



Designing a Teacher Learning Sequence for Building on Mathematical Opportunities in Student Thinking



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IDENTIFYING MOSTs

Student Mathematical Thinking

Student Mathematics

Can the student mathematics (SM) be articulated?

Yes

Mathematical Point

Does the SM have a mathematical point (MP)?

Yes

Mathematically Significant

Appropriate

Is the MP accessible to students, but not likely to have been already mastered?

Yes

Central

Is understanding the MP a central learning goal for students in this class?

Yes

Pedagogical Opportunity

Opening

Does the SM create an intellectual need that, if met, would contribute to understanding the MP?

Yes

Timing

Is now the right pedagogical time to take advantage of this opening?

Yes

A MOST

Establish

- Establish Precision
- Establish the Object
- Establish the Intellectual Need
- Establish the Conversational Bubble

Grapple Toss

- Reference the established object
- Provide a sense-making action

Conduct

- Manage argument-related contributions (ARCs)
- Manage non-argument-related contributions (non-ARCs)

Make Explicit

- Resolve the MOST
- Generalize toward the Mathematical Point
- Transition

BUILDING ON MOSTs

LEARNING TO BUILD ON MOSTs

T.L.S.

Teacher Learning Sequence

2. Hypothesized Learning Path

General sense of MOSTs

General sense of Building

Student Mathematics & Mathematical Point

Building Elements

Recognizing MOSTs

Building on MOSTs

1. Learning Goal

Understand the practices of identifying and building on MOSTs

3. Plan for Learning Activities

Representations

Illustrate an aspect of teaching practice to support developing a vision of that aspect

- Examine transcripts that include MOSTs
- Review video clips that model building on MOSTs

Decompositions

Break down the complexities of teaching into presentable parts that can be named

- Sort examples and non-examples of MPs
- Analyze how teacher actions contribute to or hinder different aspects of building

Approximations

Try out practices in situations that simulate classrooms

- Anticipate potential student contributions and articulate the corresponding SMs and MPs
- Plan specific questions that might be asked during the grapple toss

Controlled Implementations

Try out practices in classrooms, using modifications to reduce complexity

- Practice making a public record of student contributions that will support discussion
- Identify MOSTs while teaching a lesson

