## Introduction to the Scoring Guide

The scoring guide maintains vertical consistency at each number through each of the dimensions.

6: Work is insightful
5: Work is thoroughly developed
4: Work is complete and effective (not necessarily perfect)
3: Work is partially effective or partially complete
2: Work is underdeveloped or sketchy
1: Work is ineffective, minimal, or not evident

**Making Sense of the Task (MS)**
*Interpret the concepts of the task and translate them into mathematics*
The student translates the words from the problem into appropriate mathematics. The key concepts are addressed. Evidence that makes a paper more thoroughly developed or insightful may include extending their thinking to other mathematical ideas or making connections to other contexts.

**Representing and Solving the Task (RS)**
*Use models, pictures, diagrams, and/or symbols to represent and solve the task situation and select an effective strategy to solve the task*
The strategies chosen by the student are effective and complete for this task. Evidence that makes a paper more thoroughly developed or insightful may include generalizing a strategy using an algebraic representation versus a numeric or tabular representation.

**Communicating Reasoning (CR)**
*Coherently communicate mathematical reasoning and clearly use mathematical language.*
Communication of the reasoning refers to the connections among all of the dimensions, and the identifiable solution – allowing the flow of the paper to help the reader understand the path from one part to another. A clear path does not require a linear sequence of thoughts or communication. The student uses math vocabulary and labels appropriately.

A significant gap is when the reader is using his/her own knowledge about the problem and mathematics to infer why a student might have moved from one part of the work to another.

Evidence that makes a paper more thoroughly developed or insightful may include additional graphics or examples to help the reader move easily through the student work.

**Accuracy (AC)**
*Support the solution/outcome.*
The student's solution is correct, mathematically justified, and supported by the work.

It is critical that students who are "close" to having a proficient response, with minor errors or partial answers, be given an opportunity to rework the problem given the scoring feedback, but no further instruction.

Evidence that makes a paper more thoroughly developed or insightful may include extending the solution by asking new questions leading to new problems. Although possible, it is a rare occurrence to get a 5 or 6 in accuracy.

**Reflecting and Evaluating (RE) -**
*State the solution/outcome in the context of the task. Defend the process, evaluate and interpret the reasonableness of the solution*

The student states the solution within the context of the problem. This requires the student to review the task and reflect on what was asked. There should be evidence on the student has reviewed ALL the dimensions in solving the task.

The reflection (a second look) could be embedded in the original work or after arriving at a solution and/or a combination of both.

Evidence that makes a paper more thoroughly developed or insightful may include solving the task from a different perspective. Students evaluating their approaches taken may include addressing the efficiency of an approach or the relative use of a procedure.

**Additional considerations:**

It is important to consider each of the dimensions as a separate entity. The weakness in the work should only reduce the score for the dimension in which the weakness occurred. On the other hand, strength in one dimension may improve a score in another dimension. An answer that is not correct may still have strong work in some or all other dimensions. Likewise, a paper with a correct solution still needs careful consideration for success in each dimension.

Because a single scoring guide is used for a variety of tasks, the student work is not always expected to exactly match the criteria described at each numbered level. It will, however, have characteristics similar to those described in the criteria.

Guidelines for using the scoring guide:

It is important to prepare for the scoring process by doing the following;

- Work the task yourself
- State the answer within the context of the problem
- List the key concepts necessary to complete the task
- Anticipate alternative solutions and strategies

Although different scorers may use different styles, here is a typical process for using the scoring guide:

- Scan the student papers and find a sample of papers that represent the spectrum of student work
- Possibly sort the student work so that you will score all work with similar approaches one after another
- Carefully read all through one student's work.
- Read the criteria for a score of 3 on one dimension.
- Review the student work again. If it seems stronger than a 3, read the 4 through 6 criteria. If is weaker than a 3, consider the 1 and 2 criteria.
- Assign a score for that dimension
- Repeat the process for the other 4 dimensions

Additional scoring hints or considerations include the following:

- Any scores that you are uncertain about should be set aside to look at again after scoring the rest of the papers (these papers might also be good candidates for collegial discussions).
- A score of 4 meets the standard, and a 3 nearly meets – so this is a critical distinction
- As a way of validating your scores, it is very helpful to have a colleague score a few of your papers without seeing the scores you gave, then having a discussion about any differences in your scores. When double scoring, as a general rule, scores that are within 1 point in any given dimension are considered "aligned" but a discussion to agree on the same score can help to "calibrate" your scoring.

Reworking "official" work samples

When time allows and if no discussion of the task has taken place in class, it is encouraged that students with 4's or better in some dimensions, and a few scores of three, or possibly lower, should be given an opportunity to revise their work (no further instruction is allowed if this response is to be used as evidence of proficiency for the purpose of the Essential Skill of Mathematics)