FROM ACCESS TO OWNERSHIP:
Supporting English Learners in Math

Michelle Staine, English Learner Expert
Lisa Melton Pizzuto, Math Coordinator

INTRODUCTION

Michelle Staine
• English Learner Expert with LAUSD
• Former Common Core Math Expert
• 14+ Years Experience K-5

Lisa Melton Pizzuto
• Local District Math Coordinator with LAUSD
• Former Common Core Math Expert
• 12+ Years Experience K-5
Students who are not fluent in English can learn the language of mathematics at grade level or beyond at the same time that they are learning English when appropriate instructional strategies are used.

-- Principles to Actions p.63
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FOUNDATIONAL RESOURCES

CA ELA/ELD Framework
CA Math Framework

Judit Moschkovich

John Van De Walle
Elham Kazemi & Allison Hintz
Jeff Zwiers

INTEGRATED ELD/MATH

CA ELD Standards in Tandem with Content Standards
Content and Language Objective
Scaffolds
Strategic Grouping
Formative Assessment
High Impact Practices (Jeff Zwiers, Stanford University)
THREE PHASE LESSON STRUCTURE

INTRODUCTION

MATHEMATICAL DISCOURSE

THREE READS PROTOCOL

MATH INTERVIEW PROTOCOL

MATH SUMMIT PROTOCOL

CLOSING & EVALUATION

AGENDA
What do English Learners need in Mathematics Classrooms?
1) “They need teachers who are prepared to teach Math for understanding.”

2) “Administrators and teachers need to know that English Learners can participate in mathematical discussions.”

3) “It’s the role of teachers to help children connect their ways of talking that are more everyday and transform those into more academic ways of talking.”

JUDIT MOSCHKOVICH

What do English Learners need in Mathematics Classrooms?

INTEGRATED ELD/MATH

CA ELD Standards in Tandem with Content Standards

Content and Language Objective

Scaffolds

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Formative Assessment

High Impact Practices (Jeff Zwiers, Stanford University)
STANDARDS IN TANDEM

- Math Content and Practice Standards
- ELD Standards

INTEGRATED ELD/MATH
LAUSD KINDER VIDEO
INTEGRATED ELD/MATH

Lesson plans that include objectives for language, mathematical content standards, and mathematical practice standards need to identify where these three objectives intersect and what specific scaffolds are necessary for English learners' mathematical discourse.

-- CA Math Framework
Universal Access Chapter, p. 687
CONSTRUCTIVE CONVERSATION SKILLS

Jeff Zwiers
Understanding Language Program
Stanford University

ACADEMIC CONVERSATIONS WITH ELLs

Creating
Sharing our ideas

Clarifying
Making our ideas clearer

Fortifying
Supporting our ideas

Negotiating
Making our ideas stronger

Designated ELD

Creating an idea
Clarifying the idea
Fortifying an idea
Negotiating an idea

Academic Conversations with ELLs: Series One

Jeff Zwiers
Senior Researcher
Understanding Language Program, Stanford University
...It is not possible to separate the content of mathematics from the language in which it is discussed and taught (Francis et al. 2006a, 38).

-- CA Math Framework
Universal Access Chapter, p. 685
PROMPT AND RESPONSE STARTERS

JUDIT MOSCHKOVICH

What do English Learners need in Mathematics Classrooms?
JUDIT MOSCHKOVICH
What do English Learners need in Mathematics Classrooms?

STANDARDS FOR MATHEMATICAL PRACTICE (MPs)

Overarching Habits of Mind

MP1 Make sense of problems and persevere in solving them.
MP6 Attend to precision.

Reasoning & Explaining

MP2 Reason abstractly and quantitatively.
MP3 Construct viable arguments and critique the reasoning of others.

Modeling & Using Tools

MP4 Model with mathematics.
MP5 Use appropriate tools strategically.

Seeing Structure & Generalizing

MP7 Look for and make use of structure.
MP8 Look for and express regularity in repeated reasoning.
STANDARDS FOR MATHEMATICAL PRACTICE (MPs) & CONSTRUCTIVE CONVERSATION SKILLS

MATHEMATICAL DISCOURSE

PROTOCOLS TO SUPPORT MATH DISCOURSE
AGENDA

INTRODUCTION → MATHEMATICAL DISCOURSE → THREE READS PROTOCOL

MATH INTERVIEW PROTOCOL → MATH SUMMIT PROTOCOL → CLOSING & EVALUATION

THREE READS PROTOCOL

- Supports students as they read closely to make sense of challenging word problems
- Teacher leads students as they read a scenario three times with a different goal each time
  - Understand the context
  - Understand the math
  - Make a plan
- Math Practices Connection
  - MP1, MP2, MP5
- ELD Standards Connection
  - Part 1: B5 Listening actively
  - Part 1: B6 Reading/viewing closely
THREE READS PROTOCOL

• What did you notice in the video?
• What do you wonder?
• How does this protocol support English Learners?

TURN & TALK

INTEGRATED ELD/MATH
LAUSD KINDER VIDEO
INTEGRATED ELD/MATH
LAUSD KINDER VIDEO

AGENDA

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MATH INTERVIEW PROTOCOL

• Supports students as they participate in academic discussions

• Students interview each other
  • Listen to and make sense of their solution pathway
  • Clarify and justify mathematical reasoning

• Math Practices Connection
  • MP1, MP3, MP6

• ELD Standards Connection
  • Part 1: A1 Exchanging information/ideas
  • Part 1: C11 Supporting opinions

MATH INTERVIEW PROTOCOL
SCAFFOLDS

MODEL CONSTRUCTIVE CONVERSATION

LISTEN FOR CLARIFYING LANGUAGE
INTEGRATED ELD/MATH LAUSD KINDER VIDEO

INTEGRATED ELD/MATH LAUSD KINDER VIDEO
MATH INTERVIEW PROTOCOL

- What did you notice in the video?
- What do you wonder?
- How does this protocol support English Learners?

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MATH SUMMIT PROTOCOL

- Supports students as they participate in a grand conversation facilitated by the teacher
- Students compare and connect two or more solutions
- Identify patterns and make mathematical generalizations
- Math Practices Connection
  - MP2, MP3, MP4, & MP6
- ELD Standards Connection
  - Part 1: A1 Exchanging information/ideas
  - Part 1: C11 Supporting opinions

INTEGRATED ELD/MATH LAUSD KINDER VIDEO
INTEGRATED ELD/MATH LAUSD KINDER VIDEO

MATH SUMMIT PROTOCOL

- What did you notice in the video?
- What do you wonder?
- How does this protocol support English Learners?
What do English Learners need in Mathematics Classrooms?

Judit Moschkovich
University of California, Santa Cruz
JUDIT MOSCHKOVICH
What do English Learners need in Mathematics Classrooms?

INTEGRATED ELD/MATH RESOURCES TO SUPPORT ELS WITH PROBLEM SOLVING AND MATH DISCOURSE

1. Expectations for Integrated ELD Instruction
2. Model Lesson At-A-Glance
3. Model Lessons Gr. K-6 One Per Grade Level
4. Posters & Companion Cards For Protocols
5. Video of Gr. K Lesson Gr. 3 & Gr. 4 Coming Soon
PD RESOURCES

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