

GRADE 10 MATHEMATICS: Refining Quiz Questions

Summary of Learning Opportunity

In this review activity, students used their knowledge and understanding from the first two sections of this unit (Slope-Intercept and General Forms) to generate ideas for what they would expect to see on a quiz. The students then tested each other's quiz questions and gave constructive feedback to their peers. Students must discuss and defend their ideas for fair quiz questions when challenged by each other. They needed to ensure their questions assessed the unit's concepts and needed to refine their solutions for accuracy and clarity. Students reflected that they had a stronger understanding of the unit content because of this practice in critical thinking and collaboration.

Mathematics 10

Learning
Standards

- Solve problems with persistence and a positive disposition
- Take risks when offering ideas in classroom discourse
- Reflect on mathematical thinking
- Use mistakes as opportunities to advance learning

Literacy Connections

Instruction and Assessment

Competencies Developed and Practiced

LITERACY: Develops
ideas--Generates ideas,
Evaluates ideas

LITERACY: Communicates
ideas and information—
Justifies and defends
decisions and/or ideas

1. Students brainstormed a list of tricky topics and ideas covered in the unit. They generated one or two questions assessing one of the topics, along with an answer key. I asked students to reflect whether their question actually assessed the topic and whether their solution was accurate and efficient.

2. Students traded questions with each other and attempted to answer a peer's quiz question. Students consulted the question writer to clarify the question, if needed, and for accuracy of their solution. Students discussed their problem-solving strategy and any differences between the writer's and the solver's strategy or solution.

3. The writers and solvers worked to refine the questions and answer keys. In some instances, the writer defended their work. In others, the solver gave constructive feedback which the writer applied.

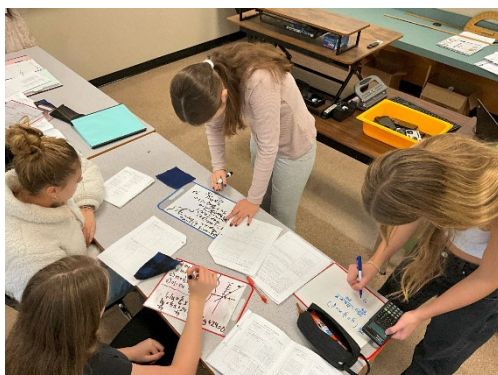
Reflect on mathematical thinking

Solve problems with persistence and a positive disposition

Take risks when offering ideas in classroom discourse

Use mistakes as opportunities to advance learning

Demonstration of Student Learning, Teacher Assessment and Reflection



Teacher's Reflection

I noticed that my students felt a boost in their confidence for summative assessments that followed this activity. Consequently, more students were successful on the assessments compared to last year where other forms of review were used. Students were able to communicate their understanding mostly in the proficient and extending range on the assessments. This has never been the case in my past years of teaching of these content areas in Math 10 FMP. This was an effective way to prepare students not only in the curricular competencies but also the content areas. I did not anticipate this effect when I first decided to try this activity with the students.

However, I noticed that this activity is very much marks-driven. In the future, I would like reflection and collaboration to be a more natural part of my students' learning routine, where they would do this activity for their understanding rather than for preparing for a summative assessment.

Math 10 FMP

NAME:

BLOCK: E

Chapter 7.1 & 7.2 Slope-Intercept and General Form Review

For this activity, list the topics from this unit that you would expect to see on the test.

1. Write down the concepts/topics covered in each lesson and think about what you need to know for each concept/topic. This can be demonstrated through graphs, words, or mathematical symbols.
2. Under each topic, write down the most important concepts and tricky ideas that you need to watch out for.
3. Next to each topic, come up with a possible question that you may see on the quiz. Make an answer key on a separate piece of paper.
4. Upon completion, trade your questions with a classmate and answer as many of their questions as you can on the whiteboard or over the erasable sleeve.
5. Consult with the classmate of any question you did not understand or could not answer.
6. Complete the self-evaluation for this activity and hand in this activity. Be sure to include your answer key!

Chapter 7.1 & 7.2 Slope-Intercept and General Form Review	
Topics	Possible questions on the test
Ch 7.1a Slope-Intercept Form	
• $y = mx + b$	What are the slopes and y-ints. of each line?
• Slope / y-int	a) $y = 5x - 3$ b) $y = \frac{x}{3} + 4$
• Start with the given point (y-int)	Sketch the graph of each line using the slope and y-int.
• Use the slope to find other coordinates on the line.	a) $y = 2x + 3$
	b) $y = \frac{1}{2}x - 4$

Please complete the following sentence:

This activity was...
 helpful and provided a more stronger understanding to this unit.
 Because...
 I analyzed questions I predicted would show up on the quiz and was able to solve them.
 But...
 I found it helpful and useful.
 So...
 I would continue to do this activity.

Teacher's Observations and Assessment

This student demonstrated a good understanding of the math content. Moreover, they practiced the math curricular competencies which support their proficient content knowledge. This student generated questions and an answer key that reflected the topics in the chapter, using their notes as reference. The student worked collaboratively with classmates to ensure they understood the problem-solving process. The student and their partner answered questions together. They explained to each other their own quiz questions and justified their strategies and solutions. They explained where their partner had made a mistake when the solution from the other group member did not align with the answer key. In all, the student's persistence in problem solving, explanation and correction of errors, and reflecting on their thinking supported their stronger understanding of the content in this unit.