Prompting Students to Explain Rubric

Learning Objectives:

- Use open-ended prompts that invite student explanations.
- Guide students who give incomplete or incorrect explanations.
- Reflect on how explanation prompts improve learning.

Research Recommendation(s)

Research shows that when students explain their thinking, they learn more. This is because it helps them *think about their own thinking*–a process called metacognition. When students explain their thought process it helps them catch mistakes, better understand what they know, and strengthen their learning (Chi et al., 1994; Rittle-Johnson et al., 2017).

In the scenario above, the most effective strategy is:
"Jake, can you explain how you got that answer? I'd like to hear your thoughts."

This type of question shows the student that you care about their reasoning, not just whether they got the correct answer. It invites them to talk through their steps, which helps them clarify their own thinking while giving you a window into their understanding.

Recent evidence reinforces this approach: Wang et al. (2024) found that tutors who prompted students to explain used higher-quality instructional strategies and their students were significantly more likely to master topics. Notably, less-experienced tutors saw the greatest gains, with their students improving mastery rates by up to 9 percentage points.

When you ask students to explain their thinking, keep these in mind:

- **Ask open-ended questions.** Avoid yes/no questions—encourage full explanations.
- **Focus on their process.** It's about how they solved it, not just if they were right.
- **Keep it judgment-free.** Even if the answer is wrong, show curiosity, not criticism.
- **Help them reflect.** Give them space to think about and adjust their approach.

Examples of effective prompts to students to encourage them to explain include:

- *Can you walk me through how you solved this problem?*
- *What steps did you take to arrive at this answer?*
- *Why do you think this approach worked?*
- *What would you do differently if you encountered a similar problem?*

Prompting students to explain their thinking doesn't just help them solve the problem at hand—it teaches them to reflect on their learning, identify gaps in their understanding, and become more confident, independent thinkers. By making space for students to explain, you're reinforcing one of the most effective strategies for deep, lasting learning.

Research Recommendation

Research shows that asking students to explain their thinking—especially through process-focused prompts—can lead to deeper, more lasting understanding.

In the scenario above, the most effective strategy is:

"It's great that you got that question right! It's also important to understand why it's right. Would you explain what steps you took to get your final answer?

When students talk through their reasoning, they strengthen their grasp of the material and can catch their own mistakes. This approach helps them reflect on their ideas and thought processes more deeply, which makes learning more meaningful and effective (Chi et al., 1994; Rittle-Johnson et al., 2017).

PREDICT RESPONSES

Answers-
-"Jake, can you explain how you got that answer? I'd like to hear your thoughts."

-It's great that you got that question right! It's also important to understand why it's right. Would you explain what steps you took to get your final answer?

Tutor responses need to: Tutors should be inviting and encourage the student's curiosity about their own thought processes by asking open-ended questions.

Correct (1): Tutor asks open-ended questions without judgement and encourages the student to reflect on their process.

Incorrect (0): Tutor asks simple yes/no questions, is judgemental or focuses on results over the process.

Tutor response:	**Score and rationale**
Jake, could you walk me through how you solved this problem?	1 This asks for the student's rationale with an open-ended question and allows them to reflect on their process.
Hold on a second Ahan, I see you've got the right answer now, but I'd love to hear how you got there. Can you walk me through what	1 This emphasizes the value of learning from your mistakes over just getting the right answer.

made you change your first few answers and how you figured out this one?	
Ok that's correct but how about I open the whiteboard and give you some pointers on how I would have solved it?	0 Instead of allowing the student to think through their process, the tutor takes over with their own. This doesn't leave room for self-reflection.
Did you get where you made the mistake during your first attempt?	0 This answer could be effective with a bit of tweaking, but as it is, it is too easy for the student to simply say "yes" and move on. It is not an open-ended question.
It will be better if you try to verify the answer before submitting it.	0 Asking the student to simply verify the answer does not guarantee that they will discuss it out loud.
Ahan, can you walk me through how you calculated the perimeter and why you chose those numbers?	1 This question is slightly more specific than a general "walk me through how you got your answer," but it still allows for a discussion of the student's process. Asking why the student chose the numbers they did can give them a starting point for what sort of information the tutor is asking for.

EXPLAIN RESPONSES

Answers-
-Prompting students to explain their reasoning helps them reflect on their thought process, leading to deeper understanding.

-Encouraging the student to slow down and think about his process gives him space to reflect before he rushes onto the next question.

Tutor responses need to: Emphasize the importance of discussing the student's thought process to encourage reflection.

Correct (1): The tutor's response demonstrates that the tutor understands the importance of discussion and self-reflection.

Incorrect (0): The tutor doesn't demonstrate an understanding of the importance of discussion and self-reflection.

Tutor response:	**Rationale**
It encourages him to think deeply about the problem and his process.	1 This focuses on the value of process-focused discussion, and acknowledges that self-reflection can lead to deeper thinking.
It will help him improve.	0 This does not give any details on why the process of explaining one's answer can help a student improve.
Asking Jake to explain how he got the answer prompts him to reflect on his problem solving process.	1 This answer emphasizes the value of reflection.
So that I can know if he got the question using the right approach.	0 Being able to check that the student used the right approach is helpful, but this response fails to address the fact that the process of self-reflection is valuable for the student inherently.
This will encourage critical thinking and get the student to discuss his process in determining the answer.	1 This rationale addresses the benefits discussion has for critical thinking.