Building Academic Vocabulary:

A Program that Dramatically Increases Reading Comprehension for Special Education Students

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Kenai Peninsula Borough School District

ASSEC 2014

Housekeeping

- Thank-you for attending

- Thank-you Hilton for the fine facility

- Thanks to ASSEC personnel for their organizing and logistical preparation

- Please put cells phones on silent/vibrate

- Please hold your questions until the end of the presentation

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- Ms. Dawn Wagner, Mrs. Krista Hildebrand-Christensen, Mrs. Meredith McCollough

- Robert Marzano, Debra Pickering

Presentation Objectives:

As a result of this presentation, the participant will:

- Understand how Marzano's & Pickering's Vocabulary Program was developed and implemented at KCHS

- Understand the dramatic impact a structured vocabulary program can have on reading comprehension with our special education population

- See how a well-designed program evaluation plays a vital role in accurately gauging the impact of a program

- Grasp the implications of the program

- Have sufficient knowledge and tools to begin developing a powerful vocabulary program in their own schools

Educational Challenge: Reading

- 3.5 years ago, Kenai HS Special Ed Department
  - How can we enhance our Study Skills offerings beyond review and assignment completion?
  - How can we better remediate disabilities under our co-teaching/inclusion model?

- Decided to focus on reading: How can we improve reading in the SpEd population at Kenai Central High School?
  - >85% of our SpEd students exhibit adequate decoding and fluency
  - The primary reading difficulty in the KCHS SpEd population was _comprehension_
    - Fewer struggles with learning to read and more with reading to learn

Educational Challenge: Reading

- Marzano & Pickering identified limited vocabulary as a major impairment to reading comprehension:
  - Limited vocabulary hampers understanding when reading

- "People's knowledge of any topic is encapsulated in the terms they know that are relevant to the topic"
  - "The more students understand these terms, the easier it is for them to understand information they read or hear about the topic."
  - This reduces the labor and frustration associated with learning a topic or subject

- Marzano, R. J., & Pickering, D. J. (2008). *Building Academic Vocabulary Student Notebook Revised Edition.* Alexandria: Association for Supervision and Curriculum Development.
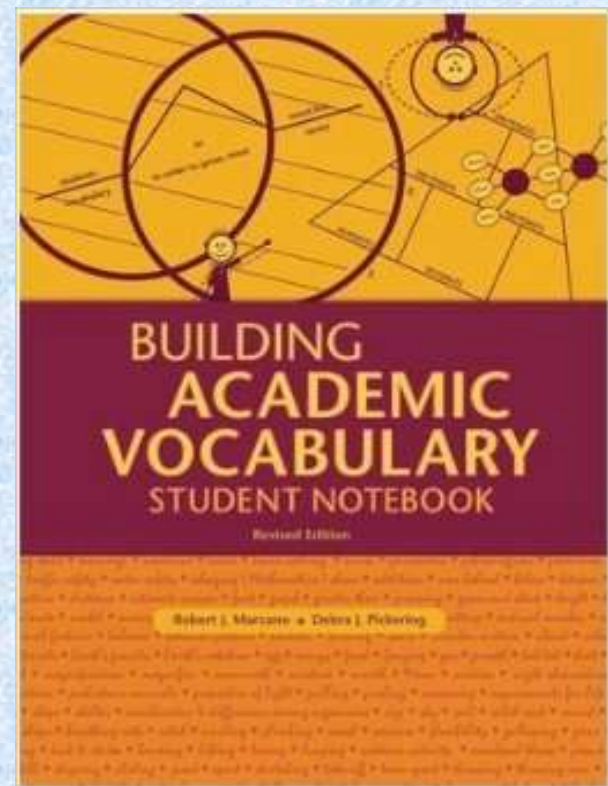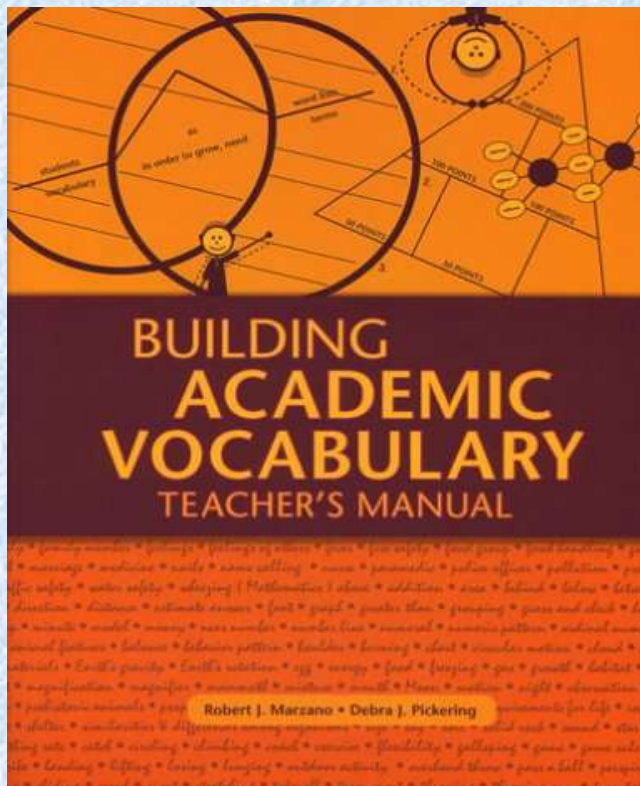
Procedure

- "Building Academic Vocabulary: Teacher's Manual" by R. Marzano & D. Pickering

- Design Phase: August-September 2011
    - Decided to teach 4 words per week in all Study Skills over 4 years (30 weeks per year) = 480 words
    - Selected words in Math, Language Arts, Science, and Social Studies/History from 7,923 terms that Marzano & Pickering collected from national standards documents

Procedure cont.

- SpED teachers, co-teachers, and psychologist identified pool of words considered crucial to be literate in our society and successful with the curriculum

  -- Same group rated importance of each word from 1 (least) to 4 (most or highly important)

Procedure cont.

- Average rating for each word calculated
- Top 120 words/terms for each of 4 subject areas selected = 480 total words
- Assigned 4 words/terms per week over 120 weeks (4 years); examples,
  - Week 2= Exponent, Hierarchy, Plagiarism, Atom
  - Week 4= Polygon, Capitalism, Supporting Detail, Electron
- SpEd teachers reviewed teaching strategies in Marzano's text & developed others (Holly will demonstrate later)

Procedure cont.

- SpEd Department teachers agreed to teach the same 4 vocabulary words per week in each Study Skills class with a quiz each Friday
  - Study Skills = Resource Class = Academic Support
- Psychologist prepared weekly quizzes
  - 6 item multiple choice
    - Current 4 words
    - 2 randomly selected words from previous weeks
- Quiz scores became part of the Study Skills class grade

Procedure cont.

- 1st year: Program developed & implemented
  - Vocabulary midterms and finals implemented using items/words selected from quizzes
- 2nd year: Program continued and Program Evaluation conducted
- 3rd year (current): Program continued . . .
- 4th year: Increase to 5 words per week
  - Incorporate Transition & Daily Living terms

Program Evaluation

- Conducted 1st semester
- 30 vocabulary terms randomly selected from the 56 scheduled to be taught that semester
- Pre-test: Multiple choice test of these 30 terms given during first week of school in
  - All Study Skills classes (n= 32)
  - All 9th-11th Regular Ed Language Arts classes (n=164)

Program Evaluation cont.

- Post-test given during Final Exam week of the semester
  - Consisted of the 30 pre-test items randomly reordered with foils for each item reordered

Program Evaluation: Data Analysis

- Subjects
  - SpEd Freshmen n= 14
  - RegEd Freshmen n= 22
 - SpEd Sophmores n= 12
  - RegEd Sophmores n= 54
  - Total n = 102

Program Evaluation: Data Analysis

- **Data Analysis: Averages and Standard Dev.**

- **Average (std)**

Group	Pre	Post	Difference
Reg 9th	55.16 (10.57)	59.08 (11.28)	3.92
SpEd 9th	46.42 (9.64)	62.61 (10.56)	16.19
Reg 10th	57.78 (11.31)	62.16 (11.76)	4.38
SpEd 10th	37.49 (9.24)	62.23 (13.37)	24.74

Program Evaluation: Data Analysis
Problem with just relying on group averages
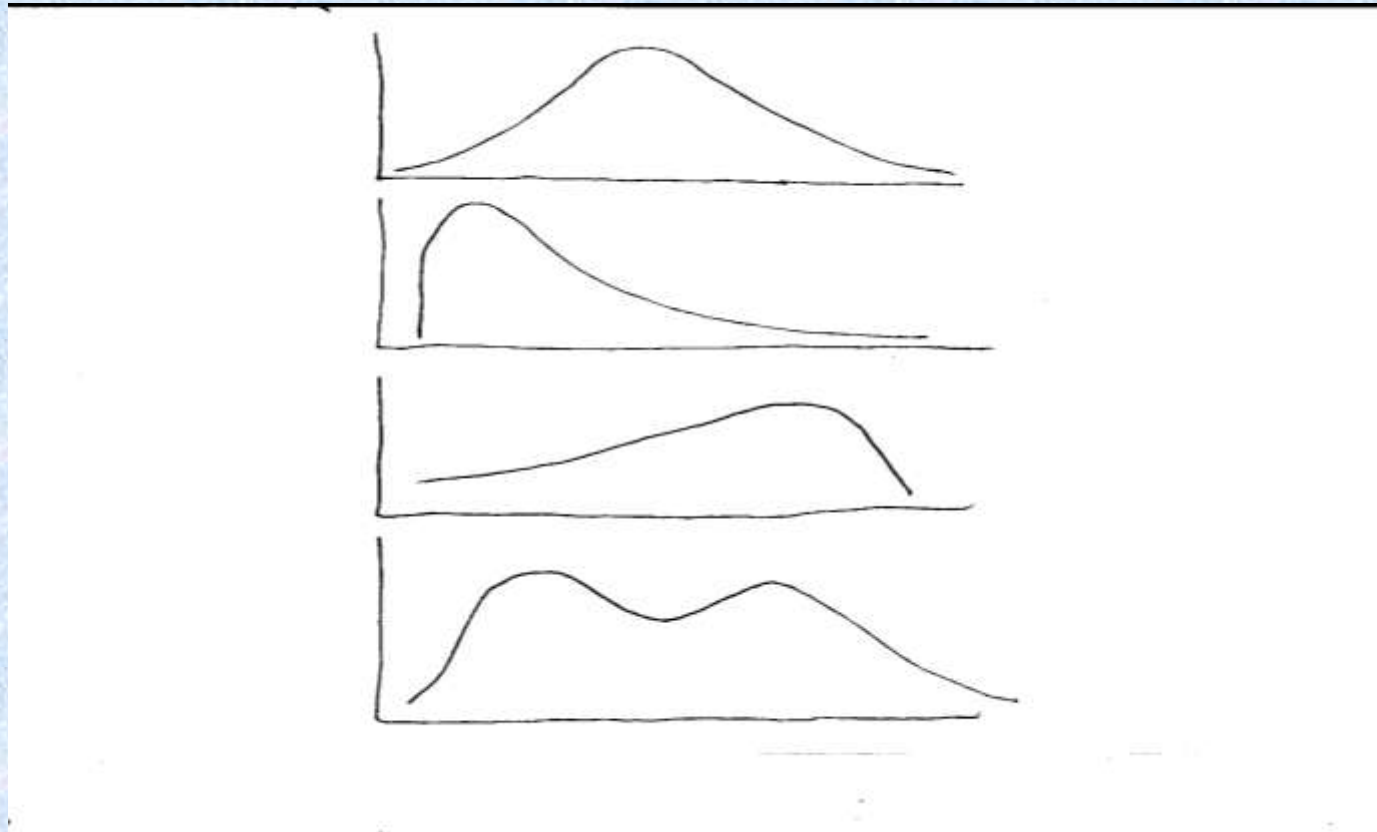
Program Evaluation: Data Analysis

- Looking only at the averages, it looks like the intervention was effective, BUT
  - Is it a significant result? Or just a fluke?
  - Could it just be due to sampling error?
  - What are the chances that if we repeated the intervention, it would not be effective?
  - Does the impact depend on grade of the student?
  - Does the intervention have "social validity"?

Program Evaluation: Data Analysis
What is ANOVA?
(It is not a chevy made in the 1970s & 1980's)
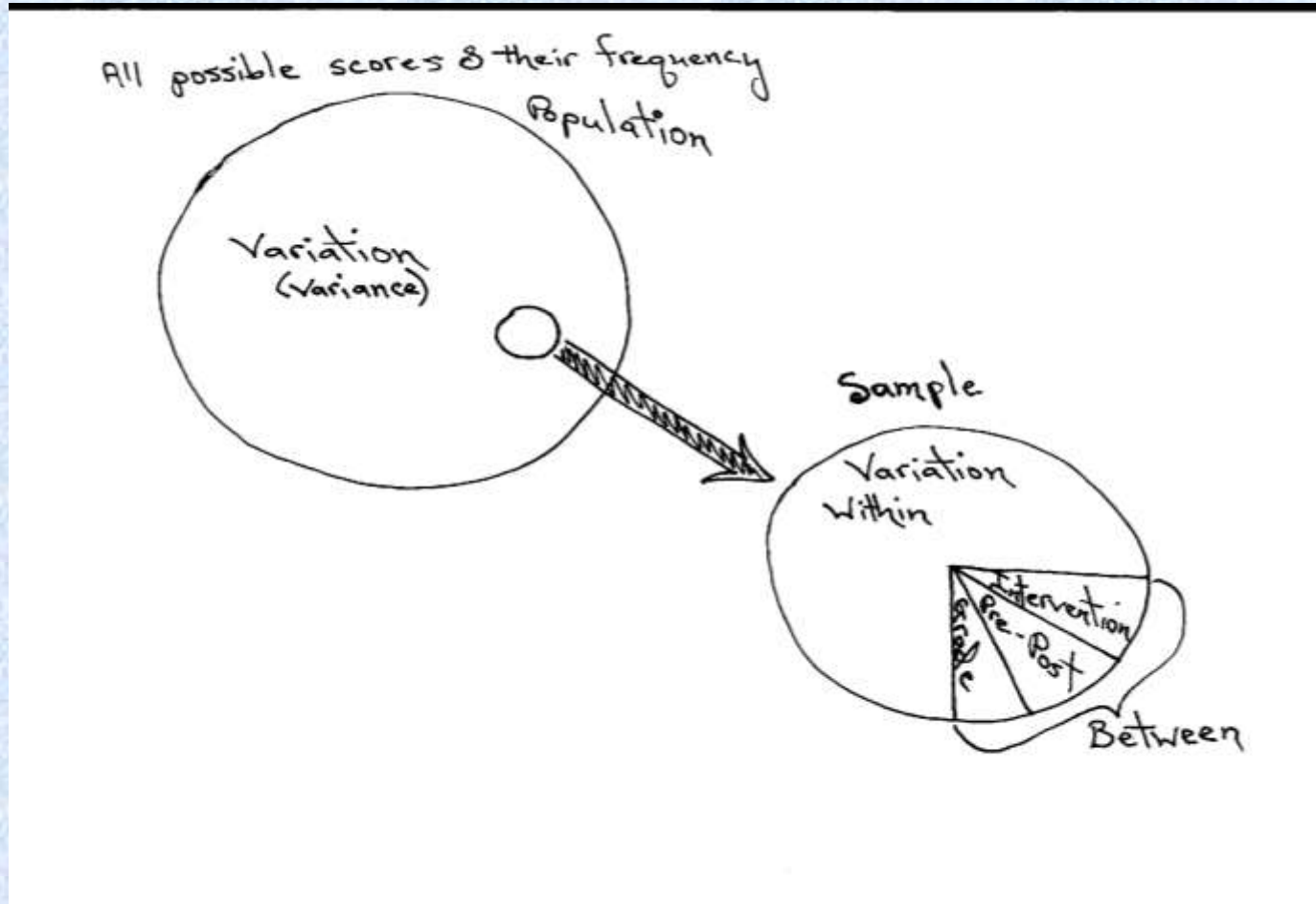
Program Evaluation: Split-Plot ANOVA

Source	Sum of Sq	Df	Est. Variance	F value
Between	8505.9	7	1215.1	9.64***
Grade	190.2	1	190.2	1.5
Intervention	1778.6	1	1778.6	14.11***
Pre-Post	3545.3	1	3545.3	28.1***
Interactions	2991.8	4	747.95	5.94**
Within	24,686.9	196	126	
Total	33,192.8	203		

Program Evaluation: Conclusions

Is it a significant result?

Could it just be due to sampling error? A fluke?

What are the chances that if we repeated the intervention, it would not be effective?

– The intervention produced a *highly significant* change in the Special Ed students vocabulary scores

– There is less than 1 chance in 1,000 that it was "a fluke" or due to sampling error

– If the intervention were repeated each semester, a similar highly significant impact is far more likely than not

  • If implemented elsewhere using the same approach, a similar highly significant impact should be predicted and achieved

Program Evalution: Conclusions

Does the impact depend on grade of the student?

- The impact was similar regardless of what grade the student was in at the time

Program Evaluation: Conclusions

Does the intervention have "social validity"?

- Social validity refers to whether an intervention causes the individual to act or perform within the range of the average or typical folks

  - In this case: Does the intervention cause the special education students to achieve, answer, or comprehend the vocabulary terms at a level comparable to their peers in regular education?

  - SpEd students were significantly lower than their peers in understanding the vocabulary terms *__before__* the intervention

  - After the intervention, the SpEd students as a group were *__better__* than their regular education peers

Program Evaluation: Implications

- **SpEd students can be brought to the level of their regular ed. peers vocabulary comprehension by specific, targeted instruction**
- **The program should be maintained**
  - Increasing the number of words per week (to 5 or 6) should be considered as a way to improve the program
- **Expansion of the program should be considered as a powerful intervention to increase vocabulary comprehension**
  - To regular ed classes
  - To other schools
- **Study Skills can be used to remediate reading comprehension deficits (as well as other deficits) and this can be done while still helping students complete an adequate amount of work**

Implementation

- Holly Zwink is the Chairperson of the KCHS Special Education Department
  - 29 years teaching experience
  - She was "in the trenches"
    - As a Special Education teacher providing the program
    - As the Department Chair for Kenai Central High School
  - She will share with you the nuts and bolts and pragmatic aspects of delivering the instructional program

Part II

Implementation of Vocab. Program

Materials

* Imagination

*10 minutes per day

Student Vocabulary Book

2005 ASCD

Term:_____   My Understanding: 1 2 3 4

Describe:_____

_____

_____

Draw

Six Step Process

- Explained in <u>Building Academic Vocabulary</u> by Marzano and Pickering

- Systematic Instruction
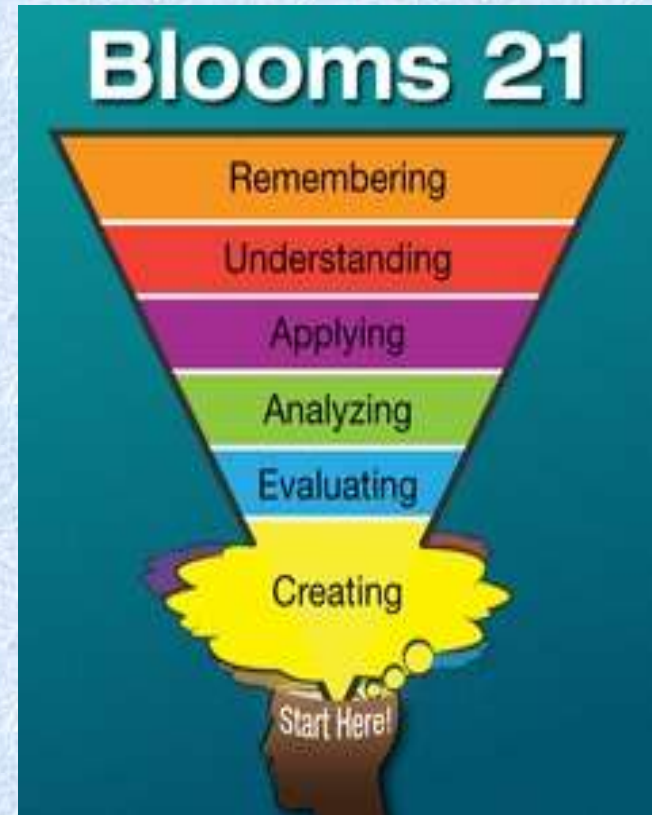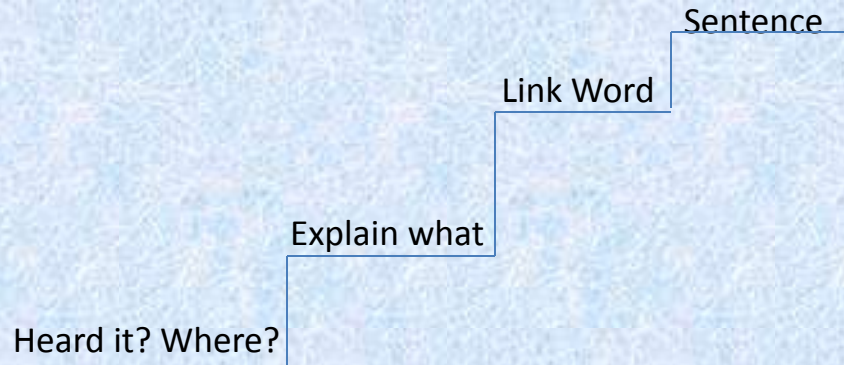
Teach! Practice! Assess!

Minimal

Step One

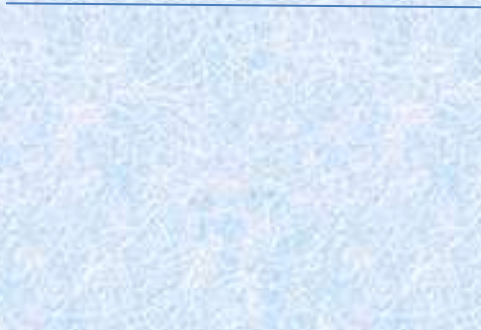1. Using visuals teacher provides description, explanation, or example

- Terms

  - Intersecting Lines
  - Outliers

Sentence

Link Word

Explain what

Heard it? Where?

Models of Step One

Intersecting lines

Outliers

Value   data   popularity

Step Two with 2nd Model

2. Students restate teacher's description/ story
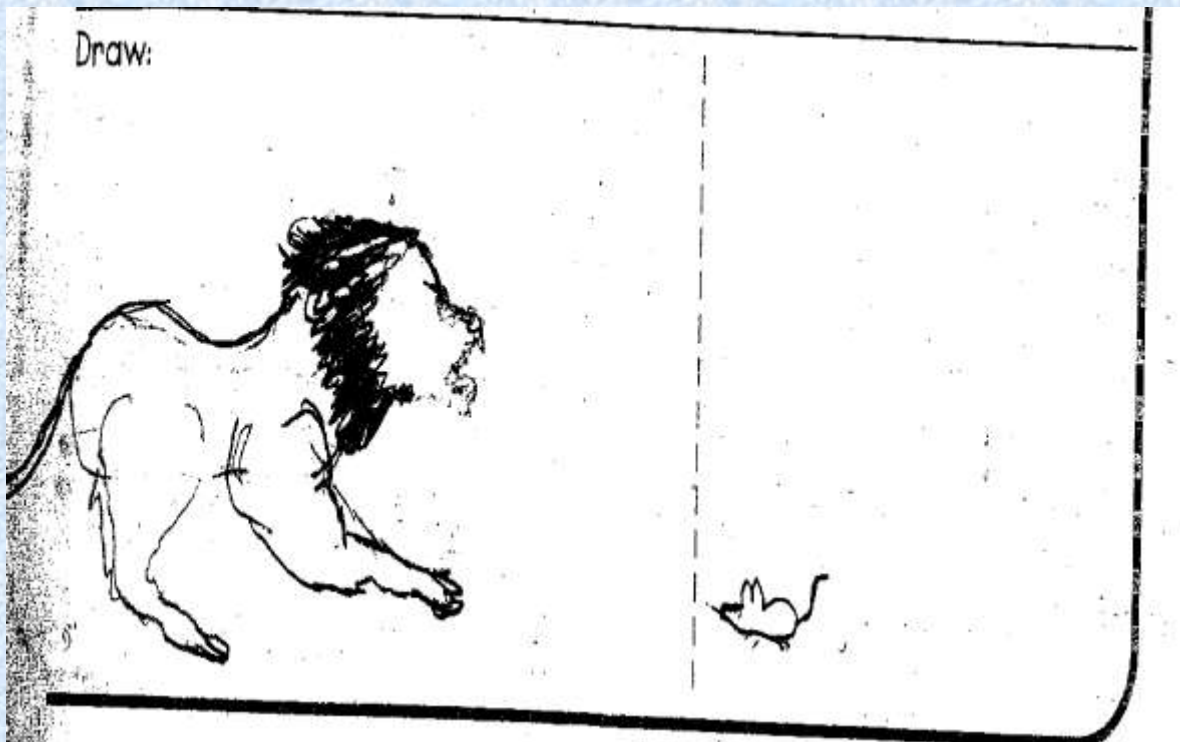
    - Understanding   Level 2

    Term: *Outliers*
    "Data that is way different from the average"

Step Three with Model

3. Students create own visual
   - Applying Level 3

Drawn By Mike

Step Four

4. Periodically engage students in activities to add to their knowledge base of the word

- Analyzing   Level 4

  - Examples

    - Graphic Organizers, word parts, synonyms, antonyms, How is…similar to…

Step Five

5.   Students discuss words together

- Evaluating   Level 4

Step Six

6.   Periodically use games to play with the words

- Creating   Level 4

Assess

- Students self assess   My Understanding 1 2 3 4

- Use multiple choice test for quick weekly assessment

- End of semester cumulative assessment

# Celebrate successes!

# Challenge to Audience

- Terms

  - Previse
  - Gormandize
  - Derisory
  - Sequent

Six Steps

1. Teacher provides example, description, or explanation
2. Student restates teacher's description
3. Student creates own visual
4. Activity to add to knowledge of word base
5. Discuss words together
6. Game

Bibliography

- Marzano, R. J., & Pickering, D. J. (2005). *Building Academic Vocabulary Teacher's Manual.* Alexandria: Association for Supervision and Curriculum.

- Marzano, R. J., & Pickering, D. J. (2008). *Building Academic Vocabulary Student Notebook Revised Edition.* Alexandria: Association for Supervision and Curriculum Development.
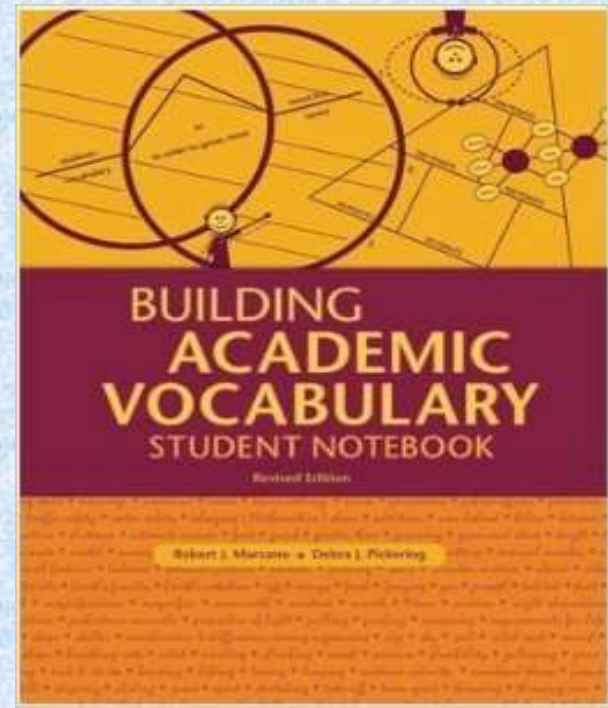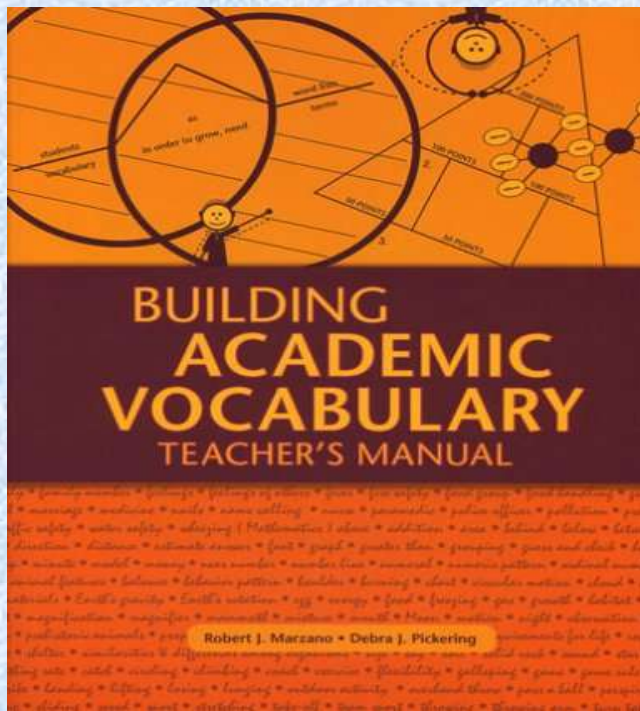
Appendix A
Resources
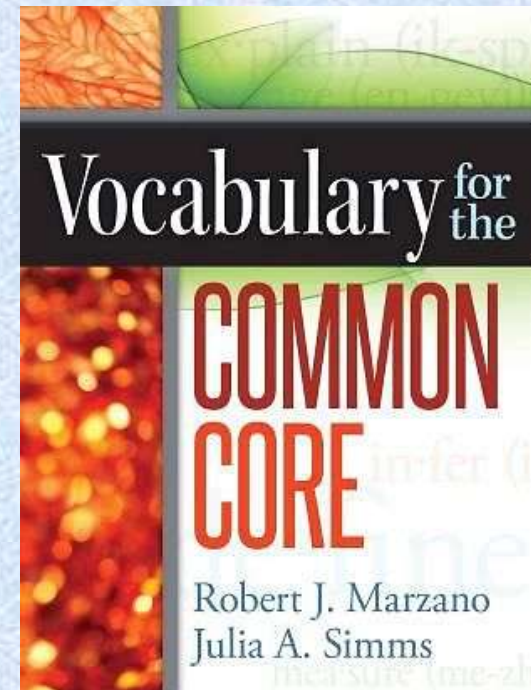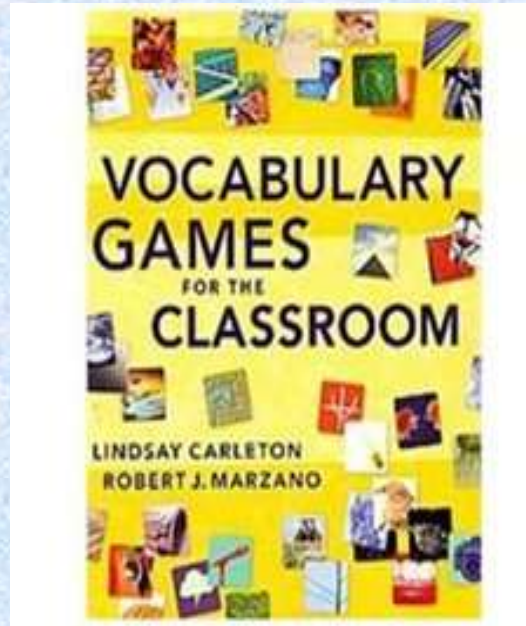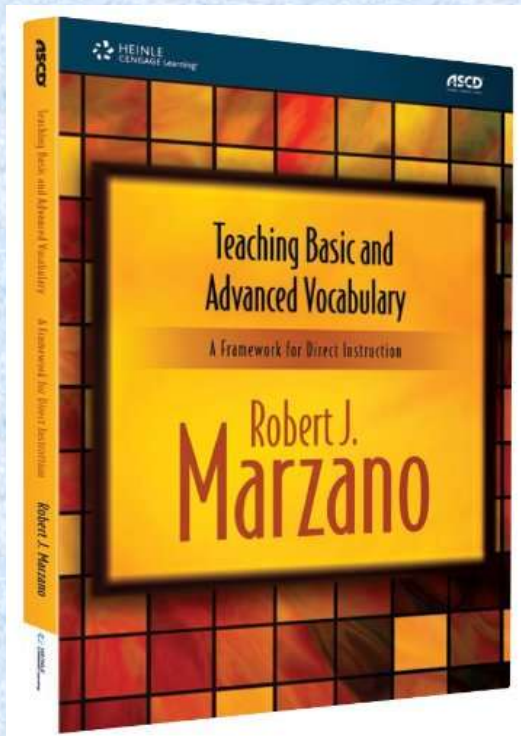
Appendix B
Sample of CORE Word lists

Date	Math	Science	Language Arts	History
Week 1				
August 27-31	Distance formula	Cell function	alliteration	integration
Week 2 Sept 4-7	Input/output table	Cell membrane	allusion	Labor Union
Week 3 Sept 10-14	Maximum	Chromosome pair	caption	liberalism
Week 4 Sept 17-21	Minimum	decomposer	coherence	monarchy
Week 5 Sept 24-28	polynomial	electron sharing	compile	neutrality
Week 6 Oct 8-12	Quadratic equation	Equal & opposite force	compound sentence	radicalism
Week 7	Random number	Greenhouse gas	concept	republicanism

Appendix C
Sample of Weekly Assessment Questions

_____ 1) Which of the following is NOT a purpose of the cell membrane:
a) to allow necessary substances into the cell
b) to keep harmful substances out of the cell
c) to act as the central nervous system (the brain) of the cell
d) to maintain the shape and structure of the cell

_____ 2) _____ is the act of bringing together people of different racial or ethnic groups that were formerly separated.
a) integration
b) socialism
c) segregation
d) intermixing

_____ 3) A(n) _____ is a chart that relates a set of x-values for a particular function to their corresponding y-values.
a) data table
b) input –output table
c) ordered pair
d) organizational table

Thank you

Danke

Merci

¡Gracias

Quyana