

PPAT® Assessment

Library of Examples – Math

Task 4, Step 2, Textbox 4.2.1: Instructional Strategies

Below are two examples of written responses to Textbox 4.2.1 as excerpted from the portfolios of two different candidates. The candidate responses were not corrected or changed from what was submitted. One response was scored at the Met/Exceeded Standards Level and the other response was scored at the Does Not Meet/Partially Met Standards Level. This information is being provided for illustrative purposes only. These excerpts are not templates for you to use to guarantee a successful score. Rather, they are examples that you can use for comparison purposes to see the kinds of evidence that you may need to add to your own work.

The work you submit as part of your response to each task must be yours and yours alone. Your written commentaries, the student work and other artifacts you submit, and your video recordings must all feature teaching that you did and work that you supervised.

Guiding Prompts for Task 4, Textbox 4.2.1

- How did you use academic content language to advance the understanding of the concept being taught in this lesson? Cite examples from the video to support your analysis.
- How did you engage students in critical thinking to promote student learning? Cite examples from the video to support your analysis.
- How did you use questioning skills to promote student learning? Cite examples from the video to support your analysis.
- How did you integrate literacy into the content you taught to promote student learning? Cite examples from any part of the lesson to support your analysis.

Example 1: Met/Exceeded Standards Level

- During the direct instruction portion of my lesson, I was modeling how to solve various higher order derivative problems. Within these problems, students must utilize previously learned rules. While modeling these problems I make sure to integrate this vocabulary. For example, from 00:22-00:56 I had asked students how they approached a certain problem, and explained that to find the third derivate (newly defined vocabulary) we would have to use the product rule and chain rule (newly defined method) multiple times. By using this vocabulary myself while teaching, it reinforces the meaning to students. This is especially beneficial for the plethora of rules that have been learned, which some students mix up the meanings for. This misconception is important to address so that students may identify and implement the correct derivative rule for a given problem. An example of a misconception like this being addressed is at 9:35. From 2:07-2:20 I mention the academic content vocabulary foil, binomial, and trinomial. This vocabulary is prior knowledge, but is still used to explicitly describe a method and the form of the

answers, because it has been integrated into the student's vocabulary. At the 12:10 mark I ask the students a question to justify their reasoning for taking a constant out before computing the first derivative. Their responses showed that they had forgotten that the constant multiple rule, previously learned vocabulary, allows this. These examples illustrate how I implemented academic content vocabulary into the lesson. Doing this advances student understanding of the content being taught this lesson, because the rules and methods explicitly stated are used within the new content students are learning.

- b. During the lesson, I engaged students in critical thinking to promote student learning by asking a variety of higher order questions that required students to justify, apply, and reason. For example, at the 00:08 mark I asked students how they approached a problem that I chose to highlight because I assessed during the warm up that students had difficulty solving it. I asked this question so that I could get a sense of my students' thought process, and make them analyze the problem for various strategies. At the 2:20 mark I asked students if there was another way to expand the binomial. The students learned in a previous math course the binomial expansion theorem, and I wanted students to recall this information and apply it in a new way. This connects the new information to prior information, so that students have a foundation to create their new knowledge on. From 9:50-10:22 I reinforced the procedure that we took, electing to do the algebra first to make the calculus portion approachable. By reinforcing this idea, I promoted students' critical thinking about their various math methods and tools before applying a rule or procedure.
- c. My lesson incorporated multiple types of questions and questioning strategies to promote student learning. These strategies include using cues to guide students, and asking a combination of inferential and analytical questions. This questioning occurs as a teacher posed question to the entire class during modeling, and through pre-designed questions on the student's online activity. For example, at the 00:08 mark I pose the question, "how did you approach this problem?" This inferential question is asked for several reasons, first being to get a sense of the students thought process. Secondly, it allows students to make predictions towards the multiple avenues that this problem could be approached. Finally, it gave a cue to students that there may be more than the obvious method of applying the product rule to solve the problem. From 3:29-4:27 I am using questioning with cues embedded into the question to guide the student towards the conclusion of using the binomial expansion theorem. Utilizing questioning skills like this allows students to discover a certain piece of information within a context that I am trying to convey. At the 10:27 mark I ask the question, "would you be able to identify this strategy," to prompt students to self-assess and reflect on their own ability to replicate what was just modeled. This is an example of another use of questioning, as it allows my students to critically think about the process just covered, enhancing their learning process. I implement a variety of questioning skills throughout my lesson to engage students, monitor their learning, and enhancing their learning and progress towards the learning goals.
- d. Literacy is integrated into the lesson through reading and writing during the student online worksheet activity. The students are asked open-ended questions such as "If you needed to differentiate a composite function, which rule would you use and why?" This question includes academic content language, and requires students to write a response in which they must explain how a rule is applied and why they chose to use that rule. To answer these question, students need to understand and interpret the academic content

language while providing a written response and rationalization. This integrated literacy promotes student learning as it engages students to think critically about the concepts taught, enhancing their conceptual knowledge of the topic, and allows students of various learning styles an opportunity to convey mastery of the learning goals.

Refer to the [Task 4 Rubric](#) for Textbox 4.2.1 and ask yourself:

What evidence from the video is cited to support the candidate's analysis of the following?

- Using academic content language in the lesson
- Engaging students in critical thinking in the lesson
- Using questioning skills in the lesson
- Integrating literacy into the lesson

Why is the analysis complete?

Example 2: Did Not Meet/Partially Met Standards Level

- a. I used academic content language to advance the understanding of the concept being taught in this lesson by reiterating past vocabulary they have learned. At the 7:06 and again at the 8:22 mark, I asked students if the graph was positive or negative? Students need to remember what a positive line looks like (going up) and what a negative line looks like (going down) to determine whether their slope is going to be positive(+) or negative(-)
- b. I engaged students in critical thinking to promote student learning by allowed them to work as a class to complete a learning activity game "I have, Who has?" (10:00-12:00) Without collaborating and working together to find the correct slopes from the given graphs/questions, they wouldn't be able to finish the game. This allowed students to take ownership of their learning and to think how they arrived at their correct answer and what the next students graph should look like to answer their question.
- c. As students were completing the graphic organizers for notes on slope, I asked them "what does 'm' stand for again?" (5:07) to keep replaying that 'm' stands for slope in their mind. I asked this question to keep reiterating 'm' represents slopes because in later lessons they are going to need to know what letter stands for slope when learning about slope-intercept form equation, $y=mx+b$.
- d. I integrated literacy into the content I taught to promote student learning by giving student 2 graphic organizers to fill in during our guided notes. In the lesson, students received a graphic organizer on the definition of slope and the type of lines and received a second graphic organizer on the steps to find slope from a graph. Students were asked to write vocabulary words like slope, linear, equation, graph, rise over run, which were mostly all new words they haven't heard before or in a while. Students had to show their understanding of these words by writing the definitions of the words and looking at pictures that correspond with the definitions.

Refer to the [Task 4 Rubric](#) for Textbox 4.2.1 and ask yourself:

What evidence from the video is cited to support the candidate's analysis of the following?

- Using academic content language in the lesson
- Engaging students in critical thinking in the lesson

- Using questioning skills in the lesson
- Integrating literacy into the lesson

Why is the analysis minimal?

Suggestions for Using These Examples

After writing your own rough draft response to the guiding prompts, ask the question, “Which parts of these examples are closest to what I have written?” Then read the 4 levels of the matching rubric (labeled with the textbox number) and decide which best matches your response. Use this information as you revise your own written commentary.

Lastly, using your work and/or these examples as reference, consider what you believe would be appropriate artifacts for this textbox.

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