




Northpoint Horizons

Dedicated to the Success of All Students



RESEARCH + HANDS-ON SYSTEMS = ACADEMIC SUCCESS

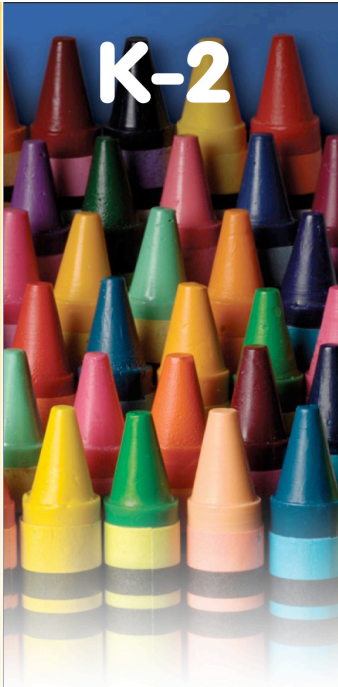
Why Teach Vocabulary?

- There is a direct link from vocabulary knowledge to comprehension of reading (Beck & McKeown)
- The amount of words acquired from context depends on the amount of text read and the ability of the child to read it. (Kuhn & Stahl, 1998)
- A good reader will learn up to five times more words than a struggling reader (Kuhn & Stahl, 1998)
- Culturally, vocabulary knowledge and usage is an indicator of intellectual ability

Vocabulary Instruction:

- Should be active
- Should be engaging
- Should help students make connections to what they already know
- Should make links between related concepts
- Should include multiple repetitions
- Should build student independence
- Should be in their hands and in their mouths

K-2



3-5

Every day, students struggle to learn the academic vocabulary that they need to understand in order to succeed in school.



Content Academic Vocabulary System eases the struggle and provides the solution to the successful acquisition of Math academic vocabulary.



Content Academic Vocabulary System

- Research Based

- Systematic, Hands-on Instructional Approach

- Differentiated Instruction

- Success on the TEST

- Flexible & Easy to use



Content Academic Vocabulary System

Research Based

- Vocabulary Acquisition
 - Isabel Beck
 - Robert Marzano
- Sheltered Instructional Operational Protocol
- National Literacy Panel on Language-Minority Children and Youth
- Efficacy study utilizing CAVS

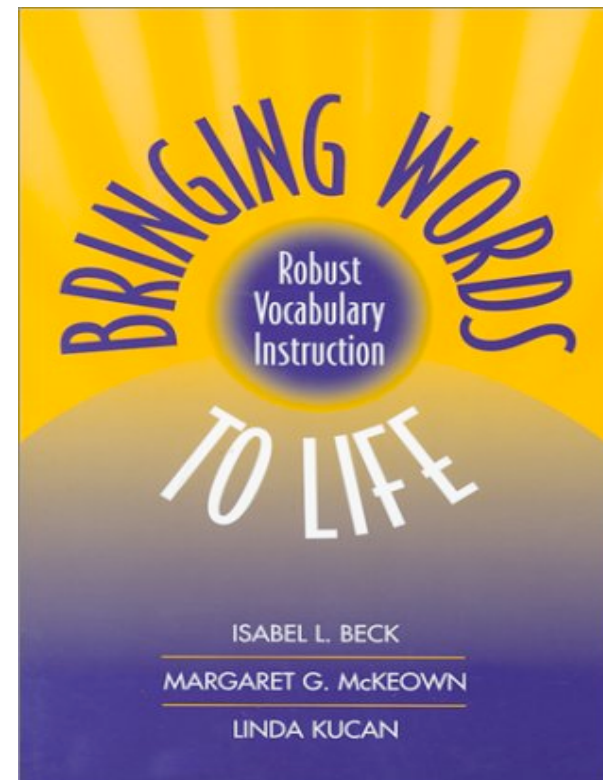


Valuable Resources

Bringing Words to Life: Robust Vocabulary Instruction

Isabel Beck, Margaret G. McKeown, & Linda Kucan

Guilford Press



from *Bringing Words to Life* by Isabel Beck, Margaret G. McKeown, and Linda Kucan
Guilford Press



Bringing Words to Life

- The first tier consists of the most basic words – clock, baby, happy, walk, and so on.
- The second tier contains words that are high frequency for the mature language users and are found across a variety of domains.
- The third tier is made up of words whose frequency of use is quite low and often limited to specific domains.



Bringing Words to Life

- Young children's listening and speaking competence is in advance of their reading and writing competence.
- As children are developing their reading and writing competence, we need to take advantage of their listening and speaking competencies to enhance their vocabulary development.

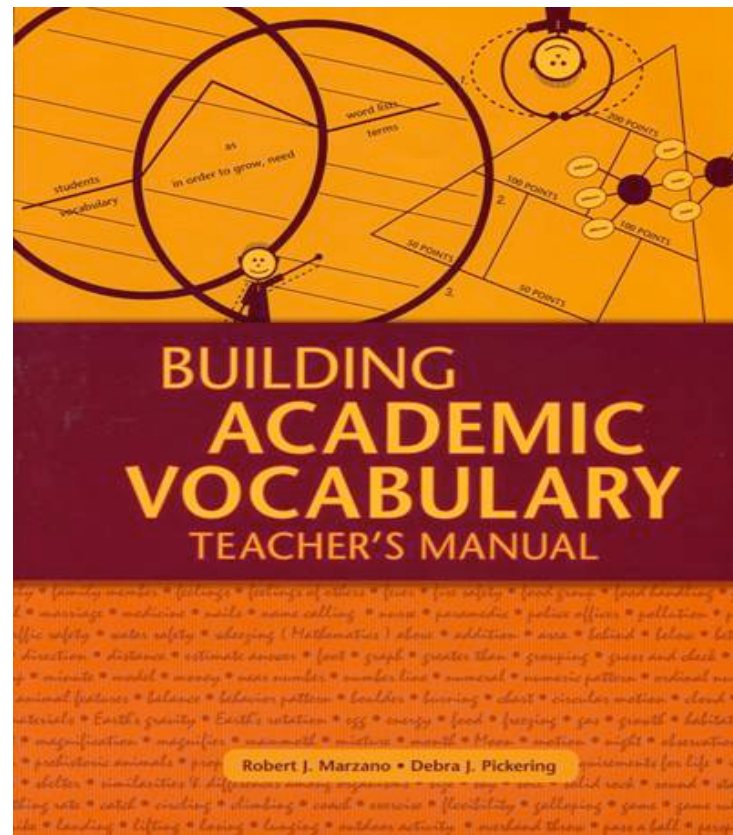


Valuable Resources

Building Academic Vocabulary: Teacher's Manual

Robert J. Marzano & Debra J. Pickering

ASCD

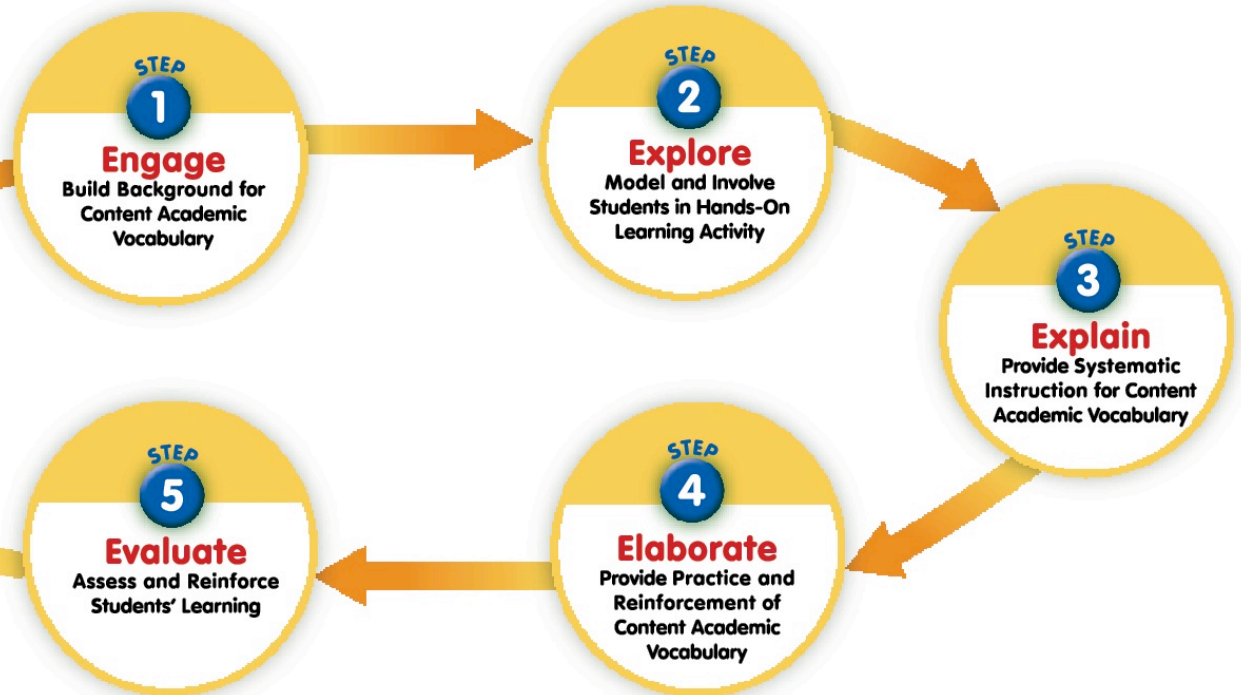


from *Building Academic Vocabulary* by Robert J Marzano and Debra J Pickering



Math **CAVS** Content Academic Vocabulary System

Systematic, Hands-on Instructional Approach
The “5E” Model





Math CAVS Content Academic Vocabulary System


Systematic, Hands-on Instructional Approach

A Picture is Worth 100 Math Vocabulary Words

STEP 1: ENGAGE




LEVEL 26 **relevant information**




Write the information you need, or the **relevant information**, to solve the problem.

LEVEL 5 **denominator**




$\frac{4}{8}$ of the paint jars are open. The bottom number, 8, is the **denominator**.

LEVEL 24 **estimate**




You can **estimate** to solve the problem. 5 times 5 is 25, close to 27.

LEVEL 24 **process of elimination**




You can use the **process of elimination** to solve the problem. 3 and 4 are too few, 6 and 7 are too many.

LEVEL 24 **irrelevant information**




Do not write the information you do not need, or the **irrelevant information**.

LEVEL 24 **restate the problem**



Say or write the problem again. You can **restate the problem**.

LEVEL 24 **trial and error**



You can use **trial and error** to solve the problem. Try 3. 3 is not enough.





Systematic, Hands-on Instructional Approach

STEP 2: EXPLORE



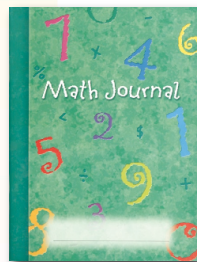
Record Sheet 24
Use with Activity 24

Name: _____

Is It Relevant?

3 Write
Copy your word problem and the solution in the space below.
Circle the irrelevant information.

4 Observe and Explore
Write the solution to your classmate's problem in the space below.



ACTIVITY 24 Bears in a Bag

YOU NEED

- lunch bag
- large bear counters
- paper and pencil

1 Fill a lunch bag with bear counters.
Do not count the bears as you put them in the bag.

2 Make a guess of the number of bears in the bag.
Write your guess on your paper.

3 Take some bears out of the bag.
Count the bears you took out.

- Do you want to change your guess?

Count the rest of the bears in the bag to check your guess.

4 Observe and Explore

- How close was your guess?
- Did counting some of the bears change your guess?

5 Record and Share

Share with a partner how you made your guess and how close it was to the actual amount.

Now Try This

Fill the bag again. This time, use different counters. Make a good guess. Then count the actual amount.




Differentiated Instruction

STEP 3: EXPLAIN (K–2)




LESSON 24 How do we solve problems?

If you do not know an exact number, you can **estimate**.




◀ Estimate how many marbles are in the glass.
5 50 100


How many times can you hop in one minute?
Make a **guess**.




Then **check** your answer by hopping for one minute.



About how many children are there?
We can _____ the number.



How many objects are there? We can _____ and _____.





Differentiated Instruction

STEP 3: EXPLAIN (3–5)



LEVEL 24 **How can you solve problems?** **LEVEL A**

Let's solve a problem. 27 people will come for dinner. One person will stay overnight. There are 5 tables. How many chairs are at each table?

LEVEL 24 **How can you solve problems?** **LEVEL B**

Let's solve a problem. 27 people will come for dinner. One person will stay overnight. There are 5 tables. How many chairs are at each table?

Solving Problems

How do you solve problems?

Write the information you need, or the **relevant information** to solve the problem. 27 people are coming to dinner.

Do not write the information you do not need, or the **irrelevant information**. One person will stay overnight.

What is relevant? What is irrelevant?

Carla needs 27 cups. The cups are red. Cups come in packages of 12.

Make Connections
Anna has 40 flowers and 5 vases. She will put the same number of flowers in each vase. Two vases are green and three are blue.

VOCABULARY
relevant information facts that you need to solve a problem.
irrelevant information facts that you do not need to solve a problem.

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How do you solve problems?

Say or write the problem again. You can **restate the problem**.

You can use **trial and error** to solve the problem.

VOCABULARY
restate the problem say the problem again.
trial and error trying different answers to a problem to find the solution.

Make Connections
How many different groups can you make with 30 counters? Try groups with different numbers in them to see.

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Solving Problems

How do you solve problems?

Write the information you need, or the **relevant information**, to solve the problem.

Do not write the information you do not need, or the **irrelevant information**.

What is relevant? What is irrelevant?

Carla needs 27 cups. The cups are red. Cups come in packages of 12.

Make Connections
Anna has 40 flowers and 5 vases. She will put the same number of flowers in each vase. Two vases are green and three are blue.

VOCABULARY
relevant information facts that you need to solve a problem.
irrelevant information facts that you do not need to solve a problem.

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How do you solve problems?

Say or write the problem again. You can **restate the problem**.

Use other words to restate the problem.

You can use **trial and error** to solve the problem.

VOCABULARY
restate the problem say the problem again.
trial and error trying different answers to a problem to find the solution.

Make Connections
How many different groups can you make with 30 counters? Try groups with different numbers in them to see.

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Math CAVS Content Academic Vocabulary System

Systematic, Hands-on Instructional Approach

STEP 4: ELABORATE



Name: _____

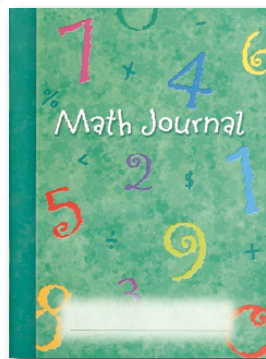
Concept Web 24

Draw a picture or write a definition for each vocabulary word.

How can you solve problems?

| Strategies for reading the problem | Strategies for solving the problem |
|------------------------------------|------------------------------------|
| relevant information | trial and error |
| irrelevant information | process of elimination |
| restate the problem | estimate |

© 2008 Pearson Education, Inc. Lesson 24 How can you solve problems? 143





Success on the TEST

STEP 5: EVALUATE



Name _____

24 How can you solve problems?

Fill in the sentences with words from below.

- When you the answer, you make a guess.
- Information that doesn't help you solve the problem is .
- When you use the , you cross off choices that do not work.
- Information that you need to solve a problem is .
- You use when you try different numbers until you find the answer.

| | | |
|-----------------|------------------------|----------|
| estimate | irrelevant | relevant |
| trial and error | process of elimination | |

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Name _____

Lesson Review 24

Draw a line to connect each vocabulary word with its definition.

| | |
|---------------------------|--|
| 1. relevant information | a. trying different answers to a problem to find the solution |
| 2. irrelevant information | b. facts needed to solve the problem |
| 3. restate the problem | c. a way to cross out answer choices that are not the solution |
| 4. trial and error | d. facts not needed to solve the problem |
| 5. process of elimination | e. to say the problem again |
| 6. estimate | f. to make a good guess |

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Systematic, Hands-on Instructional Approach The “5E” Model

LESSON 24 How can you solve problems?

Engage

Concept Poster 8 and Math Vocabulary Cards 114–119 *Whole group activity*

Build Background
Show students side A of card 114 (relevant info) to find a similar image on the poster (the girl card 114, image side out, in the pocket closest kind of information does the girl need to solve a sentence on side A of the card. Repeat with card 118 (process of elimination), and card 119. Ask students the following questions:

- How can you restate the girl's problem?
- Is the number of people coming for dinner relevant?
- Is the woman staying the night relevant information?
- Can you estimate the number of chairs needed?
- How can you solve a problem using trial and error?

Explore and Learn

Inquiry Activity *Small group activity*

Model the Activity

- Place the materials for Activity Placemat 24 (copies of Activity Record Sheet 24 (p. 142), index cards, number cubes, spinner, opera glasses).
- Model the correct pronunciation for each word. Have students repeat the words.
- Read the steps of Activity Placemat 24 (1–3) to students.
- Guide students as they work in small groups and Activity Record Sheet 24. Explain that problems that include both relevant and irrelevant information.
- Have student partners complete the Now Try It!

Discuss the Activity
Invite students to discuss the activity and compare answers.

- How can you decide what information is relevant to a problem?
- How can restating the problem help you solve a problem?
- What are some strategies that you can use to solve a problem?

Vocabulary Word Wall
Place these words on the Word Wall:

relevant information, irrelevant information, restate the problem, trial and error, process of elimination, estimate

Have students copy the words in their Math Journals. Next, have students draw a picture to illustrate each word and write a sentence using each word. Photocopy and post examples of the students' illustrations and sentences below the appropriate words on the Word Wall.

Cognates
For Spanish-speaking students, it may be helpful to post this cognate chart to show similarities between vocabulary words in Spanish and English. Keep in mind that students have varying literacy levels in Spanish, and some may not be familiar with these words.

| Cognates | |
|------------------------|-------------------------|
| English | Spanish |
| relevant information | información relevante |
| irrelevant information | información irrelevante |
| process of elimination | proceso de eliminación |
| estimate | estimación |

Math Content Picture Dictionary
For students needing additional help with vocabulary words, refer them to the Math Content Picture Dictionary.

Explain Concepts and Vocabulary

Reader Cards A and B *Whole group activity and paired activities*

Build Background
Review the Concept Poster 8 activity from the Engage activity.

- How can relevant information help you solve a problem?
- Restate the problem on the poster. What is the goal?
- How can you use trial and error to solve this problem?
- How can you use the process of elimination to solve a problem?
- How can you estimate how many people will be coming for dinner?

Read the Reader Cards A and B

- Distribute copies of the Reader Cards to students. Read Card A to Beginning/Emerging English Learners, Intermediate/Expanding English Learners and Card B to Proficient English Learners.
- Direct students' attention to the title of the card. Have students repeat the words. Then ask students to answer to the title question. Encourage students to use the vocabulary words in their answers.

- Have students preview the pictures in the Reader Cards. Ask: *What strategies do you like to use to solve a problem?*
- Then have students read the Reader Card aloud with a partner. Vary the groups and partners to provide broad conversation practice for English Learners. Encourage students to check one another's comprehension by asking questions or prompts located in the Reader Cards.
- Circulate among students, guiding them and answering questions as needed.

Make Connections

- Direct students' attention to the Make Connections activity. Have students work with their partners to discuss the prompts, or to complete the activities.
- Suggest that students use their Math Journal to record their thoughts or observations.

Elaborate

Concept Web *Paired activity*

Distribute copies of Concept Web 24 (p. 143). Have each student work with a partner to complete the concept web. For students needing additional help with the web, refer them to the Concept Poster 8, Math Vocabulary Cards 114–119, and Reader Cards A and B. When students have finished, ask volunteers to share and talk about their completed webs.

Radius™ Math Vocabulary Cards

Small group activity

Have students use the Radius™ Audio Learning System and Radius Math Vocabulary Cards 114–119 to practice listening to, reading, writing, and speaking each vocabulary word. Then have students complete one or more of the following activities in their Math Journals:

- Have students write and solve a story problem that contains irrelevant information.
- Have students solve a story problem by using trial and error and process of elimination.

Evaluate

Transparency 24 *Whole group activity*

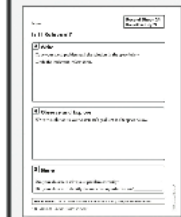
Assess Vocabulary Knowledge
Use side B (the definition side) of the Math Vocabulary Cards 114–119 to review the lesson vocabulary words. Then distribute a copy of Transparency 24 to each student. Have students cut out the vocabulary words at the bottom of the page and place them in the correct boxes. Model the task for them by using Transparency 24. Invite volunteers to read each sentence.

Lesson Review 24

Individual activity

Assess Concept Knowledge
Distribute copies of Lesson Review 24 (p. 144). Read the directions aloud and verify students' understanding. For students whose literacy skills in English are emerging, consider reading the sentences aloud. When students have finished, review the correct answers.

Home Connection
Send the completed copy of Activity Record Sheet 24 (p. 142) home with each student to share with his or her family.



Send a second copy of Transparency 24 home with each student for extra review and practice. Encourage students to work with family members to cut out and place vocabulary words in the appropriate places on the transparency copy. Students can use the transparency copy to review vocabulary words throughout the school year.





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Success on the TEST



K-2



3-5

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