

12th simplified Rubric design after Keesh's comments and NNN journal suggestion

Wednesday, September 28, 2022 5:15 PM

Separate out into 3 rubrics that answer 3 different questions:

1. Is this clearly a numeracy task - i.e. distinct from a mathematical task?
2. To what extent does it provoke responses to each of the necessary actions: Define, Abstract, Compute, Interpret?
3. Is this a numeracy task that would be good to use with my students?

Rubric 1. Purpose: is for the teacher/designer to assess the extent to which the task is well designed and to identify areas that can be improved. Any task that is presented to a student can be assessed with this rubric.

criteria	High quality task characteristic
Nature of context (concreteness)	<ul style="list-style-type: none"> - The task description takes the student (or group of students) out of school (or away from their desk) and explicitly into a concrete context (without necessarily doing so physically) - The task is external to both the class and any mathematics being studied in the class.
Task description: content (aboutness)	<ul style="list-style-type: none"> - The task presented demands a focus on and response to a concrete situation within the scenario. - Though it demands the use of quantitative methods and/or mathematical tools, it is not about the mathematics that is/needs to be used. - Description makes it easy to assess whether a student (or group of students) is familiar with the language/culture of that context or has experience in it.
Authenticity of Scenario within Context	<ul style="list-style-type: none"> - The scenario is presented in a way that it would appear in the given context. - The challenge or problem that is to be solved is one that would arise in that context.
Task description (required actions)	<ul style="list-style-type: none"> - The task described makes explicit the need for responses (however trivial) to each of the following actions of the adapted Wolfram computational thinking process (Define, Abstract, Compute, Interpret - see breakdown in rubric 2). - Multiple responses to the posed task are possible, though some may be judged as stronger (or weaker) if errors are made. - A solution using informal methods is just as valid as one using formal mathematical methods.

Rubric 2. Purpose: for teacher/designer to assess the task's ability to provoke responses to each of the following actions: Define, Abstract, Compute, Interpret.

criteria	Highest sophistication
Define the question.	<ul style="list-style-type: none"> - Scenario presented such that student will need to reframe the scenario into quantitative friendly format in order to complete the task. - The student will need to describe assumptions or simplifications made to reduce ambiguity inherent in task description.
Abstraction :	<ul style="list-style-type: none"> - Scenario requires reframing into a formal or informal mathematical model (i.e. in preparation for computation) and allows for at least one correct approach. - No new mathematics needs to be developed by the student to solve the task(s) presented in the scenario.
Computation and result(s):	<ul style="list-style-type: none"> - Scenario requires calculation(s) without indicating need for technological help. - The calculation method used by the student can be similar to what would be expected in the context of the scenario, but does not need to be so. - Expected results of calculations can include visual and or numerical formats, charts and/or graphs as warranted and appropriate.
Interpret results: Task response expectations	<ul style="list-style-type: none"> - A correct response to the scenario is context based, and requires more than just presenting the result of calculations including some discussion of define and abstract actions, justifying any decisions made. - Depending on complexity of task interpretation may include analysis, discussion, justification with logically sound narratives.

Rubric 3. Purpose: for teacher who is deciding whether to use a numeracy task in a class. Assumption is that that the task has passed rubric 1 and 2 sophistication test.

criteria	Yes: use it	Maybe still ok (or possible to modify to shift to yes)	No: don't use it
Appropriateness of context	The concrete context that the student is placed in is one that the student (or group of students) have experience with directly or indirectly, or have the capacity to grasp..	The concrete context that the student is placed in may be one that the student (or group of students) have experience with, or at least be expected to be somewhat familiar with second hand.	The concrete context that the student is placed in is one that the student (or group of students) do not have experience with, nor can they be expected to be familiar with it second hand.
Accessibility of language and terminology	The language used (especially technical terminology native to the context) is familiar to the student (or group of students) in the classroom setting for the course being taught.	The language used (especially technical terminology) may be familiar to the student (or group of students) in the classroom setting for the course being taught. Technical terminology that is unfamiliar can be rewritten to make the task accessible to all.	The language used (especially technical terminology) is not familiar to the student (or group of students) in the classroom setting for the course being taught. Technical terminology would require socializing in order to make it accessible.
Mathematical Expectations	The formal or informal mathematics needed to solve the problem are familiar to the student (or group of students) to whom the task will be	Some of the formal or informal mathematics needed to solve the problem may not be familiar to the student (or group of students) and thus some teacher intervention may be required.	The formal or informal mathematics needed to solve the problem are not be familiar to the student (or group of students) and need to be taught in order that the task be completed

presented.

successfully.