Guided Practice:

Introducing and Planning to Solve a Mathematics Performance Task

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Word problems versus **Problem solving**
What's the difference?

Word problems

- Read for key words
- Determine operation
- Perform Operation
- Label your answer

Problem solving

- Read for key words
- Think about ways you could solve it: Steps? Strategies? Visuals?
- List math terms, symbols, operations, concepts
- Perform Operation(s)
- Explain your reasoning
- Make math connections

Word problem versus **Problem solving**

Michael counted minutes while he got ready for bed.

- 5 minutes to take a bath and put on his pajamas.
- 2 minutes to brush his teeth.
- 3 minutes to lay out his clothes for the next day.

How long did it take Michael to get ready for bed?

Show your work. Label your answer.

Michael's mother said that if he took less than 15 minutes to get ready for bed, he would have time to read a short book.

Michael counted minutes while he got ready for bed.

- 5 minutes to take a bath and put on his pajamas.
- 2 minutes to brush his teeth.
- 3 minutes to lay out his clothes for the next day.
- 1 minute to put his book bag by the door.
- 2 minutes to say good night to his family and his dog.
- 1 minute to jump into bed and fluff up his pillow.

Did Michael have enough time to read a short book?

Show how you know.

Part 1 - Examine the Task

1. Read the task prompt together. UNDERLINE the question(s) to be answered.

2. "I have to find out _____" (figure out what you really have do - say it in your own words)

3. Make a plan:

- ❑ Discuss / list some ways – STRATEGIES – I can use to find a solution.
- ❑ Discuss / list some math terms and symbols I will use
- ❑ Discuss: What mathematics CONCEPTS do I need to use?
- ❑ What are some possible ways to VISUALLY show the problem? (graph, table, label a picture or diagram, etc.)

Part 2 - Solve It and Explain Your Thinking

4. "I will _____" (what steps or strategies will you use to solve this problem?)

5. Solve it.

6. Use words to communicate your mathematical thinking about…

- ❑ **My Strategy?**
- ❑ **My Representations or Models?**
- ❑ **My Operations and Calculations?**
- ❑ **Applying a math concept?**
- ❑ **Reasonableness of my Solution?**

7. Make some **mathematical connections**:

"This shows the math concept of _____"
"This reminds me of _____"
"This is like _____"
"This also applies when _____"
"This only works if _____"

Scoring Criteria Indicators of "Proficient"

(P/S) (DOK 1-2) Problem Solving Approach	(R/P) (DOK 3) Reasoning & Proof/Justify	(Com) (DOK 1-2) Math Communication	(Con) (DOK 2) Making Math Connections	(Rep) (DOK 2) Representation
Accurate calculations for operations used	Develops a math argument to justify the solution	Used math terms correctly	Math connections to prior learning, real-world OR	Appropriate visual used for situation
Used a strategy for situation that leads to a correct solution	Explains how strategy, representation, calculations support	Used math symbols, equations correctly	Notes any math patterns, structures, etc. OR	Correct labels & form (chart, diagram, table, drawing, graph, etc.)
Explains why a strategy was changed or multiple strategies used	Explains why solution is reasonable; checks for accuracy	Clarifies problem and explains processes used	Math connection to concepts	

Next Steps?

1. Solve the problem and use **mathematical terms, symbols, and concepts** to communicate your reasoning:

   - What was your **strategy** and how well did it work? (DOK 2)
   - How do you know your **computations** are accurate? (DOK 1)
   - How does your **representation or model** (DOK 2) (table/chart/equation/diagram) support your solution?
   - What **math connections** did you make? (DOK 2)
   - Which **mathematical practices** were used? Explain your examples.
   - **Reasoning/why:** is the solution is reasonable; and is the strategy or representation appropriate to situation? (DOK 3)

2. Analyze an alternative solution to this problem (DOK 3).
3. Improve upon a given solution to this problem (DOK 3).
4. Use a rubric to score and compare solutions (DOK 2).
5. Teach someone else how to solve this (DOK 2).