

Math Vocabulary Intervention Strategy – Vocabulary Journal

For: Any student in Grade 1 or above who is not performing satisfactorily on vocabulary components of classroom math curriculum assessments, who can't complete math work accurately due to lack of math vocabulary knowledge, or who performs below benchmark on the AIMSweb M-CAP assessment. (Watch for students who can't perform on questions like, "Draw a line that is perpendicular to line AB" because they don't know what "perpendicular" means, or similar occurrences.)

Materials: list of vocabulary words from curricular math units a student will encounter (or has already encountered but not learned); a student Vocabulary Journal made from several copies of the attached template

Recommended Duration and Frequency: This intervention should be conducted at least 4-5 times per week for at least 15 minutes using words from a text the student will or has encountered in math work. Words used for the intervention can be those previously taught in the classroom, those chosen from the text by the interventionist, or those indicated as "unknown" by the student. The intervention should be conducted until a student scores at an acceptable level on the AIMSweb M-CAP 3 consecutive times, and/or until the student begins to accurately use vocabulary knowledge to help him complete classroom math work (i.e. Math Boxes, assessments).

Steps for Intervention:

1. Select 2-3 words for the day from the classroom math text the student will be using, or have the student self-select unknown words. The words should be high-utility words that will be useful to the student in math in the future and that the student may often encounter.
2. Say the first word for the student. Have the student enter the word in the "Word" blank in one section of the Vocabulary Journal. Then have the student rate his or her own knowledge of the word (prior to instruction) by circling a number 1 through 5 ("1" means "no knowledge of the word" and "5" means "I know the definition of the word and can use it in a sentence or draw an example"). If the student indicates any number 2 – 5, engage the student in a brief conversation about the word, assessing whether or not the student can define the word, use it in a sentence, or draw an example. If s/he is able to do so, skip this word and introduce another.
3. Build an initial understanding of the word for the student. Do this by briefly describing, explaining, or giving an example of the word.
4. After the student listens to your explanation of the word, have the student write a definition for the term **in his/her own words** in the "My Definition" box in the journal.
5. Have the student then sketch a graphic representation or picture of the word in the "Sketch" box.
6. At least once a week, have the student either: (1) go back to the beginning of his/her journal and review words, adding to or changing definitions and/or sketches, and changing the word rating, if desired, to illustrate his/her deeper

understanding of the word; or (2) engage in one of the following activities to practice and review the words:

- a. **Free Association** – Name a vocabulary term, and have the student name all the words s/he thinks of that are related to that term (i.e. “perimeter” might elicit: fence, border, distance around...). You can stop the free association at any time and ask a student how the word s/he named is related to the term.
- b. **Comparing Terms** – Using sentence frames/stems, Venn diagrams, or a Semantic Feature Analysis, have the students compare and contrast two or more vocabulary terms that are somewhat related.

Example of Sentence Stems:

“Square” and “rectangle” are similar because _____.
 “Square” and “rectangle” are different because _____.

Example of Semantic Feature Analysis:

| | Circle | Square | Rectangle | Line |
|---------------|--------|--------|-----------|------|
| Open | | | | |
| Closed | X | X | X | |
| 2-dimensional | X | X | X | X |
| Has vertices | | X | X | |

- c. **Classifying Terms/Open Sort** – Give the student cards with the vocabulary words written on them. There should be different connections between/among some of the words. Have the students sort the words and identify what the title of the sorting category would be. Question students regarding why they placed certain words into the categories they did.
 - d. Allow students to pair up and discuss their words, show their Vocabulary Journals, etc. to each other.
 - e. Play a game, such as Charades or Pictionary, with vocabulary words learned so far.
7. Also at least once every two weeks, quiz the student on the words learned previously by asking the student to either give a definition of the word, draw a picture of the word, or use it in a sentence. Score a “+” or “-” on the Record Sheet (attached) for each word quizzed. Review any words the student misses.
 8. **Progress Monitoring** – At least twice monthly, monitor the student’s progress by administering the AIMSweb M-CAP assessment.

Ideas for the Vocabulary Journal intervention are adapted from *Building Academic Vocabulary*, Marzano, 2005.

Math Vocabulary Journal - Word Entry Page Template

| | |
|--|--------------------------|
| Word: _____ | Rating: 1 2 3 4 5 |
| My Definition: | |
| | |
| Sketch: | |
| | |

| | |
|--|--------------------------|
| Word: _____ | Rating: 1 2 3 4 5 |
| My Definition: | |
| | |
| Sketch: | |
| | |

Math Vocabulary Journal Intervention - Integrity Check

Interventionist: _____ **Date:** _____ **Grade Level:** _____ **Tier** _____
Integrity Monitor: _____

| Descriptor - Student | Yes | No | N/A |
|--|------------|-----------|------------|
| Student is performing poorly on curriculum-based math vocabulary measures, is missing math questions due to lack of vocabulary knowledge, or is performing below grade level on the AIMSweb M-CAP. | | | |
| Student is in Grade 1 or above. | | | |

| Descriptor - Materials | Yes | No | N/A |
|--|------------|-----------|------------|
| Student has a vocabulary journal. | | | |
| Interventionist has access to math text(s) the student is using. | | | |
| Interventionist or student has selected high-utility words to use for the intervention that will be useful to the student in the future. | | | |
| Interventionist has a recording sheet. | | | |

| Descriptor - Interventionist | Yes | No | N/A |
|---|------------|-----------|------------|
| Interventionist maintains an environment conducive to task completion (quiet, manages behavior issues, engages student, etc.) | | | |
| Interventionist says the word for the student and has the student rate his/her knowledge of the word on a scale of 1 – 5. If the student scores the word 2-5, the interventionist assesses student knowledge and discards the word if known by the student. | | | |
| Interventionist introduces the word to the student by briefly describing, explaining, or giving an example. | | | |
| Interventionist assists the student in completing the journal entry, ensuring that the student uses his/her own words when creating a definition and makes a sketch. | | | |
| At least once weekly, interventionist reviews words the student has learned during the week using one of the indicated activities or another appropriate one | | | |
| At least once every two weeks, interventionist quizzes the student on words learned previously, reviewing missed words. | | | |
| Interventionist accurately records the student responses to the word quiz. | | | |
| Intervention is conducted for at least 15 minutes 4-5 times per week. | | | |
| Interventionist uses the M-CAP to monitor the student’s progress at least twice monthly. | | | |
| Intervention is continued until the student scores at an acceptable level on the AIMSweb M-CAP 3 consecutive times, and/or until the student begins to accurately use vocabulary knowledge to help him complete classroom math | | | |

Math Vocabulary Journal Intervention Integrity Check Summary: _____ of _____ applicable components are observed.

Notes: