

# Algebra Vocabulary

## Purpose

Students will learn to use correct algebra terminology and understand operations with like terms.

## Materials

*For the teacher:* transparency of Black Line Master (BLM) *Algebra Vocabulary*, chalk, chalkboard, 3 large yellow capsules, 4 large blue capsules, 27 small beads

*For each student:* copy of BLM *Algebra Vocabulary*

*For each group of 4 to 5 students:* lightweight ball, 2 to 3 prepared labels

## Activity

### A. Pre-Activity Preparation

1. Place five small beads in each of the yellow capsules and three small beads in each of the blue capsules.
2. Prepare two or three labels per group with an equation, an inequality, and an expression on each label. Include like terms in either the equation or inequality.
3. Place one label on each ball and keep the extra labels in a central location.

### B. Introducing Vocabulary

1. Hand out a copy of the BLM *Algebra Vocabulary* to each student.
2. Have students read the paragraph. Complete the chart as a class, explaining the meaning of the vocabulary words.
3. Write an equation, an inequality, and an expression on the chalkboard. Write each vocabulary word on the board.
4. Have students choose an example for each vocabulary word. Keep the vocabulary and examples on the board for referral during the student activity.

### C. Introducing Like Terms

1. Show students the yellow and blue capsules.
2. Ask students how they would write an expression to represent the sum of yellow capsules added to blue capsules using the variable  $x$ . [ $3x + 4x$ ]
3. Write " $3x + 4x$ " on the chalkboard. Write " $x = \text{capsule}$ " on the chalkboard. Point at the corresponding terms as you say out loud "3 capsules plus 4 capsules."

(continued)

## connecting across the curriculum



### English/ Language Arts

Ask students to try different strategies for note-taking or summarizing the math vocabulary discussed in class. Have students begin a "Math Dictionary" with vocabulary, definitions (in their own words), and examples in it.

## MEETING INDIVIDUAL NEEDS



For students who are having difficulty with algebraic vocabulary, create "review sheets" for them. Include an equation, an inequality, and an expression on it with examples of each vocabulary word. Review the sheets with them explaining each vocabulary word. Have the students then explain each vocabulary word to you.

## Standards Links 7.3.1, 7.7.10

**Activity (continued)**

4. Ask students how many total capsules you have. [7] Tell students that they can simply add 3 and 4 together because they both represent the same thing – the number of capsules. Tell them that when a variable represents the same thing or same number, the terms using that variable are called *like terms*. Write “ $3x + 4x = 7x$ ” on the board.
5. Tell students that each of the blue capsules has 3 beads in it and each of the yellow capsules has 5 beads in it.
6. Explain that since there is a different number of beads in the capsules, different variables must be used. Write the following on the board: “ $b$  = number of beads in blue capsules,” “ $y$  = number of beads in yellow capsules,” “ $4b$  and  $3y$ .”
7. Compare the terms  $4b$  and  $3y$  and discuss whether they are *like terms*. Discuss why it would be wrong to write  $4b + 3y = 7by$  or any other variation to find the total number of beads. Tell students that the terms cannot be added because they are not *like terms*.
8. Add “like terms” to the list of vocabulary words. Mention that the terms  $4xy$  and  $3y$  are not like terms and explain why.

**D. Group Activity**

1. Divide the class into groups of four or five students. Give each group a labeled ball.
2. Instruct groups to sit in a circle. Have one student begin by saying one of the vocabulary words and throwing the ball to another student in his/her group. Tell students that the student who catches the ball should look at the label on the ball and give an example of the vocabulary word from the label; that student should say a different vocabulary word and throw the ball to another student.
3. Continue until all of the vocabulary words have been used at least once. Have groups repeat the game by placing a new label on the ball.

**Classroom Assessment****Basic Concepts and Processes**

During the activity, ask students the following questions to gauge their understanding of the Standard Indicator:

 Write an expression that has two *like terms* in it.



What makes these terms *like terms*?

 Explain the difference between an *inequality* and an *expression*.

 Add the terms  $16x + 14x$ .

 What is the coefficient in the expression  $5a + 6 \div 3$ ?

# Algebra Vocabulary

Read the following paragraph. Pay special attention to the vocabulary words printed in bold.

Mrs. Harris likes to use  $x$  as her favorite **variable** when we have to find the missing number. This was especially true when she wrote the **equation**  $4b + 2xy - 3xyz + 6xc = 9$  on the board. She had 3 **terms** that had an  $x$  in them. The 4 was the only **coefficient** that didn't have an  $x$ . The class laughed when the eraser slipped, erasing the " $= 9$ ." Mrs. Harris quickly changed the **expression** back to an equation by putting the " $= 9$ " back on the board. She said the 9 is a **constant** because it never changes. Homework must be a constant, too, because we always have it. Then we talked about **inequalities**; I guess they don't have equal signs in them. I asked if I could make an inequality from the **terms**  $5x$ ,  $4x$ ,  $8y$ , and 17. She said that I could if I used  $>$ ,  $<$ ,  $\geq$ ,  $\leq$ , or  $\neq$  instead of an equal sign. She also said that two of my terms were **like terms**, because they had exactly the same variables, but the other two had either a different variable or no variable at all.

Use the context clues to give an example of each vocabulary word in the chart below:

<b>variable</b>	
<b>equation</b>	
<b>coefficient</b>	
<b>expression</b>	
<b>constant</b>	
<b>term</b>	
<b>inequality</b>	
<b>like terms</b>	

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## Teacher Directions

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Distribute a copy of the BLM *Algebra Vocabulary* to each student at the beginning of the activity. Have students read through the paragraph silently. Then read the paragraph slowly to the class, stopping at each vocabulary word to discuss its possible meaning. Allow students to offer a variety of ideas. After you have read the paragraph, fill in examples of each vocabulary word in the chart by referring to the paragraph. Have students create an inequality with the terms  $5x$ ,  $4x$ ,  $8y$ , and/or  $17$ , any operation symbols, and one of the inequality symbols.

## Answer Key

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<b>variable</b>	$b, c, x, y, \text{ or } z$
<b>equation</b>	$4b + 2xy - 3xyz + 6xc = 9$
<b>coefficient</b>	2, 3, 4, 5, 6, or 8
<b>expression</b>	$4b + 2xy - 3xyz + 6xc$
<b>constant</b>	9 or 17
<b>term</b>	$4b, 2xy, 3xyz, 6xc, 9, 5x, 4x, 8y, \text{ or } 17$
<b>inequality</b>	any variation using the terms and symbols listed in the Teacher Directions
<b>like terms</b>	$5x$ and $4x$