

Handout for Webinar # 2: Language in the Math Classroom

Webinar Activity #1:

Three tennis balls are to be stacked one on top of another in a cylindrical can. The radius of each tennis ball is 3 centimeters. To the nearest whole centimeter, what should be the minimum height of the can? Explain why you chose the height that you did. Your explanation should include a diagram.

Source: National Assessment of Educational Progress (NAEP)

List words in categories:

- *specific mathematics* vocabulary:
- *math process* vocabulary:
- *context* vocabulary:

Webinar Activity #2:

Research-based Strategies for Teaching and Learning Vocabulary

Learning vocabulary is fostered through:

- Intentional instruction of vocabulary
- Direct and Indirect instruction
- Repetition and multiple exposures to terms
- Embedding instruction in rich contexts
- Active engagement in tasks
- Incidental opportunities to learn
- Varied instructional methods

National Reading Panel (NRP).

(2000). <http://www.nichd.nih.gov/publications/nrp/findings.cfm>

Webinar Activity #3:

Watch the video clip and jot down your ideas about the question:

What strategies do the teachers use that might help students with vocabulary?

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Webinar Activity #4: Sample Handout

Video Clip #3: Main Investigation		
Question: What NRP Strategies do the teachers use to help students with vocabulary?		
Research-Recommended Strategy	Example(s) from the video	Application to your classroom
Intentional instruction of vocabulary	<ul style="list-style-type: none"> • Students maintain journals with definitions • Synonyms of “Typical” • Examples and Non-examples of “Typical” • • 	
Repetition and multiple exposures to vocabulary	<ul style="list-style-type: none"> • “Rank” • “Statistics” • “Data” • • 	
Learning of vocabulary in rich contexts	<ul style="list-style-type: none"> • Student’s own exercise • • 	
Multiple vocabulary instructional methods	<ul style="list-style-type: none"> • Journals • Word wall • Student’s own definitions • Kinesthetic/Visual Image of “Median” • • 	
Active engagement in learning vocabulary	<ul style="list-style-type: none"> • Students get up and move • Students use data from their own lives • • 	

Highlight 2-3 strategies on the left column that interest you. In the far right column, jot down ideas about how you currently use or would like to use this strategy.

What expectations/accountability/opportunities do you provide for students to use and show understanding of vocabulary?

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Webinar Activity #5:

Part A: Examine a Math Task:

Of all the rectangles that can be formed from 16 square tiles, what are the dimensions of the rectangle with the greatest perimeter?

1. What are the mathematics demands of this problem?
2. What vocabulary is essential for understanding and answering the question?
3. What difficulties do you think your students might have with this problem?

Part B: Analyze a Student Response

Math Task: Of all the rectangles that can be formed from 16 square tiles, what are the dimensions of the rectangle with the greatest perimeter?

Student Response:

"The sides of the shape with the longest way around is 16 and 1. The shape with the longest way around has a very long shape."

1. What do you think about the student's understanding of the mathematics? What evidence from the writing supports your ideas?
2. Underline the vocabulary terms in the question and the math vocabulary used by the student.
3. What vocabulary terms do you feel are missing from the student's work?

For More Information:

Mathematics Improvement Toolkit: <http://www.middlegrademath.org/>

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Addressing Accessibility in Mathematics: edc.org/accessmath