

Definitions of MOST Characteristics

A MOST is a **M**athematically significant pedagogical **O**pportunity to build on **S**tudent **T**hinking; in short, MOSTs are **M**athematical **O**pportunities in **S**tudent **T**hinking. The following are the definitions for the three MOST characteristics and the criteria that must be satisfied for each of them.

Student Mathematical Thinking: An evidence-based inference about student mathematical thinking that can be used to develop a mathematical idea.

Criteria:

- **Student Mathematics**: an inference (that can reasonably be made based on a student's actions) about what a student is thinking mathematically, regardless of the correctness of that thinking.
- **Mathematical Point**: a concise statement of a mathematical idea that mathematics learners could better understand as a result of making the student mathematics of the instance an object for consideration.

Mathematically Significant: When the mathematical point of an instance warrants the use of limited instructional time; used in the context of teachers engaging a particular group of students in the learning of mathematics.

Criteria:

- **Appropriate Mathematics**: When the mathematical point is accessible to students given their prior mathematical experiences but not typically mastered by most of them.
- **Central Mathematics**: When the mathematical point is a central goal for this group of students—central either to the lesson or to the discipline of mathematics.

Pedagogical Opportunity (*to build on student thinking*): An observable student action that creates an *intellectual need* (Harel, 2013) that can be acted on in that moment to contribute to students' understanding of a mathematical point.

Criteria:

- **Opening**: an instance in which the expression of a student's mathematical thinking creates, or has the potential to create, an intellectual need for students to make sense of the *student mathematics*, thus providing an opportunity to understand the *mathematical point*.
- **Timing**: an opportune time when taking advantage of the opening *at that moment* is likely to further students' understanding of the mathematical point of the instance.