

Developing MSA- and HSA-Style Questions
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26 January 2007

How to write selected response and student-produced response items:

Start with a textbook problem

Pick a problem that has a clear and distinct correct answer

You will also need three wrong answers that can be achieved by one mistake

Balance all of the answers (2 low/2 high, 2 positive/2 negative, etc.)

You don't want any answer to 'stand out'

For student-produced response items, look for problems with multiple answers within a well-defined range, like selecting a number between 1 and 2.

How to write constructed response items:

Start with a textbook "word problem"

Context is harder to develop than skill. Select a context that has meaning for students.

Describe in three good sentences. Use simple but authentic vocabulary.

Should be context neutral (but you can do what you like with your students).

Include necessary information.

Don't put in extraneous information. Focus the student's attention on the particular area of knowledge that they should use.

Information can be in graphic form, such as equation, table, graph, figure, diagram. Be sure to direct students to examine the graphic ("Look at the diagram below") if you use a graphic. This can cut the number of words.

Be clear and concise.

Tell students what they are to do and what is expected of them.

Tell students where they are to write their response and give them enough room on the paper to write their response.

Provide proper cueing to direct the student's thinking.

Ask the question(s).

Use a bulleted list.

How will the rubric criteria be utilized in your item?

Application: Solve the problem correctly using the strategies above

Explanation in words or symbols

Explaining the processes used to solve the problem

Justification in words or symbols

Determine the validity of the solution

MSA: Connection: within and outside of mathematics

Extension: within and outside of mathematics

HSA: Representation: Appropriate display of information

TAILS, variables defined, equations labeled on graphs

Analysis: Use appropriate strategies or processes

Be sure to use the "H.S.A. Style Guide" as a reference

Powerpoint and handouts available at nolanmath.com