or audio clip of feedback or a student work sample (**no more than 2 additional pages**) to the end of the Assessment Commentary. These additional pages do not count toward the commentary page limit noted above.

1. **Analyzing Student Learning**
   a. Identify the specific learning objectives measured by the assessment you chose for analysis.

      Represent real-world and other mathematical problems that can be modeled with exponential functions using tables, graphs, and equations of the form y = ab^x, and interpret the values of a and b.

      Graph exponential functions without technology.

   b. Provide a graphic (table or chart) or narrative that summarizes student learning for your whole class. Be sure to summarize student learning for all evaluation criteria submitted in Assessment Task 3, Part D.



   c. Use evidence found in the **3 student work samples and the whole class summary** to analyze the patterns of learning **for the whole class** and differences for groups or individual learners relative to

      - conceptual understanding,
      - procedural fluency, **AND**
      - mathematical reasoning and/or problem-solving skills.

      After examining the assessment, it shows that the whole class is proficient at creating exponential functions, creating the corresponding table of values, and then graphing the function. The assessment also shows that the students lack the conceptual knowledge necessary for

solving exponential functions to answer a situational question. They understand the procedural order in which everything must go. But it is clearly evident that they were unsure what to do with the function rule, in order to answer situational questions. They are lacking in their problem-solving skills. As the whole, most of the students did not answer the questions at the bottom of each problem. Whether they did not understand the procedure for answering the questions, or if they lacked the mathematical reasoning to see that the problems were similar to the problems we solved as a group in previous lesson is unclear. However it is apparent that they have the conceptual knowledge of exponential functions.

d. If a video or audio work sample occurs in a group context (e.g., discussion), provide the name of the clip and clearly describe how the scorer can identify the focus student(s) (e.g., position, physical description) whose work is portrayed.

2. Feedback to Guide Further Learning

Refer to specific evidence of submitted feedback to support your explanations.

a. Identify the format in which you submitted your evidence of feedback for the 3 focus students. Choose one of the following:

- Written directly on work samples or in separate documents that were provided to the focus students
- In audio files
- In video clip(s) from Instruction Task 2 (provide a time-stamp reference) or in separate video clips

If a video or audio clip of feedback occurs in a group context (e.g., discussion), clearly describe how the scorer can identify the focus student (e.g., position, physical description) who is being given feedback.

I gave my feedback by writing directly on the work samples.

b. Explain how feedback provided to the 3 focus students addresses their individual strengths and needs relative to the learning objectives measured.

The feedback for student 1 shows that the student is understanding the content, and the concepts, but that he could go further and be more precise. In relation to the objectives, the feedback shows that the student is achieving the objectives, and now can be pushed to become a more precise mathematician. The feedback shows that the student's strengths lie in is his/her strong conceptual understanding. It would not have mattered which problem in the packet he/she was assigned initially, he/she would have been highly capable of solving any of the problems. But the feedback shows that I should be pushing this student further to a deeper understanding of the material.

The feedback for Student 2 shows that the student is understanding the basic concepts for the unit. It also shows that they student has managed to meet the objectives at a proficient level, but that the student is struggling on the more challenging questions at the end of each problem. The feedback also shows that the student did not fully understand the syntax that was needed for the unit. Throughout the assessment the student wrote function rule using notation from middle school that is mathematically inappropriate for this unit.

The feedback for Student 3 shows that the student does not have full conceptual understanding of exponential functions, and therefore cannot meet all of the objectives for the unit. The feedback also shows that the student needs more support in the vocabulary, because he/she was unable to start some of the problems. Without a proper base of knowledge, the student was unable to fully complete the assessment.

c. Describe how you will support each focus student to understand and use this feedback to further their learning related to learning objectives, either within the learning segment or at a later time.

For Student 1, my feedback focused on furthering his/her precision as a mathematician. For the future I will push the student to include units on story problems, so he/she can communicate mathematics properly. I hope the feedback will help prompt a conversation between the student and me about becoming a better mathematician, and communicator of mathematics.
For Student 2, my feedback focused on correcting notational errors, showing work, and preserving through the problem. I want the feedback to spark a conversation about proper notation. I want to have an in-depth conversation with the student about the reasons why the proper syntax has to be used. I also want to discuss the important of showing work, persevering through a problem. Nothing in life is easy, including mathematics. Preserving through a problem is essential to becoming a better mathematician, and if you get stuck I can help, but only if I can see the previous work you have completed.
For Student 3, my feedback focused on their lack of work. I want to have a conversation with the student about why they did not even attempt the problems. I hope to help the student understand that I am not upset that he/she does not have work, but rather that I want to help fix where information got lost. I want to help the student understand that it is not bad to ask for help.

3. Evidence of Language Understanding and Use

When responding to the prompt below, use concrete examples from the clip(s) and/or student work samples as evidence. Evidence from the clip(s) may focus on one or more students.

a. Explain and provide concrete examples for the extent to which your students were able to use or struggled to use the

- selected language function,
- vocabulary and/or symbols, **AND**
- mathematical precision, discourse, or syntax to develop content understandings.

Student 1 wrote exponential next to the graph for Problem 1. It shows me that he recognized that the graph has a non-constant rate of change and was therefore not linear. He was using the language function: Compare/Contrast, and deciding whether or not the graph represented a linear or exponential function.

All 3 students were able to write a function rule for at least 1 problem. That shows that they are able to use the unit vocabulary. But since Student 3 did not even attempt 2 problems in the assessment, this shows that the student struggled to use the vocabulary without close supervision/help. But Student 1 also shows me that some students have a deep understand of the vocabulary. The student's use of vocabulary, and his/her work for problem 1 shows me that some students truly understand the unit vocabulary.

Syntax

Both Student 2 and Student 3 incorrect wrote the exponential function rule for each problem. That shows the students struggled to use the proper syntax, and write the function rules properly. Therefore they do not have a fully developed knowledge of the content.

4. Using Assessment to Inform Instruction

a. Based on your analysis of student learning presented in prompts 1b–c, describe next steps for instruction to impact student learning:

- For the whole class
- For the 3 focus students and other individuals/groups with specific needs

For the whole class, I will create better support for using functions to answer real-life situational questions. Using different functions, linear and exponential, I will continue to have them compare and contrast how function rules are written and solved. I will have an emphasis on comparing the methods for solving the different functions. This will allow me to recall back to Linear functions further, and still offer extra support for my students with specific learning needs.

For my learners with specific needs I will include some extra support for using proper notation, while I am helping the class with function support. I will also help motivate them to preserve through problems longer.

b. Explain how these next steps follow from your analysis of student learning. Support your explanation with principles from research and/or theory.

My plan for continued support comes from the fact that students have responded to comparing different mathematical concepts. It is easier to help someone learn something new, if they have a reference in their mind.

Assessing that prior knowledge, is the key to helping students make new connections. I am changing the focus of my support, from comparing the basics to mathematical methods. This way I am able to better differentiate, I can push the students who understand the basics of linear and exponential functions, and support the students who struggled when it was initial presented.