



Building Academic Vocabulary

Granite School District Math Department

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Acknowledgements

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Goals for this Session

You will understand:

- Characteristics of effective vocabulary instruction.
- A six-step process for direct instruction in vocabulary.





What the Research Says About Vocabulary Knowledge

Children who enter school with limited vocabulary knowledge become more discrepant over time from their peers who have rich vocabulary knowledge.

(Biemiller & Slonin, 2001)

The relationship between reading comprehension and vocabulary knowledge is strong and unequivocal.

(Bauman & Kame'enui, 1991; Stanovich, 1986)

Differences in Vocabulary Growth

Student A

2 words per day
750 words per year

Student B

8 words per day
3,000 words per year

Children from advantaged homes have receptive vocabularies that are five times larger than children who come from low SES homes.

(Hart & Risley, 1995, 1999)

WHY?

Parents spoke significantly fewer words to their children.
Children hear more imperative speech or commands rather than expansive conversations.



What the Research Says about Vocabulary Instruction

Good vocabulary instruction helps children gain ownership of words, instead of just learning them well enough to pass a test. Good vocabulary instruction provides *multiple exposures* through **rich and varied activities** to meaningful information about the word.

(Stahl & Kapinus, 2001)



Findings from the National Reading Panel and the National Institute for Literacy

Students learn vocabulary *indirectly* when they hear and see words used in many different contexts i.e. through conversations with adults, through being read to, and through reading extensively on their own.

Students learn vocabulary *directly* when they are explicitly taught both individual words and word-learning strategies. Direct vocabulary instruction aids reading comprehension.





Selection Criteria for Instructional Vocabulary (Beck, McKeown, Kucan, 2002)

	TIER 1 FOUNDATION	TIER 2 MORTAR	TIER 3 BRICK
Description	Basic words that most children know before entering school or advancing to another grade	Polysemous words, homophones, idioms and phrasal clusters, rich challenging language for ELL's, words that nest academic content	Uncommon words that are typically associated with a specific domain/content (academic vocabulary)
Examples	add, subtract, number, count	sum, difference, mean, scale, table, in addition to	circumference, diameter, numerator, equation

TASK: Work with your team and decide in which tier each word belongs.

You will have 2 minutes to complete this task!

right even over addend power exponent function

line segment rectangle square radius plane circle

clock year less than centimeter under shape

number line volume size outlier root trapezoid



When?

- When all teachers in a school focus on the same academic vocabulary and teach in the same way, a school has a powerful comprehensive approach.
- When all teachers in a district embrace and use the same comprehensive approach, it becomes even more powerful.



Impact of Direct Vocabulary Instruction

- Research shows a student in the **50th percentile** in terms of ability to comprehend the subject matter taught in school, with no direct vocabulary instruction, scores in the **50th percentile** ranking.
- The same student, after specific content-area terms have been taught in a specific way, raises his/her comprehension ability to the **83rd percentile**.



Consider this...

- Background knowledge is more important to understanding of reading than IQ.
- Vocabulary instruction in specific content-area terms builds up student's background knowledge in the content area.
- Students who understand content, for example, in a state mathematics standards document regarding data analysis and statistics have understanding of terms such as ***mean, median, mode, range, standard deviation, and central tendency.***



Systematic Instruction in Vocabulary

Benefits **ALL** Students!



Six Steps to Effective Vocabulary Instruction

Initial Understanding

1. Describe - The teacher provides a description, explanation, or example of the new term...not a dictionary or glossary definition.
 - Ask students what they know.
 - Explain in everyday language.
 - Use a video or other visual source to explain the word.
 - Tell a story that uses the term.
 - Have the students investigate the meaning and do a skit.
 - Use current events to relate to the term.
 - Describe your mental picture of the term.
 - Find or create pictures that illustrate the term.

(Marzano and Pickering, *Building Academic Vocabulary Teacher's Manual*, 2005)



Student-Friendly Explanations

Bringing Words to Life: Robust Vocabulary Instruction

(Beck, McKeown & Kucan)

- Tell what a word means in everyday connected language.
- It should include words like: you, something, and someone.
- These terms help students to get an idea of how to use the word
- Examples:
 - If you scale **something**, you change its size proportionally.
 - A ruler **is something** that people use to measure length.
 - If **someone** is classifying shapes they are sorting them by their characteristics.



Six Steps to Effective Vocabulary Instruction

Initial Understanding

2. Restate - The students write and restate in their own words the description, explanation, or example given in class.
 - Students translate meaning into their own words.
 - Using personal vocabulary will help connect meaning.
 - Writing aids memory.



Six Steps to Effective Vocabulary Instruction

Initial Understanding

3. Draw - Students create picture, symbol, or graphic representing the term.
 - Non-linguistic representation.
 - Mnemonic device---doesn't have to be perfect.
 - Picture of actual object
 - Symbol
 - Example of term
 - Graphic
 - Dramatization of term (cartoon)
 - Something cut from magazine or internet



Six Steps to Effective Vocabulary Instruction

Creating Multiple Exposures

4. Activities - Students are engaged in activities that help them add to their knowledge of the terms.
 - Structural analysis.
 - Prefixes/suffixes.
 - Identify synonyms/antonyms.
 - Draw additional pictures or graphics.
 - List related words.
 - Translate into another language.
 - Analogies.



Six Steps to Effective Vocabulary Instruction

Creating Multiple Exposures

5. Discuss - Students discuss the terms with one another and share what they are thinking about the term and what it means to them.
 - Clarify understanding.
 - Think-pair-share.
 - Discuss meanings and drawings.
 - Compare descriptions and drawings.
 - Share with whole class.



Six Steps to Effective Vocabulary Instruction

Creating Multiple Exposures

6. Games - Students are periodically involved in games that allow them to play with the vocabulary terms.
 - Jeopardy
 - Charades
 - \$100,000 Pyramid
 - Pictionary
 - Concentration
 - Password
 - Hollywood Squares
 - Partner Games



TALK A MILE A MINUTE

triangle

equilateral

trapezoid

radius

parallel

circle



Pre-Teaching Vocabulary

Margarita Calderon

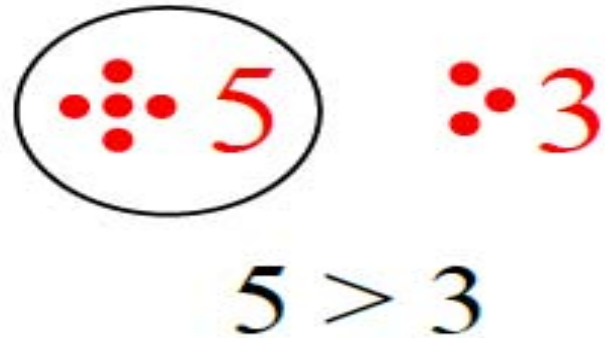
1. Teacher says the word.
2. Asks students to repeat the word 3 times.
3. Teacher states the word in context from the text.
4. Teacher provides the dictionary definition(s).
5. Explains meaning with student-friendly definitions.
6. Engages students in activities to develop word/concept knowledge.
7. Highlight grammar, spelling, polysemy, etc.



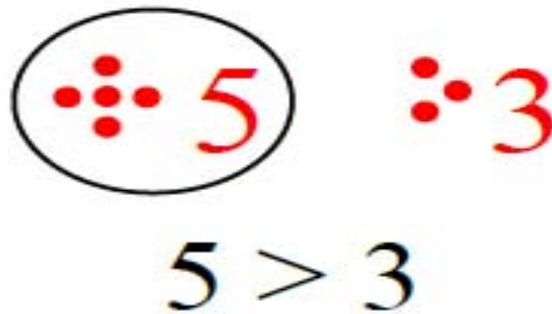
District Vocabulary Cards

greater than

**greater
than**



**greater
than**



Greater than is used to compare two numbers when the first number is larger than the second number


Mathematics Word Wall

- The purpose of a Mathematics Word Wall is to identify words and phrases that students need to understand and use in order to make academic progress.
- They will use these words and phrases when reading, writing, speaking and listening to the language of math.
- Mathematics Word Walls are to be actively used by the teacher and students.
- Words and phrases are to be posted as they are introduced in the lesson.





MATH WORD WALL


A


acute angle 


additive comparison 


algorithm 

array 


arc 

area 


area model 


attribute 


B

benchmark fractions 


C


centimeter (cm) 


classify 


common denominator 


Commutative Property of Multiplication $a \times b = b \times a$

comparison bars 


compose 

composite number 


congruent 

customary system 

D

data 

decimal point $\$1.55$ 3.2

decompose 

denominator $\frac{1}{3}$ $\frac{1}{4}$

Distributive Property $(a + b) \times c = a \times c + b \times c$


divide 

dividend $7 \overline{) 56}$

divisor $7 \overline{) 56}$


E


equation $2 + 3 = 5$

equivalent fractions 


F

factor $2 \times 6 = 12$


fraction 

function table 

G H

gram (g) 


greater than $5 > 3$

hundredth 


I


Identity Property of Multiplication $18 \times 1 = 18$

improper fraction $\frac{10}{4}$ $\frac{16}{5}$

inch (in) 


J K


kilogram (kg) 


kilometer (km) 

L

less than $3 < 5$

line of symmetry 


line plot 

line segment 

M

mass 


mixed number $1\frac{1}{2}$ $4\frac{1}{4}$


multiplicative comparison 

N


numerator $\frac{1}{3}$


obtuse angle 


ounce (oz) 

parallel lines 

parentheses () $(2 + 3) \times 4$

perimeter 

plane figure 


pound (lb) 


prime number $1 \times 5 = 5$

product $5 \times 3 = 15$


Q R S

quotient $7 \overline{) 56}$


range 

right angle 

right triangle 


square unit 

T U V

tenth 

W X Y Z

whole numbers $1, 2, 3, 4, 5, 6, 7, 8, 9, 10$

yard (yd) 

Zero Property of Multiplication $0 \times 5 = 0$

District Website

www.graniteschools.org

- Departments
- Teaching and Learning Services
 - Curriculum
 - Math



Final Thoughts

Teachers, schools, and districts that embrace a comprehensive approach of building academic vocabulary will see impressive results in classrooms and on achievement tests.





Your Journey Has Begun



Each fall, monarch butterflies in Maine begin an unbelievable journey to a hilltop in Mexico.

How do they do it? They focus on the goal, not the difficulties. Each day they take their bearings and set off, allowing their instincts and desire to steer them. They accept what comes; some winds blow them off course, others speed them along. They keep flying until, one day, they arrive.



Resources Used in Presentation

- Beck, Mckeown, and Kucan, *Bringing Words to Life: Robust Vocabulary Instruction*
- Marzano and Pickering, *Building Academic Vocabulary Teacher's Manual*, 2005
- Association for Supervision and Curriculum Development, *A Six Step Process for Teaching Vocabulary DVD*
- Margarita Calderon, *Teaching Reading to English Language Learners*

