Tennessee Academic Vocabulary

A Guide for Tennessee Educators

Tennessee Department of Education

Timothy K. Webb, Commissioner
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TNAV

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Table of Contents

Overview

This manual is designed to help school districts or individual schools systematically enhance the academic vocabulary of their students to better prepare them to learn new content in mathematics, science, language arts, and social studies. This document has been aligned with the revised standards as applicable. The research and theory underlying the recommendations made here have been detailed in the book *Building Background Knowledge for Academic Achievement* (Marzano, 2004). Briefly, the logic of such an endeavor is that the more general background knowledge a student has about the academic content that will be addressed in a given class or course, the easier it is for the student to understand and learn the new content addressed in that class or course. Unfortunately because of a variety of factors, including differences in the extent to which experiences at home help enhance academic background knowledge, students transferring from one school to another or one district to another, and so on, there is typically great disparity in the academic background knowledge of students, and this disparity increases as students progress through the school years. However, if a district (or school) were to systematically ensure that all students were exposed to specific academic terms and phrases across the grade levels, this would form a strong common foundation for all students. To this end, this manual lists important academic terms and phrases in mathematics, science, language arts, and social studies. Table 1 provides an overview of the number of terms and phrases in each subject area:

Table 1 – Terms and Phrases by Grade/Course within Subject Area

	Language Arts	Mathematics	Science	Social Studies
Grade K	28	31	27	22
Grade 1	22	33	26	25
Grade 2	27	36	27	25
Grade 3	31	36	29	31
Grade 4	26	34	32	30
Grade 5	26	35	26	32
Grade 6	24	37	30	32
Grade 7	27	24	39	16
Grade 8	34	22	35	36
Grade 9	25			
Grade 10	22			
Algebra I		29		
Geometry		42		
Algebra II		32		
Biology			55	
Earth Science			32	
Physical Science			45	
Economics				31
Geography				19
Government				43
U. S. History				40
World History				29
Personal Finance				26

Table 1 illustrates terms and phrases identified for each subject area for grades K – 8. In addition approximately 30 terms have also been identified for the following general courses:

Language Arts :

- Grade 9
- Grade 10

Mathematics:

- Algebra I
- Algebra II
- Geometry

Science:

- Biology
- Earth Science
- Physical Science

Social Studies:

- Economics
- Geography
- U.S. History
- World History
- Personal Finance

How the Terms and Phrases Were Identified

It is important to note that the terms and phrases listed in this document are meant as "examples." They are not to be considered implicitly or explicitly a list of "mandated" terms and phrases. Rather districts (or schools) might decide to add terms and phrases, delete terms and phrases, further define terms and phrases, or create their own lists which are completely different from those offered here.

The lists provided here were generated by groups of expert subject matter and grade level specialists from Tennessee schools whose charge was to identify those terms and phrases that are especially important to student understanding of the mathematics, science, language arts, and social studies curriculum standards. Approximately 30 terms were identified in each subject area so as not to overburden an individual classroom teacher. For example, a third grade teacher in a self-contained classroom whose job it is to teach all four of these subject areas would be responsible for about 131 terms and phrases. During a 36 week school year this would amount to about 22 terms and phrases per month allowing adequate time for the teacher to address many other terms of her own choosing. For example, the teacher could attend to the 131 pre-identified terms and phrases and still teach important words found in a story or important words found in a chapter of a textbook. In fact, research indicates that about 400 terms and phrases per year are typically addressed in programs that emphasize vocabulary instruction (see Marzano, 2004, p. 63). Identifying 131 terms and phrases leaves about 269 terms and phrases that are specific to an individual teacher.

To demonstrate the potential power of teachers within a district addressing common terms and phrases, consider the subject of mathematics. In mathematics 288 terms and phrases are listed for grades K – 8. If every teacher in a district were to teach these terms and phrases, students in that district would enter ninth grade with common, in depth experiences in these 288 key mathematics terms and phrases. Certainly this would provide a strong base on which ninth grade mathematics teachers could build.

How to Teach the Terms and Phrases

There is no single best way to teach terms and phrases. However, the research and theory on vocabulary development does point to a few generalizations that provide strong guidance. The Tennessee Department of Education Division of Teaching and Learning recommends the following six steps in teaching each of the TNAV terms or concepts.

Develop an academic vocabulary journal and use it at each step of interaction with vocabulary to deepen understanding and gain meaning. The steps outlined correspond with the six steps that exemplify best practice in vocabulary instruction.

Step 1: Introduce Vocabulary

Provide students with a description, explanation, or example as opposed to a formal definition.

1. Access Prior Knowledge: Think, Pair, Share, Double-pair, Class Share

- 20 seconds: Individually, think "What does ___ mean?"
- 30 seconds: With one partner, share what you think the term means.
- 40 seconds: With another pair write (or draw) what you decide *together* that the term means.

Class discussion assimilates information from all groups of four.

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2. Build on Prior Knowledge: I Know/Forgot/Understand/Need More Help

- Ask students to fold a sheet of paper in fourths.
- Tell them to fill in part 1 individually for the new ***term*** that you name.
- Tell them to fill in parts 2, 3, 4 as other students share what they wrote in part 1.
- After the class has shared, students will have an organized study sheet. They will have to pay the most attention to section 4, and the least attention to section 1.

3. Examples and Non-examples

As students are learning new terms, provide them with both examples and non-examples and ask them to note similarities and differences to help with identifying the distinguishing feature.

4. Connection: Math Word Meaning - Common Language Usage

Make a T-Chart so that the word at the top of the chart is the "term" under discussion. On the left students write the meaning of the word as used in common language (in context outside of this discipline) and write a sentence with it that they might use in a daily conversation. On the right side students write the meaning of the word as used in specific discipline with a sentence. Students follow up with a deeper comparison by finding a similarity and a difference for these usages.

term/word/phrase:	
Definitions	
Common Language Usage	*Discipline Specific Usage*
Sentences using the term/word/phrase	
Common Language Usage	*Discipline Specific Usage*
Same?	
Different?	

5. Verbal/Visual Context
Use the word/term/phrase in a sentence related to something students have already studied.

Step 2: Restate Meanings

Have students generate their own descriptions, explanations, or examples.

7. Rephrase Text
Pay attention to terminology used in directions/instructions as well as in text explanations. Ask students to find alternative ways to express a term/phrase so that they will be better able to recognize their meanings when the directions/instructions are different than what is in their own textbook. As often as possible, students produce different ways to express a statement. Ask students to rewrite the sentence or the directions without using an identified term(s) **and** without changing the meaning of the sentence or problem.

8. Concept Cards
Make concept cards for mathematical terms on 3 x 5 index cards or in a vocabulary journal as follows.

formal definition	synonym or your own words
term being addressed	
labeled figure, graph, or diagram that helps you to understand the term	any specific notation or special characteristics, attributes, or associations

****On the back of the card*, write at least two sentences that express a relationship or connection between this term and another term in the discipline, concept, situation, or a real-world application of the discipline.

9. Words to Symbols/ Symbols to Words
Write a statement using symbols, numerals, and variables instead of words. Write a statement using words instead of symbols, numerals, and variables. Write a ***question*** implied by the notation/symbols used in each statement without using any symbols.

10. Word Whacker – Word Wall Activity for Definition Restating
Students select a word from the word wall (from a current word list or from the cumulative word list), write a definition on a 3 x 5 card in their own words, and pass the cards in to the teacher. Ask students to sign their names to the card. Two students stand at the word wall with a flyswatter or a rolled up newspaper. As the definitions are read by the teacher (the name of the contributor is not mentioned), the students try to be the one to 'whack' the correct word first. If there are issues with the definition as stated on the 3 x 5 card, corrections can be offered by the class members or the teacher so that the student can refine his understanding of the word. (*Students cannot choose to define the same word as a card that they have already submitted for a previous word whacker session. Cards can be accumulated during the marking period and compose a vocabulary score*.)

Step 3: Visuals in Vocabulary Building

Have students represent each term or phrase using a graphic representation, picture, or pictograph.

11. Draw (or Trace) and Label Diagrams/Graphs
Some students are not adept at drawing their own figures. Allow them to trace diagrams from the text and label them appropriately. Tissue paper works well for this and can be taped to notebook paper. The same idea can be used with graphs from a graphing calculator or a computer drawing tool.

12. Symbols
Be sure that students can identify the meaning of all symbols (math, science, map, proofreading, abbreviations, icons) and can use the symbol appropriately in writing in the content. Students should be able to identify concepts noted by both symbols and figures.

13. Physical Movement and Academic Vocabulary
This activity helps students to association groups of words but also to distinguish between the words in the group. Do "word aerobics" by acting out the words in the lessons. Tap into the students' creativity. Who has the best way to model this physically? Or play Simon Says: Simon says show_____. As a game: In one minute, use signals, arm positions, or motions to prompt your partner to say all the terms/words/phrases in one group in any order but without talking, drawing, writing, or spelling with sign language.

14. Illustrations for Vocabulary that Convey Meanings
Connect the meaning of the term to the term through an illustration.

15. Cartoons or Comic Strips
Students draw figures, graphs, etc. and as speaking cartoon characters and provide their thoughts or comments so that words and their meanings are associated.

16. Matching – Concentration
Teachers (or students) create matching cards that illustrate vocabulary. After cards are matched, students can play the memory game "Concentration" and keep the pairs which they correctly match when they turn over two cards on their turn.

Step 4: Activities for Deeper Understanding
Periodically review the terms and phrases and provide students with activities that add to their knowledge base.

17. Word Recall
Recall issues with the word and write in the journal or on the concept card any misconceptions or words with which the term can be confused.

18. The Goal: Good Definitions
Establish rules for a good definition:

(1) places the term being defined into a set,
(2) describes how that term is different from other elements in the set,
(3) is reversible.

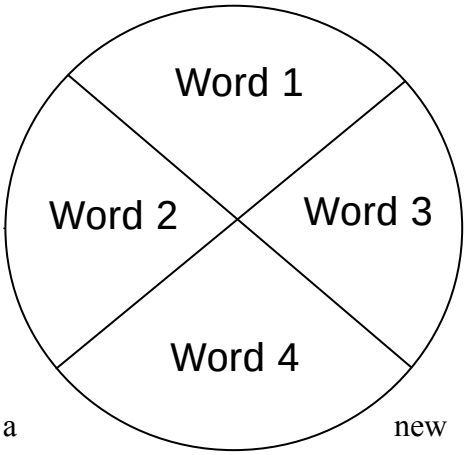
Analysis: Students will ask themselves these questions:

What is the set to which this object/term belongs?
What is different about this object/term from the other elements in this set?
Can I switch the subject and predicate nominative and still have a true sentence?

19. Relationships between Terms – 3 x 3 Grids

Write one term in each box of a 3 x 3 grid. Students will write a sentence for each set of three terms in a line (tic, tac, toe) that describes a relationship, states a fact, or gives characteristics. Do not allow students to write individual sentences about each terms and connect them with the word 'and.' There are a total of 8 sentences that can be written. Require all 8 (or only 5 or only 3 and then students can choose.) Differentiate by leaving the center box blank. Then students have four ways to write a sentence with only two terms.

20. Relationship Building – Concept Circles

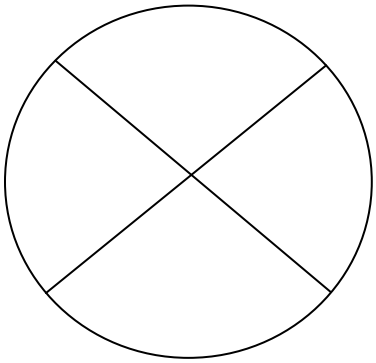


Divide a circle into fourths using two diameters.
TITLE_____
Place four related words in the circle.
Ask students to decide the title for the set of words.
Ask questions based on the circle:

1. Why is each of these words related to your title?
2. Is another title appropriate for the set of words? Explain.
3. Could other words have been placed in one of the four sections of the circle?
4. Replace one word with a different word and determine a new title for the concept circle?

Alternate version:

TITLE **Given Title**



Divide a circle into fourths using two diameters. Tell students the title for the concept circle. Ask students to write 4 words in the circle that relate to this title. Have class members compare answers. Each student must justify their choice of words for their circle.
How many different words did students relate to this word?
Are there ways to group the class' set of words into subsets?

21. Related Words - Making Connections within the Content

This strategy helps the student identify mastered concepts, on which new knowledge can be built. It assists them in forming associations and categorizing new knowledge. Ask student to write down all of the other terms or words they know that can be associated with a particular term/word/phrase. Students explain why they listed as they did. They should discuss other words someone else included.

22. Pairs or Groups of Terms

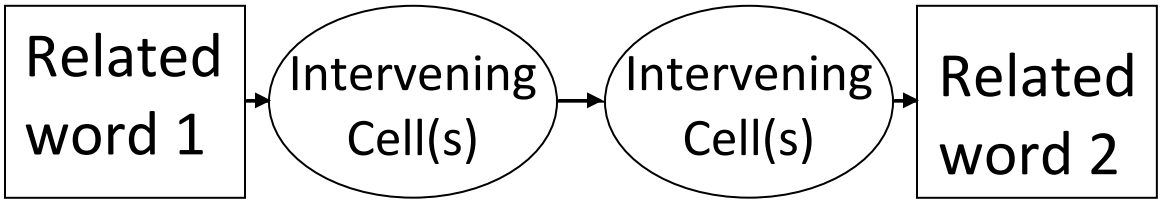
Synonyms (or Almost Synonyms): If there is more than one term that means the same as the target term, use that synonym interchangeably with the new word. Some students may already have an understanding of the synonymous terminology. If there is not a synonym, there might still be a term that is similar enough to help students gain an initial understanding and will help students to make a connection to existing knowledge. *Delineating any differences between the similar term and the new term adds to the students' depth of understanding.*

Antonyms (or Almost Opposites): If there is a word(s) that students are already familiar with that groups with the new word in some way point out the connection being explicit about the differences. Mentioning meanings of word parts (prefixes) helps with this process.

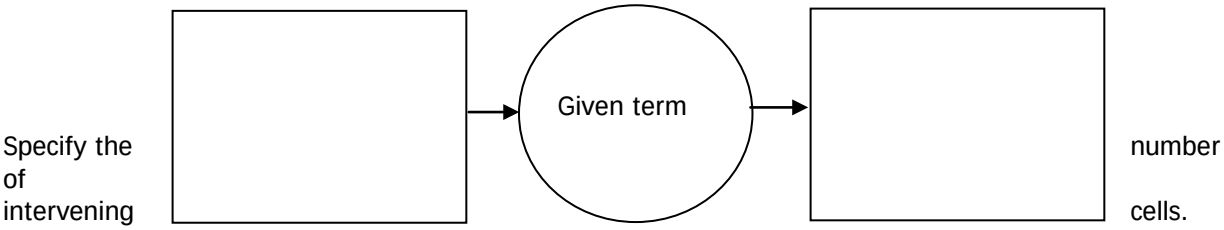
Belong Together – Why? Be careful about words that require sets of words to capture all of the characteristics that that word does not capture. Sometimes three terms are required to capture all cases for a situation.

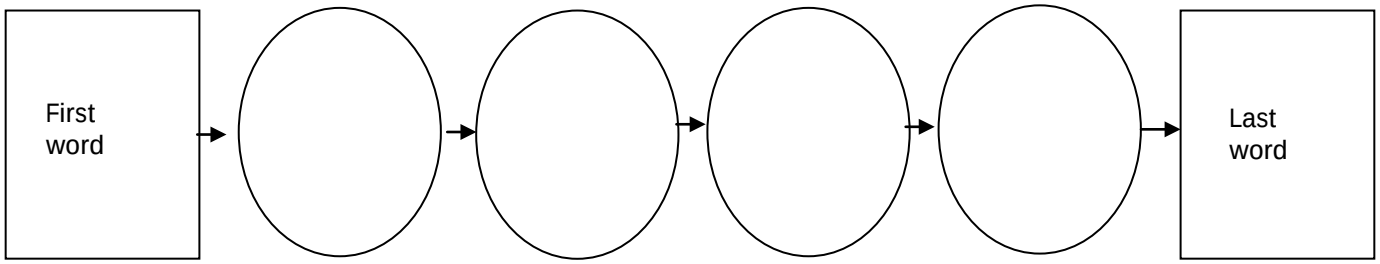
23. Linear Array for Ordering Words

This strategy enables students to not only group related words together but to place them in an implied order by virtue of their meanings. The teacher gives the first and last words in the array and students fill in any intervening cells.



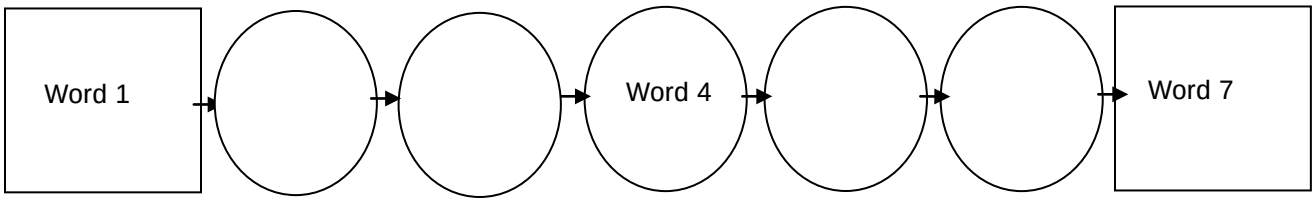
This strategy lends itself to differentiation well. The teacher may indicate how many cells intervene or leave that to the student. The teacher may fill in some of the intervening cells when students are learning new terms and not fill in any after students have mastered concepts. Students can design their own arrays using many words which they group themselves. Students can use 3 x 5 cards with the terms already written down and place them in sequential order; they could have a word bank, or they could be given the intervening words and the students fill in words for the beginning and the ending. .





Allow student to determine the number of intervening cells.

Establish some of the intervening skills to scaffold.



Adapted from
Words, Words, Words by Janet Allen, Stenhouse Publishers, 1999.

24. Use Analogies to Solidify Understanding of Relationships

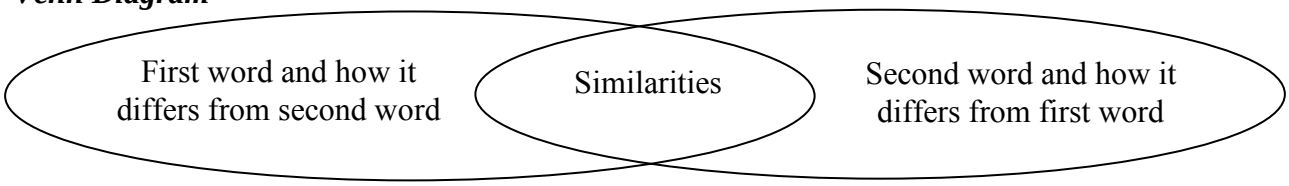
Have students complete, extend, or write their own analogies using terms from the unit. Making a sentence that shows the relationship between the first two words/terms shown gives you some direction.

- Complete or extend an analogy given two terms.
- Give three terms of an analogy and ask students to fill in the remaining term.
- Make more than one pair of words in an extension of an analogy.

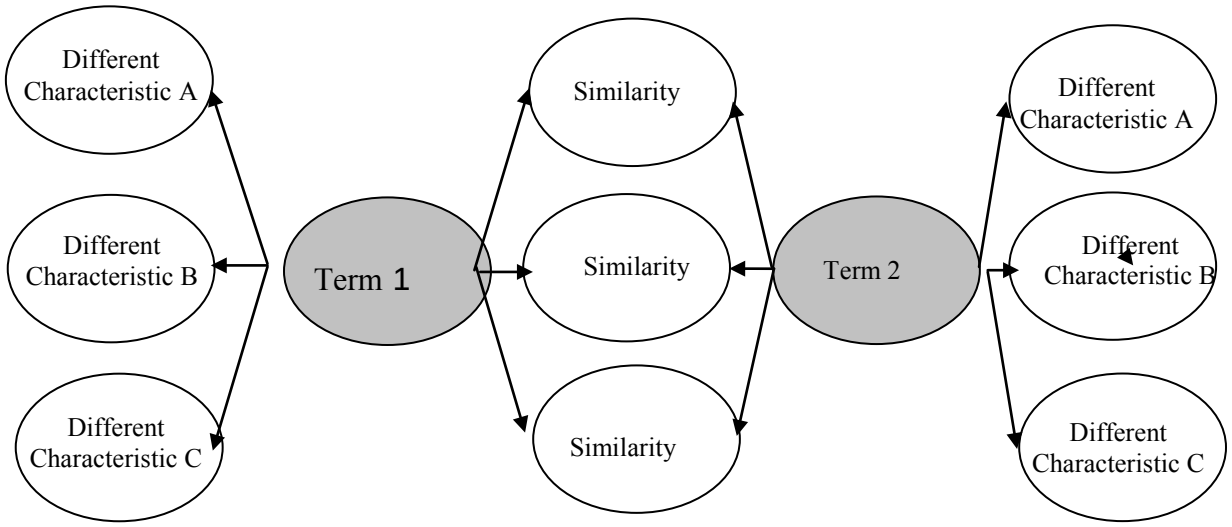
25. Compare/Contrast Terms – Three Formats

_____ and _____ are similar because they both
1._____2._____3._____
_____ and _____ are different because (same characteristic each line)
1._____ is _____ but _____ is _____
2._____ is _____ but _____ is _____
3._____ is _____ but _____ is _____

Venn Diagram



Graphic Organizer



Step 5: Vocabulary Discussions

Periodically ask students to discuss the terms with one another.

26. Think – Pair – Share

Describe any 'aha moments' you have had concerning vocabulary. Discuss where you have seen the word in use. Explain how you recall the word and/or share your individual visualization.

27. Word Wall Activities

Build a word wall by writing terms on an index card and putting them on a wall in the classroom. Periodically have discussions/questions about words on the wall.

- I am thinking of a word… (teacher gives clues until students select the proper word)
- What word means the opposite of ____?
- What word means the same as ___?
- What word(s) goes with ____?
- What words describe types of ____?
- What words describe this picture/diagram? (teacher displays a picture, graph, diagram, etc.)
- What words match with the symbol____? (teacher displays symbol)
- What word is in a category with___ and what is the name of the category?
- I will name two words in a category; you find another word on the word wall that belongs to that category and explain the association.
- My word is ____. Pick another word (or two other words) off the word wall and make a meaningful connection between the two words in a sentence.
- Word whacker –

  1. Pass out an index card to each student and tell them to select any word on the word wall and write a good definition for it and collect the definitions.
  2. Designate two students to stand in front of the word wall with a flyswatter (or a rolled up newspaper).
  3. Read out the index cards that the students wrote and ask the students to whack the word for the definition that you read.
  4. Talk about the construction of the definitions as they are read but do not identify the contributor if there are errors.

28. What Doesn't Belong and Why?

From a list of three or four words/terms/phrases, pick out a word/term/phrase that does not fit with the group and tell the mathematics that explains why. Select words or terms that have more than one correct answer.

29. Word Sort

Begin with a set of words and ask students to arrange them into groups by whatever criteria they choose. They must tell why they grouped them that way, what they have in common, and why these terms are different from the words you have placed in a different group. Is there is a term in the group that could be a title for the group? If not, what is a good title for the group? Is there a term that doesn't fit into any grouping? If so, ask students to create a group with the term that does not fit with any other term.

30. Two-Way Sort

Terms that relate to the same topic may be confusing.
A two-way sort offers students the opportunity to distinguish between terms through application. Students can work in small groups to sort the examples of the terms as well as to group the examples that deal with the same situation.

Step 6: Word Play

As has been demonstrated already, the sixth step emphasizes the importance of games that use the terms and phrases from the academic vocabulary. After each activity students should be asked to make corrections, additions, and changes to the entries in their notebooks. Students' knowledge of the terms and phrases should deepen and become a sound foundation on which to understand the academic content presented in class.

31. Taboo Words

This strategy forces students to think of several ways to word descriptions or definitions of terms and plays off a popular social game. Try to get your partner to say a particular term/word/phrase without using some of the other (taboo) words associated with it or forms of those words.

32. Step UP or Pyramid

This review game is based on the format of the TV game show "$100,000 Pyramid." Students are in pairs, one facing the screen, one with his/her back to the screen. On the PowerPoint slide show, enter the words in the boxes on the steps. Put a 5 second delay on the timing between words or adjust timing to suit your class level. You can also copy the stairs below on an overhead projector transparency, write the target words on the stairs and cover them with post-it flags and reveal them in succession. The student facing the screen gives clues (or names examples) for the category on the bottom step and continues to do give new clues until his/her partner has guessed the term. The clue giver repeats his responsibilities for each successive term up the stair case until one team yells, "Finished!" Teams earn the number of points for the last step they had completed before someone finished. Winners add 50 points to their score. Or if you want to be able to assess the groups, put the groups in teams of three. There will be one person who is not playing who can record the clues that were given. This person can also offer suggestions after play is over for another clue that might have helped the guesser.

The teacher can construct the categories from the current unit, around a theme (starts with...), or can just select words from review. The whole game takes less than a minute and students have the opportunity to express word meanings in their own words. If the partner is not guessing the correct category, the pair should determine if the examples were deficient or if the guesser did not know the meaning of the category. The students also have the chance to help one another with any troublesome terminology.

The same type game can be done with a pyramid starting with the lower left corner and completing the bottom row before going to the middle row left to right and then finally the top space. Again a third team member can record the clues and help analyze the play.

33. Talk, Talk, Talk, Talk, Talk...

In this game students are in pairs (A & B), with student A facing the screen, and student B with his/her back to the screen. On the screen (PowerPoint, whiteboard, or overhead projector), a category is shown at the top of a page and the terms in the category will be shown in a list. The category will be shown first and student B can look at the screen to see the name of the category but must face away from the screen before the list is shown. Student A can describe any word on the screen and must continue talking until his/her partner has said every term on the screen in any order. No words on the list may be used while Student A is giving the clues. This game could be done on a whiteboard/chalkboard, with paper taped over the list or on an overhead transparency with the list covered until student B has seen the category and has turned away from the screen.

Final Comments

The terms and phrases listed in this document are offered to Tennessee districts and schools as a foundation from which to design and implement a comprehensive program to enhance the academic background knowledge of students. The list is based on the curriculum frameworks in the respective subject areas. These are the concepts which will most likely be included in the annual summative assessment required by the State of Tennessee (spring achievement tests and Gateway). Districts and schools are encouraged to use this resource in ways that best suit their needs and dispositions.

ENGLISH / LANGUAGE ARTS

Kindergarten

Alphabet
Author
Illustrator
Beginning
Ending
Consonant
Vowel
Drawing
Fairy tale
Letter
Letter sound relationship
Picture book
Poem
Story
Song
Print
Retell
Rhyme
Sentence
Speech
Title
Uppercase (capital)
Lower case
Word
Period
Question mark
Exclamation mark
Read

1st Grade

Blend
Capitalization
Character
Setting
Consonant
Vowel sound
Fantasy
Illustrate
Sequence
Predict
Punctuation (e.g., comma, quotation, etc.)
Question
Statement
Reality
Syllable
Vocabulary
Media (e.g., book, video, film, illustrations)
Summarize
Information
Noun
Verb
Compound word

2nd Grade

Adjective
Adverb
Pronoun
Dictionary
Encyclopedia
Fiction
Nonfiction
Folktale
Fables
Discussion
Main idea
Message
Predicting
Prewrite
Draft
Edit
Publish
Author's purpose
Table of contents
Glossary
Singular
Plural
Plot
Punctuation (e.g., comma, semi-colon, etc.)
Base (root) word
Prefixes
Suffixes

3rd Grade

Abbreviation
Adverb
Antonyms
Apostrophe
Cause
Effect
Contraction
Declarative
Exclamatory
Fact
Interrogative
Multiple-meaning words
Opinion
Organization
Plural
Possessive
Punctuation (commas)
Thesaurus
Internet
Atlas
Encyclopedia
Run-on sentence
Sequential
Singular
Stanza
Character
Setting
Summarize
Supporting details
Synonyms
Verb

4th Grade

Alliteration
Analogy
Audience (as listeners)
Author's purpose
Caption
Compare
Contrast
Double-negative
Drawing conclusions
Fable
Genre
Homonyms
Index
Making inferences (inferring)
Metaphor
Outline
Possessive nouns
Prediction
Proofread
Quotations/quotation marks
Sentence fragment
Simile
Subject/verb agreement
Time order/transitional words
Topic sentence
Verb tense

5th Grade

Affixes
Comparative
Conjunctions
Figurative language
Hyperbole
Idiom
Implied
Clause
Interjections
Introductory paragraph
Main ideas
Metaphor
Narrative
Onomatopoeia
Oral presentation
Personification
Point of view
Preposition
Prompt
Punctuation marks (colon, semi-colon)
Reference source (interviews, almanacs, newspapers)
Simile
Citations
Superlative
Theme
Visual image

6th Grade

Employ
Foreign phrases
Genre
Hyperbole
Imagery
Inference
Mnemonic devices
Writing modes
Multiple meanings
Personification
Rhyme
Rhythm
Point of view
Propaganda
Relevant
Relevancy
Sequential order
Sidebars
Simile
Symbolism
Text features
Thesis statement
Stressed/unstressed syllables
Clauses

7th Grade

Interaction with texts
Paraphrase
Etymology
Semantic change
Connotation
Denotation
Stress
Pitch
Juncture
Onomatopoeia
Accent
Repetition
Foreign phrases
Internal rhyme
Irony
Mood
Foreshadowing
Flashback
Tone
Inferences
Viewpoint
Epilogue
Assonance
Consonance
Nuance
Climax
Double-negative

8th Grade

Allusion
Antecedent
Bias
Clincher sentence
Coherent order
Composition
Cross-reference
Debate
Derivation
Dramatization
Elaboration
Facilitator (role identification/groups)
Gerund
Inferring
Jargon
Inductive reasoning
Deductive reasoning
Inflection
Enunciation
Rate
Pitch
Participles
Persuasive writing
Preface
Reliability
Sensory detail
Shades of meaning
Tension
Thesis statement
Mood/tone
Acronyms
Sidebars
Footnotes
Endnotes

9th Grade

Audience
Protagonist
Antagonist
Citation
Coherence
Diction
Drama
Elements of plot
Elements of poetry
Point of view
Etymology
Figurative language
Foreign words and phrases
Logical fallacies (e.g., appeal to fear [ad baculum], personal attach [ad hominen], false dilemma, and false analogy)
Discourse
Paraphrase
Persuasive devices
Questioning
Research
Revision
Rubric
Source (e.g., primary, secondary, tertiary)
Style
Themes, recurring
Thesis (e.g., implied thesis)

10th Grade

Acronym
Ambiguity
Personal
Archetype
Connotation
Denotation
Elements of argument
Elements of design
Elements of plot
Elements of prose
Foreign words and phrases
Incongruity
Juxtaposition
Logical fallacy
Modes of discourse
Parallelism
Persuasive devices
Research
Reasoning
Rhetorical devices
Style
Shift

MATHEMATICS

Kindergarten

Addition
Afternoon
Calendar
Cardinal number
Classify
Compare
Date
Difference
Dime
Hour
Location
Minus
Morning
Nickel
Number
Order
Ordinal number
Pattern
Penny
Position
Quarter
Shapes
Sort
Subtraction
Sum
Time
Today
Tomorrow
Value
Yesterday
Zero

1st Grade

Data
Digit
Direction
Equal to
Estimate
Even
Graph
Greater than/less than
Half-hour
Horizontal
Length
Measure/measurement
Minute
Month
Number sentence
Numeral
Odd
One-half
Part
Place value
Plus
Ruler
Skip count
Solve
Symbol
Total
Unit (standard, non-standard)
Vertical
Week
Weight, scales
Whole
Whole number
Year

2nd Grade

Associative property
Base-ten system
Commutative property
Dimensions
Distance
Dollar
Elapsed time/time interval
Equivalent
Event
Expanded form
Extend
Foot
Fraction
Inch
Interpret
Kilogram
Likely/unlikely
Meter/centimeter
Multiplication
One-fourth
One-third
Outcome
Perimeter
Pound
Quarter-hour
Reflect
Rotate
Second (time)
Set
Symmetry
Table
Transformations
Transitive
Translate
Unknown
Yard

3rd Grade

Angle
Area
Array
Capacity
Change (money)
Conclusion
Congruent
Conjecture
Decimal
Denominator (like, unlike)
Distributive
Dividend
Division
Divisor
Factor
Frequency table, tally chart
Gram
Intersecting lines
Inverse relationships
Kilometer
Line plot
Line of symmetry
Line, line segment
Liquid measures
Mile
Multiples
Numerator
Ounce
Parallel
Perpendicular
Pictograph
Polygon
Product
Quotient
Reasonableness
Unit fraction

4th Grade

Accuracy
Acute
Chance
Common fraction
Composite
Computation
Convert
Coordinate system
Diameter
Equation
Expression
Face of a polyhedron
Function table
Improper fraction
Inverse operation
Measures of central tendency (mean, median, mode)
Mixed number
Obtuse
Ordered pairs
Pattern rules
Prime
Probability
Proper fraction
Quadrant
Radius (pl. radii)
Range
Relationship
Remainder
Right
Scale of instrument/graph
Square unit
Stem-and-leaf plot
Tiling/tessellation
Vertex (pl. vertices)

5th Grade

Algorithm
Categorical data
Convex polygon
Data collection methods
Divisibility
Edge
Exponent
Exponential notation
Formula
Inequality
Irregular
Justify
Line graph
Model
Natural numbers
Numerical data
Order of operations
Outlier
Parallelogram
Polyhedral solid
Prism
Rational numbers
Regular (Platonic) solid
Remainder
Round
Significant digits
Solution
Substitution property
Surface area
Terminating decimal
Truncate
Undefined
Variable
View
Volume

6th Grade

Base (of exponent)
Cartesian coordinate system
Circumference
Compound event
Degree (angles)
Dependent events
Dilation
Equiangular
Equilateral
Experimental probability
Inequality Theorem
Integers
Interior/exterior angles
Isosceles
Negative
Odds
Percent
Pi
Poll
Power
Prime factorization
Protractor
Pyramid
Qualitative graph
Random
Rate
Ratio
Repeating decimal
Sample bias
Sample space
Sample, sample data
Scalene
Similarity
Simple event
Simulation
Theoretical probability
Triangle

7th Grade

Absolute value
Additive inverses
Box & whisker plot
Coefficient
Cube root
Function
Function notation
Greatest common divisor
Greatest common factor
Histograms
Intercepts
Interquartile range
Least common multiple
Linear equation
Negative exponents
Perfect square
Property
Proportional relationships
Quartile
Scatter plots
Scientific notation
Slope
Square root
Unit rates

8th Grade

Adjacent angles
Alternate exterior angles
Alternate interior angles
Complementary angles
Corresponding angles
D=rt (distance = rate x time)
Function families
Hypotenuse
Infinite
Legs of a triangle
Line of best fit (conceptual)
Monomial
Nonlinear equation
Perfect square
Pythagorean Theorem
Quadratic equations
Sequence
Slope intercept form
Supplementary angles
Transversal
Vertical angles
Vertical line test

Algebra I

Absolute value
Complement of an event
Compound
Conjunction
Direct and inverse variation
Disjunction
Domain & range
Exponential growth (and decay)
Interest (simple and compound)
Irrational numbers
Joint and conditional probability
Law of Large Numbers
Mathematical model
Measure of spread (range, interquartile range)
Midpoint formula
Outlier
Parent function
Pascal's Triangle
Polynomial (binomial, trinomial)
Quadratic formula (including discriminant)
Quantitative and qualitative data
Radicand
Rational expression
Real number properties
Real roots (zeros, solutions, x-intercepts)
Relative frequency
Sequences (arithmetic, geometric, Fibonacci)
Simulations
Subsets of real numbers

Geometry

Altitude
Angle of depression
Angle of elevation
Apothem
Arc
Bisect (bisector)
Central angle
Centroid
Chord
Circumcenter
Circumscribed
Collinear
Concurrent lines
Conditional statement (including converse, inverse, contrapositive,& Biconditional statement)
Construction
Convex & concave polygons
Coplanar
Corollary
Deductive & inductive reasoning
Euclidean & non-Euclidean geometry
Geometric mean
Glide reflection
Incenter
Inscribed
Lateral area
Locus
Negation
Oblique
Orthocenter
Points of concurrency in a triangle
Postulate (axiom)
Proof (formal, two-column, paragraph, flow, coordinate, indirect, counterexample)
Scalar
Secant line
Sector of a circle
Skew lines
Tangent line
Theorem
Trigonometric ratios (sine, cosine, tangent)
Undefined terms of geometry
Vector (magnitude and direction)

Algebra II

Amplitude
Asymptote
Binomial Theorem
Combination
Common ratio (geometric sequence)
Complete the square
Complex conjugate
Complex number
Composition (of functions)
Conic sections (circles, parabola, ellipse, hyperbola)
Empirical Rule
Factorial
Focus (pl. foci)
Independent and dependent events
Inverse of a relation
Logarithm
Normal distribution
Period
Permutation
Piece-wise function
Radian measure
Rational function
Regression equation
Series (arithmetic, geometric, finite, infinite, etc.)
Sigma
Standard deviation
Step function
Synthetic division
Transcendental function
Trigonometric function
Trigonometric identity
Unit circle
Variance

SCIENCE

Kindergarten

air
animal
change
cloud
collect
color
day/night
food
growth
moon
natural
observe
ocean
parts
seasons
senses
shape
size
soil
solid/liquid
star
sun
temperature
thermometer
tools
water
weather

1st Grade

adult
balance
classify
environment
extinct
freezing
heat
insect
invent
investigate
life cycle
light
living/non-living
location
magnet
matter
mixed
planet
plant
precipitation
prediction
property
push/pull
shelter
texture
weather data

2nd Grade

Celsius/Fahrenheit
compare/contrast
depend
dissolve
distance
Earth resource
energy
evaporation
fossil
habitat
infer
investigate
observation
offspring
organism
parent
reasoning
renewable/non-renewable
scientific inquiry
scientist
similarities/differences
sound
temperature pattern
transform
type
universe
vibration

3rd Grade

anemometer
atmosphere
barometer
cirrus
cross section
cumulonimbus
cumulus
conductor
conservation
crystallize
decomposer
endangered
force
heredity
mixture
natural resources
orbit
physical change
pitch/volume
predator/prey
rain gauge
revolution
rotation
solar system
stratus
threatened
thriving
water cycle
wind vane

4th Grade

behavioral adaptation
camouflage
carnivore
cell and cell parts (wall, membrane, cytoplasm, nucleus, vacuoles)
chemical energy
climate
condensation
deposition
eclipse (solar/lunar)
ecosystem
electricity
energy pyramid
erosion
food web
friction
herbivore
lunar cycle
mass
metamorphosis (complete/incomplete)
migration
mimicry
omnivore
opaque
physical adaptation
physical change
producer/consumer
radiant energy
reflection
refraction
reproduction
transparent
translucent
weathering

5th Grade

chemical properties
commensalism
conduction
constellation
convection
core
crust
dissipate
earthquake
faulting
gravity
hurricane
inherited traits
kinetic energy
parasite
parasitism
photosynthesis
plane
plate movement
potential energy
radiation
states of matter
symbiosis
tornado
tsunami
volcano

6th Grade

abiotic
atmospheric convection
adaptive engineered technologies
assistive engineered technologies
asteroid
bias
biome
biosphere
biotic
cause and effect
chemical potential energy
climate change
conductivity
control
criteria
design constraint
elastic potential
electrical conductor
energy transformation
gravitational potential energy
hygrometer
meterological data
ocean current
protocol
prototype
psychrometer
scavengers
simple circuits
tides
variable

7th Grade

acceleration
amplitude
asexual reproduction
cell division
cell organelles (ribosome, mitochondria, chloroplast, vacuole, lysosome)
chromosome
crest
diffusion
dominant trait
gene
genetic characteristic
genetic engineering
genotype
igneous
longitudinal wave
mechanical advantage
metamorphic
minerals
mitosis
momentum
monohybrid cross
organ system
osmosis
phenomenon
phenotype
Punnett square
recessive trait
respiration
rock cycle
sedimentary
semi-permeable
sexual reproduction
simple machines
speed
synthesize
tissue
transverse wave
trough
velocity

8th Grade

acid
atom (electron, neutron, proton)
atomic mass
atomic number
base
biodiversity
chemical change
chemical equation
class
compound
density
dichotomous key
diffusion
domain
electromagnet
electron
element
endothermic
exothermic
family
genus
gravitation (universal law)
kingdom
magnetic field
neutral
neutron
order
particle motion
physiological adaptation
phylum
product
proton
reactant
species
variation

Biology

ATP synthesis
active/passive transport
aerobic/ anaerobic respiration
allele
analogous
autotroph/heterotroph
biogeochemical cycle
biological succession
biomass
carrying capacity
catalyst
cell organelles (nucleolus, Golgi apparatus, endoplasmic reticulum)
cloning
concentration gradient
convergent/divergent evolution
DNA fingerprint
dihybrid cross
diploid/haploid
dynamic equilibrium
endo/exocytosis
enzyme
eukaryote/prokaryote evolution
hetero/homozygous
homeostasis
homologous
hyper/hypotonic solution
innate/learned behavior
karyotype
Linnean taxonomy
macromolecules
meiosis
mitochondrial DNA
modes of inheritance (incomplete dominance, multiple alleles, polygenic)
mutation
natural selection
nucleic acid
pedigree
phylogeny
plasmolysis
population growth curve
protein synthesis
RNA

Earth Science

absolute time
acid rain
atmospheric cycle
Big Bang Theory
cleavage
convection currents
Earth's inclination
fossil record
fracture
geochemical cycle
geologic cycle
glaciers
global warming
gravitational effects
greenhouse effect
hydrologic cycle
Mohs scale
oscillating/pulsating theory
ozone depletion
paleoclimates
paleomagnetism
physiographic region
plate tectonics
plate boundaries (convergent, divergent)
radioactive decay
relative time
topographic map
tsunami
solar flares
superposition
tectonic cycle
uniformitarianism

Physical Science

ampere
Archimedes principle (buoyancy, buoyant force)
atomic theory
balanced equation
Bernoulli's principle
buffer
catalyst
chemical formula
chemical symbol
coefficient
colloid
covalent bonding
current
diffraction
efficiency
electron cloud
extensive/intensive property
friction (sliding, rolling, static)
gas laws (Boyles, Charles)
gravitational potential energy
heterogeneous
homogeneous
indicator
ion
isotopes
interference (constructive, destructive)
ionic bonding
Kelvin
kinetic theory (phase change, heat, molecular motion)
metalloid
nuclear fission
nuclear fusion
Pascal's principle (fluid, pressure)
periodic table (groups, periods, oxidation number)
plasma
refraction
resistance
solution
specific heat
suspension
subscript
thermodynamics (conduction, convection, radiation)
valence electron
voltage
waves (transverse, longitudinal, compression, mechanical, electromagnetic)

SOCIAL STUDIES

Kindergarten

Celebration
Family
Holiday
Honesty
Human
Job
Leader
Community
Map
Globe
Rules
Respect
Neighborhood
Transportation
Tennessee
United States of America
Vote
Computer
Wants
Basic needs (food, clothing, shelter)
Cooperation
Pledge
President

1st Grade

Citizen
City
State
Country
Continent
Ocean
Election
Equality
Equator
Flag
History
Independence
Law(s)
Governor
Past
Present
Future
Rights
Responsibilities
Veteran(s)
Technology
Language
Culture
Values
Patriotic

2nd Grade

Authority
Climate
County
Custom
Conflict
Decision
Duty
Growth
Government
Justice
Landmark
Privilege
Qualifications
Rural
Urban
Services
Goods
Settlement
Symbol
Tradition
Volunteer
Time line
Contribution
Economy
Consumer
Producer
Events
History
Natural resources
River
Map key

3rd Grade

Agriculture
Artifact
Ancestor
Barter
Borders
Cardinal directions
Distribution
Economy
Ethnic
Exports
Geography
Global
Hemisphere
Imports
Industry
Manufacturing
Landforms
Latitude
Longitude
Legend
Natural resources
Physical map
Population
Primary source
Product
Scarcity
Rural
Suburban
Urban
Tools
Weapons

4th Grade

American Revolution
Amendment
Ancient civilizations
Articles of Confederation
Colony
Bill of Rights
Document
Constitution
Diversity
Democracy
Expansion
Exploration
Executive branch
Judicial branch
Legislative branch
Louisiana Purchase
Mayflower Compact
Missions
Merchant
Native America
Population
Preamble
Religion
Secondary source
Slavery
Supply and demand
Political
Trade routes
Tributary
Taxes

5th Grade

Tariff
Abolitionists
Aviation
Annex
Boycott
Bias
Border states
Boundary
Civil War
Civil Rights
Confederate States of America
Debt
Credit
Federal
Great Depression
Historian
Human Rights
Integration
Immigrant
Industrialization
Labor Union
Migration
Oral history
Region
Settlement House
Secondary source
Union
Urbanization
Sectionalism
Reconstruction
Suffrage
Segregation

6th Grade

Ancient
Civilizations
Irrigation
Middle Ages
Monarchy
Nomadic
Technological
Empire
Epics
Feudalism
Renaissance
Anthropology
Republics
Caste
Cultural diffusion
Archaeologists
Theocracy
Philosophy
Geologist
Polytheism
Cuneiform
Globalization
Interdependence (economic)
Class
Dynasty
Hieroglyphics
Dark Ages
Classical
Cartouche
Plague
Mythology
Medieval

7th Grade

Colonization
Demographics
Urbanization
Impact
Prime Meridian
International Date Line
Time zone
GIS/GPS
Capitalism
Communism
Socialism
Free enterprise
Tributary
Topography
Physical processes
Spatial

8th Grade

Philanthropy
Altruism
Antebellum
Absolute
Exchange
Commerce
Congressional
Civic efficacy
Constitutional
Contract
Consumption
Autocracy
Oligarchy
Dictatorship
Diplomacy
Domestic
Doctrine
Federalism
Holocaust
Human impact
Infrastructure
Insurrection
Interdependence
International
Map projections
Nationalism
Magna Carta
Recession
Relative
Republicanism
Social norms
Totalitarian
Vernacular
Autocracy
Oligarchy
Dictatorship

Economics

Accommodation
Aggregate
Arbitration
Assimilation
Capital
Capitalism
Consumerism
Corporation
Deficit
Entrepreneurship
Fiscal
Governance
Gross National Product
Incentives
Inflation
Injunctions
Innovation
Interest
Marginal
Monetary
Monopoly
Opportunity Cost
Profit
Productive
Regulation
Social Security
Socialism
Socioeconomic
Telecommunication
Trust
Utility

Geography

Bilingual
Capital
Cohesiveness
Commodity
Diffusion
Distribution
Diversity
Gross Domestic Product
Indigenous
Monotheism
Peripheral
Polytheism
Regionalization
Silting
Symbiotic
Tertiary
Utilization
Urbanization
Welfare

US Government

Affirmative Action
Alliances
Amendment
Amnesty
Anarchy
Appellate
Bicameral
Capitalism
Census
Civil
Concurrent
Conformity
Conservatism
De facto
Efficacy
Elastic Clause
Eminent domain
Entitlements
Expressed
Filibusters
Gerrymandering
Globalization
Impeach
Implied
Inherent
Jurisdiction
Liberalism
Litigant
Multilateral
Municipality
Naturalization
Ordinance
Pardon
Platform
Propaganda
Redistricting
Reserved
Sanctions
Sovereignty
Stereotyping
Treaties
Welfare
Zoning

US History

Anti-semitism
Appeasement
Assimilation
Blockade
Calamity
Capitalism
Communism
Conformity
Consumerism
Containment
Counterculture
Deficit
Espionage
Extractive Economies
Fascism
Feminism
Imperialism
Industrialism
Inequities
Influx
Innovator
Interventionist
Isolationism
Laissez faire
Mercantilism
Militarism
Modernization
Nationalism
Nativism
Political patronage
Populism
Prepossession
Progressivism
Prohibition
Proliferation
Propaganda
Quotas
Social security
Tariffs
Totalitarianism

World History

Appeasement
Aristocracy
Armistice
Conformity
Coup
Disseminate
Enlightenment
Eradication
Expropriation
Genocide
Guerilla Warfare
Homogenous
Humanism
Imperialism
Indigenous
Manorialism
Mercantilism
Monastic
Monetary
Proletariate
Propaganda
Reform
Reparations
Sanction
Socioeconomic
Stereotyping
Synthesize
Totalitarianism
Tribal Systems

Personal Finance

Accrued
Annuities
Balloon
Bankruptcy
Budget
Cafeteria Plan
Collateral
Debit
Delinquency
Diversification
Estate
Equity
Foreclosure
Garnishment
Identity Theft
Income
Loan sharking
Mortgage
Opportunity cost
Predatory lending
Reconciling
Reimbursement
Repossession
Secured debt
Social Security
Unsecured debt

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Marzano, R. J (2005). Building Academic Vocabulary Teacher's Manual. Alexandria, VA: Association for Supervision and Curriculum Development.

Vocabulary University
http://www.vocabulary.com/index.html Vocabulary University is an online resource for working on groups of related vocabulary words in a puzzle format. It is broken into beginning, intermediate, and college-level work, and is nicely organized resources for ESL students. (maintained by the College of Arts & Sciences of Ohio University)

Building vocabulary including SAT quizzes
http://grammar.ccc.commnet.edu/grammar/vocabulary.htm

Tennessee word lists
http://www.state.tn.us/education/ci/standards/doc/WordList_Final%208206.doc

http://www.npr.org/templates/story/story.php?storyId=6415434&sc=emaf
Article on the literacy of mathematics and how one teacher promotes writing in math class.

http://verizonfails.ytmnd.com/
Importance of understanding mathematical symbols.

http://jc-schools.net/tutorials/vocab/
Jefferson County Schools Vocab website, lots of games, templates!

Marzano, Robert j and Pickering,Debra J.
Building Academic Vocabulary. ASCD. 2005.

Allen, Janet. **Words, Words, Words.** Stenhouse Publishers. 1999

Robert Marzano, John S. Kendall with Barbara B. Gaddy. **Essential Knowledge: The Debate Over What American Students Should Know**. McRel Institute. 19

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Brooke Blair	Sevier County
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