#### Supporting Teachers in Teaching Mathematics to English Language Learners

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#### Supporting Teachers in Teaching English Language Learners

Teachers of English language learners need to accomplish two goals with their students in mathematics:

- mathematical understanding and
- proficiency in English.

This session will highlight ways teachers can structure experiences to accomplish these two goals.



### **Our Mission**

As a thriving organization responsive to a changing world, Math Solutions is dedicated to improving children's learning of mathematics by providing the highest quality professional development services products, and resources to educators.



Marilyn Burns, Founder



Supporting **English Language Learners** in Math Class

instructional resources



### Rusty Bresser Kathy Melanese Christine Sphar



# Common Elements in all Math Solutions' professional development



With a focus on supporting English language learners, in this session we will:

- Consider the demands for teaching and learning mathematics
- Engage in and reflect on a professional learning experience
- Consider a variety of instructional strategies
  that support English Language Learners



# Demands of Teaching and Learning Mathematics



Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge.

> Principles and Standards for School Mathematics, National Council of Teachers of Mathematics 2000



Students build their understanding when instruction provides opportunities to:



- Reason
- Solve problems
- Represent
- Make and use connections
- Communicate

NCTM 2000



It is important for all students, but especially critical for ELL students, to have opportunities to **speak**, **read**, and **listen** in mathematics classes, with teachers providing appropriate support and encouragement.

> Teaching Mathematics to English Language Learners National Council of Teachers of Mathematics 2008



#### Goals for English Language Learners in Math Class

 Actively engage in understanding mathematics

Build English proficiency





# Professional Learning Experience



What we'll do:

- Investigate and analyze a math task
- Determine the language requirements
- Identify and categorize instructional strategies
- Observe classroom instruction (video)
- Engage in a reflective conversation



Math Goal:

Students will identify and describe the features of polygons and the features of figures that are not polygons.







### Sorting Task

- 1. Sort the figures into two categories: *polygons* and *not polygons*.
- 3. Describe the figures as you sort them and give reasons for your decisions.
- 3. As you sort the figures, think about the key vocabulary words and language you used as you identified and sorted the shapes.







### Vocabulary and Language Goal

Closed Curved Intersect Line segment Open Polygon Sides Straight Vertex/Vertices **Identify and describe** polygons and figures that are not polygons.

This shape has . . .

This is a . . . because . . .

This is not a . . . because . . .



#### Identifying and Describing Polygons Video Lesson Vignette

- Introducing Academic Language
- Introducing Polygons
- Exploring Polygons Independently
- Summarizing the Lesson



## Instructional strategies that:

- Make math comprehensible
- Provide opportunities for talk
- Support talk



In what ways does the teacher make the **math content comprehensible** and support students in understanding math concepts?

What **opportunities to talk** about their mathematical thinking are students given?

What strategies does the teacher use to **support students in talking** about their mathematical thinking?



# **Introducing Polygons**

After observing this next clip, talk with a colleague about:

- How was current instructional practice in your school/district affirmed?
- What three ideas stood out for you about the lesson?
- How will you use these ideas?



# Strategies that Support English Language Learners

- identify a math and a language goal
- use sentence frames
- create vocabulary banks
- make manipulative materials available
- pose problems in familiar contexts
- elicit nonverbal responses



# **Strategies Continued**

- utilize partner talk
- ask for choral responses
- provide visuals
- demonstrate and model
- use dramatization and gestures
- design questions and prompts for different proficiency levels





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