

Vocabulary Activities

Directions

The following activities help students learn new vocabulary words by providing multiple exposures to the words in different contexts. Include additional words as applicable. Choose words that are appropriate, given the stated goals of each activity.

Suggested Words

- Ratio
- Equation
- Percent
- Equivalent
- Unit rate
- Linear
- Simplify
- Common denominator
- Similar figures
- Proportion
- Greatest common factor
- Origin
- Proportionality
- Scale
- Ordered pair
- Proportional relationship
- Scale factor
- Rate of change

Instructional Materials

Material	Quantity	Description
Handout	1 per student	Vocabulary Map
Handout	1 per student	Word Steps
Master	2 per pair or small group	2-Cube Challenge
Overhead project or, wipe board Paper or math journals Pencil	1 per student	Writing Prompts
Poster board	1 piece per group	Vocabulary Posters
Handout	1 per student	Concept Circles
Master	1 per pair or small group	Memory
Handout	1 per student	Crossword Puzzle

Instructional Materials (cont.)

Material	Quantity	Description
Master	1 set per group	I Have...Who Has?
Master	1 set per group	Can't Say It!
Handout	1 per student	Concept Map
Master	1 per student	Find Someone Who...
Chart paper	1 per group	Marker Talk
Markers (several colors)	1 per student	
Paper	1 per student	Think-Pair-Write
Pencil		

Activities

Activity 1: Vocabulary Map (Harmon, Hedrick, & Wood, 2005)

1. Distribute the Vocabulary Map handout.
2. Have students pick a word from a list and fill out the map.

Variation: Allow students to draw their words from a hat. Allow students to work in small groups.

Example:

Simplify	
Definition To reduce	Use It in a Sentence I can simplify $\frac{3}{6}$ to be $\frac{1}{2}$.
Example $\frac{4}{8} \rightarrow \frac{1}{2}$	Nonexample $\frac{1}{9} \rightarrow \frac{2}{17}$

3. Have students share and discuss in small groups or as a class.

Activity 2: Word Steps

1. Distribute the Word Steps handout to each student.
2. Have each student choose a word and complete the handout.

Example:

What is the word?

Simplify

Describe it in your own words.

To make smaller

Give 3 examples of the word (use pictures or words).

$$\frac{2}{4} \rightarrow \frac{1}{2}$$

$$\frac{3}{3} \rightarrow 1$$

$$\frac{6}{8} \rightarrow \frac{3}{4}$$

Variation: Assign a different word to each student.

3. Have students share their completed handouts with the class. If more than 1 student used the same word, have them compare their descriptions and examples.

Variation: Combine multiple descriptions as a class to come up with the best description of a word.

Activity 3: 2-Cube Challenge (Bay-Williams & Livers, 2009)

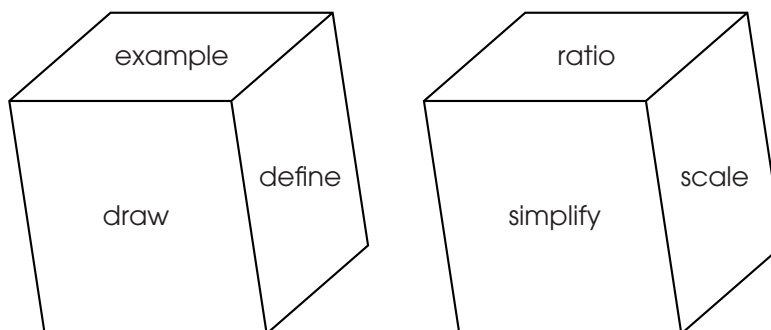
1. Prepare 2 cubes for each pair of students or each small group, using the 2-Cube Challenge master.
2. Write the following words on each face of the first cube:

- Draw
- Describe
- Antonyms
- Define
- Synonyms
- Examples

Write 6 appropriate vocabulary words on the faces of the second cube.

3. Working in pairs or small groups, students take turns rolling the 2 cubes.
4. Students take turns completing the task (draw, define, describe, etc.) for each word they roll.

Example:



Activity 4: Writing Prompts (Rubenstein & Thompson, 2002)

1. Have students write about new concepts they have learned. This activity can be a math journal, warm-up, or “bell” activity before a lesson begins.
2. Writing prompts could include:
 - ♦ A proportion is _____.
 - ♦ 2 ratios form a proportional relationship when _____.
 - ♦ When you know a proportional relationship exists, you may find a missing value by _____.
 - ♦ Compare what “simplify” means in everyday English with what it means in mathematics.
 - ♦ Write a letter to a friend, explaining proportional reasoning.
 - ♦ Imagine you are teaching a second-grader about proportions. Explain what a proportion is, using language he or she would understand. Draw pictures to accompany your explanation.
3. Allow students to trade work and give each other feedback. Read student responses to note any misconceptions.

Activity 5: Vocabulary Posters

1. Have students form groups and assign a different vocabulary word to each group.
2. Have each group create a poster for its assigned word that includes a definition, example, and visual representations.

3. Have groups present their posters to the class.

Variation: Allow the class to decide whether to add something to the poster.

4. Hang the posters around the room.

Activity 6: Concept Circles (Gay & White, 2002)

1. Assign each student a different vocabulary word.

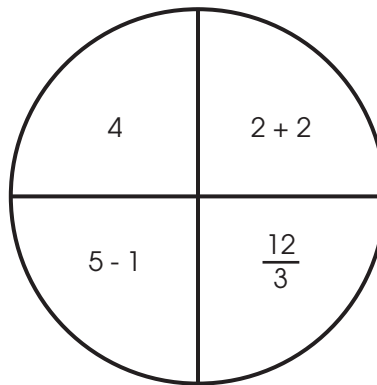
2. Have students draw or write an example of the vocabulary word in each quadrant of the circle on the Concept Circles handout (see first example below).

3. Have students trade circles and identify which vocabulary word is illustrated.

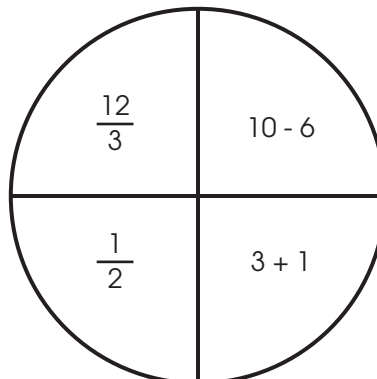
Variation: Have students draw or write examples of the word in 3 of the quadrants and a nonexample in the fourth quadrant (see second example below). When students trade, have the partner eliminate the nonexample quadrant and identify the vocabulary word illustrated.

4. Collect the circles to reuse in future classes, allowing students to analyze different circles.

Example: All 4 quadrants illustrate the word “equivalent”



Example: 3 quadrants illustrate the word “equivalent” and 1 quadrant is a nonexample



Activity 7: Memory

1. Mix the cards from the Memory master.
2. Place the cards facedown on the table in an organized pattern.
3. On each turn, a player turns over 2 cards. The cards match if 1 card is a vocabulary word and the other is the vocabulary word's definition.
4. If a player gets a match, he or she keeps the 2 cards.

Example:

Simplify	To reduce	= match! Keep the cards
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5. If a player does not get a match, he or she flips both cards back over and the next player takes a turn.

Example:

Simplify	Equal	= Not a match, turn cards back over and go to the next player's turn
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6. Play continues until all the cards have been matched.
7. The player with the most cards at the end of the game wins.

Activity 8: Crossword Puzzle

1. Distribute the blank Crossword Puzzle handout.
2. To make it a game, time students to see who can complete the crossword puzzle fastest.

Variation: Keep a running tally to see who is fastest across all units and deem that

student "Vocab Master."

**TEACHER NOTE**

Due to the limited number of unique cards based on the vocabulary set, the game described below is for 10 students. To play the game with more students, first divide students into groups of no more than 10. Pass out an entire deck to each group—if some groups have fewer than 10 players, some students will have more than 1 card. Start each group at the same time and see who finishes their sequence first.

Activity 9: I Have...Who Has?

1. Distribute 1 card to each student from the I Have...Who has? master.
2. Choose a student to go first. This student reads the "Who has?" statement on his or her card. The student with the corresponding vocabulary word responds, "I have ____." This student then reads his or her "Who has...?" statement. For example:
 - Student 1: Who has: equal?
 - Student 2: I have: equivalent. Who has: a relationship between 2 equal ratios?
 - Student 3: I have: proportional relationship. Who has...?
3. If the student with the correct vocabulary word does not respond, other students may provide the correct word. Then, the student who had the correct word reads his or her clue.
4. The game ends when the first player says his or her "I have" statement.

Activity 10: Can't Say It!

1. Distribute 1 set of cards from the Can't Say It! master to each pair of students.
2. Student partners compete against other partner teams to figure out vocabulary words. Each pair has 1 minute to guess as many words as possible.
3. Partner 1 picks a card. Each card shows a vocabulary word and a list of clue words players cannot say. Without saying any of the clue words, partner 1 gives hints to help partner 2 identify the vocabulary word. If partner 2 identifies the word, the team gets a point and picks another card until the minute is over.

Example:

Equivalent
Equal

Partner 1: "This word can be used to describe when 2 things are the same"

Partner 2: "Um, equal?"

Partner 1: "No, this word could also be used to describe what kind of fraction $\frac{1}{2}$ and $\frac{2}{4}$ are"

Partner 2: "Oh! Equivalent"

Partner 1: "Yes!"

4. The second team takes a turn.
5. The team with the most points after all of the cards have been used wins.

Activity 11: Concept Map (Raphael & Schwartz, 1985)

1. Distribute the blank Concept Map handout.
2. Have students complete the concept map to demonstrate their understanding of a given concept or vocabulary word.
3. Have students share and discuss their concept map with a partner. Allow students to make additions and changes.
4. Create a class concept map on chart paper with the information the students provide.

Activity 12: Find Someone Who...

1. Create a Find Someone Who... sheet, using the master, by providing 2 or more vocabulary words for students to define, illustrate, or explain through examples.

Examples: Find someone who...

- ◇ ...can write a ratio of the number of girls in this class to the number of boys in this class.
- ◇ ...can draw a model of 2 equivalent ratios.
- ◇ ...can explain what a ratio is.
- ◇ ...can explain what equivalent ratios are.

2. Distribute a completed master to each student.
3. Prompt students to find a student who can complete 1 of the given statements and sign his or her name.
4. Have students continue this process until all portions of the paper are complete, but allow each student to answer only 1 problem on another student's paper.

Activity 13: Marker Talk

1. For each group of 3 to 4 students, provide 1 piece of chart paper with a vocabulary word or concept written in the middle and a different color marker for each student.
2. Prompt the first student to write a linguistic or nonlinguistic representation of what he or she knows about the vocabulary word or concept on the chart paper. Do not allow students to speak. Tell students that only the marker can "talk."
3. Prompt the second student to write another linguistic or nonlinguistic representation of what he or she knows about the vocabulary word or concept on the chart paper.
4. Continue this process until each student has had at least 2 turns or when the group runs out of ideas.
5. Have each group post their Marker Talk and take a gallery tour to see the other groups' posters.

Activity 14: Think-Pair-Write (Lyman, 1981)

1. Provide students with a question or writing prompt.
2. Prompt students to individually think of a response to the question or prompt.
3. Prompt students to share their responses with a partner.
4. Prompt students to individually answer the question or complete the writing prompt, using their initial thoughts and conversation with their partners.

Example: Provide students with 1 of the questions from the Closure portion of a lesson. Have students think individually and then share their responses with a partner. Provide students the opportunity to verbalize and refine their response, using mathematics vocabulary. Then, have students work individually to write an answer to the question.

Resources

Bay-Williams, J. M., & Livers, S. (2009). Supporting math vocabulary acquisition. *Teaching Children Mathematics*, 16, 238–246.

Gay, S., & White, S. H. (2002). Teaching vocabulary to communicate mathematically. *Middle School Journal*, 34(2), 33–38.

Harmon, J. M., Hedrick, W. B., & Wood, K. D. (2005). Research on vocabulary instruction in the content areas: Implications for struggling readers. *Reading and Writing Quarterly*, 21, 261–280.

Lyman, F. T. (1981). The responsive classroom discussion: The inclusion of all students. In A. Anderson (Ed.), *Mainstreaming digest* (pp. 109–113). College Park, MD: University of Maryland Press.

Raphael, T. E., & Schwartz, R. M. (1985). Concept of definition: A key to improving students' vocabulary. *The Reading Teacher*, 39, 198–205.

Rubenstein, R. N., & Thompson, D. R. (2002). Understanding and supporting children's mathematical vocabulary development. *Teaching Children Mathematics*, 9(2), 107–112.