

EL Strategies in Math: Dr. Santa Cruz

Notes

1. Untitled Scene

1.1 English Learner Strategies for Math



Notes:

Welcome to our second and third grade training on English Learner Strategies for Math. Today we're bringing you a university math expert from our Distinguished Speaker series and we'll look at four ways to assist the English Learner in the elementary math classroom.

1.2 Introduction

Introducing Rafaela Santa Cruz, Ph.D.

- Associate Professor of Teacher Education at San Diego State University
- Director of the San Diego Mathematics Project
- Director of the SDSU/CGU Joint Ph.D. Program in Education

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Notes:

Dr. Rafaela Santa Cruz is an Associate Professor of Teacher Education at San Diego State University. She is the Director of the San Diego Mathematics Project, a leadership staff development program for teachers of mathematics. And she is the Director of the San Diego State University - Claremont Graduate University Joint Ph.D Program in Education. Today she is addressing Strategies to Support English Learners in Math with an audience of LAUSD teachers and administrators. We'll be pausing the video periodically and participating in the activities, as she leads the work.

1.3 Video 1



Notes:


Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.4 Mathematically Speaking

“Mathematically Speaking”

Teacher Instructions:

- All students complete both mathematical tasks or problems
- Student pairs are formed
- Teacher has filled in target vocabulary words
- One student explains one side of the completed task or a given problem to the other student as he or she tallies on the chart each time a target word is used in the explanation. Students keep talking until all target words have been used
- The other student then takes a turn doing the same



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Notes:

Please take out the Mathematically Speaking sheet with the grids from your packet. Teacher Instructions: All students complete both mathematical tasks or problems. Student pairs are formed. Teacher has filled in target vocabulary words. One student explains one side of the completed task or a given problem to the other students as he or she tallies on the chart each time a target word is used in the explanation. Students keep talking until all target words have been used. The other student then takes a turn doing the same.

Take a moment to fill in your fact families to math the pictured grids. Then follow the directions to talk with your partner. Click the "Next" button to continue.

1.5 Video 2



Notes:

Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.6 Perimeter Problems

Mathematically Speaking – Names _____ & _____

Learning Target _____ Date _____

Solve both problems. With a partner take turns explaining how you solved one problem using as many of the vocabulary words as possible while your partner checks the vocabulary used. Then let your partner explain the other problem.

Problem #1 - Find the perimeter of the shaded polygon.

The _____ of the _____ is _____.

Problem #2 - Find the perimeter of the shaded polygon.

The _____ of the _____ is _____.

| Vocabulary: | Tally: | Vocabulary: | Tally: |
|-------------|--------|-------------|--------|
| polygon | | polygon | |
| perimeter | | perimeter | |
| units | | units | |
| total | | total | |
| equal | | equal | |
| outside | | outside | |
| sum | | sum | |

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Notes:

Please take out the Mathematically Speaking with the perimeter problems, and fill in the sentence frames to match the images. Then do “Mathematically Speaking” with a partner, taking turns tallying what each says. Click the “Next” button to continue.

1.7 Video 3




Notes:

Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.8 Mathematically Speaking

“Mathematically Speaking”

- Take a moment to reflect with your group about the impact of using Mathematically Speaking with your grade level
- How would you begin to incorporate it into your classroom?



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Notes:

Take a moment to reflect with your group about the impact of using Mathematically Speaking with your grade level. How would you begin to incorporate it into your classroom? Click the “Next” button to continue.

1.9 Video 4



Notes:

Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.10 Multiple Representations

Multiple Representations

- Take out the bag for Multiple Representations #1
- Work with a partner to match the cards
- Discuss your matching strategies as you work
- What are the benefits of incorporating this strategy at your grade level?
- How would you deal with the materials management?

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Notes:

Please take out the bag for Multiple Representations #1. Work with a partner to match the cards, discussing your strategies as you work.

Take a moment to talk with your group. What are the benefits of incorporating this strategy at your grade level? How would you deal with the materials management? Please click the "Next" button to continue.

1.11 Video 5



Notes:

Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.12 2 X 2 Sentence Builder

2 X 2 Sentence Builder

- Use the 2 X 2 Sentence Builder to record your work
- Independently write six sentences
- Take turns reading your sentences to your partner

| | | | |
|---------|-----------|-------------|----------|
| polygon | perimeter | fact family | multiply |
| outside | sum | divide | sentence |

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Notes:

Please take out the 2 X 2 Sentence Builder in your packet to record your work. Work independently to write your sentences, then take turns reading your sentences to your partner. Click the "Next" button to move on.

1.13 Video 6



Notes:


Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.14 Concentration Game

Concentration Game

Vocabulary Cards from Topic 16, Grade 3 enVision

- Played with a partner. Player turns two cards over at a time and reads them aloud. If they are a match, they remain face up and the player gets a point. The other person then gets a turn.
- If they don't match, the cards are turned down again. Players must remember where these cards are, thus the concentration part of the game.
- Discuss the benefits of using this activity.



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Notes:

Please pass out the cards for the Concentration Game. Following the directions on the screen, go through a round of play, discussing how you're making your matches. Discuss with your group the benefits of using this activity at your grade level.

Click the "Next" button to move on.

1.15 Video 7



Notes:

Please watch the video by clicking on the arrow button on the video screen. After the video, click the "Next" button to continue.

1.16 English Learner Strategies in Math

English Learner Strategies in Math

- We'd like to thank Dr. Rafaela Santa Cruz for contributing to our Distinguished Speaker series
- Please continue to work with your grade level at your school site as you incorporate these strategies into your classroom practice

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Notes:

We'd like to thank Dr. Rafaela Santa Cruz for contributing to our Distinguished Speaker series. Please continue to work with your grade level at your school site as you incorporate these strategies into your classroom practice.

1.17 Teaching and Learning Framework

Teaching and Learning Framework

Teaching and Learning Framework
Standard 3: Delivery of Instruction
Component 3b: Using Questioning and Discussion Techniques

Effective teachers design questions that provide cognitive challenge and engineer discussions among students to ensure all students participate. The highly effective teacher designs instruction that provides opportunities for students to develop their own cognitively challenging questions and to engage in various types of student-to-student discussions.

| Item | Effective | Developing | Effective | Highly Effective |
|--|--|--|---|--|
| 3b1. Quality and Purpose of Questions Questions are designed to challenge students and elicit high-level thinking. | Teacher's questions do not invite a thoughtful response or are not relevant. Questions do not reveal student understanding about the content/concept or text under discussion, or are not comprehensible to most students. | Teacher's questions are a combination of both high and low quality, or delivered in rapid succession. Only some questions invite a thoughtful response that reveals student understanding about the content/concept or text under discussion. Teacher differentiates questions to make them more comprehensible for some students. | Teacher's questions require rigorous student thinking. Most questions invite and reveal student understanding about the content/concept or text under discussion. Teacher differentiates questions to make learning comprehensible for student subgroups. | Teacher's questions require rigorous student thinking and invite students to demonstrate understanding through reasoning. Students themselves formulate questions to advance their understanding about the content/concept or text under discussion. Teacher differentiates questions to make learning comprehensible for all students in the class. |

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Notes:

As we wrap up today, we'd like to make a direct connection to the Teaching and Learning Framework, Standard 3: Delivery of Instruction. Component 3b addresses Using Questioning and Discussion Techniques. "Effective teachers design questions that provide cognitive challenge and engineer discussions among students to ensure all students participate." This includes our English Learners, as well as our Standard English Learners, and our general education population. The strategies presented today are good instruction for all of our stakeholders, including students with disabilities and other students with special needs.

1.18 Thank You



Notes:

Thank you for participating in today's professional development on English Learner Strategies in Math.