# 10 Ways to Practice Mathematics Vocabulary

It is imperative to emphasize mathematics vocabulary in the classroom. What follows are ideas with examples about how to practice mathematics vocabulary.

1. Teach vocabulary explicitly.
2. Use graphic organizers, like Frayer models.
3. Create math vocabulary cards.
4. Create vocabulary glossaries.
5. Create word walls.
6. Do crosswords or seek-and-finds.
7. Play memory with vocabulary terms and definitions.
8. Create an oral vocabulary routine.
9. Incorporate mathematics writing.
10. Play the Hot Seat game.


SPIRAL
Specialized Math Intervention to Reach All Learners

## 1. Teach vocabulary explicitly

Before teaching new mathematics content, it may be necessary to explicitly teach new vocabulary. The teaching of vocabulary should include: (a) an introduction of the term, (b) a student-friendly definition, and (c) a connection to a mathematics concept or procedure. As students practice mathematics content, review vocabulary often.

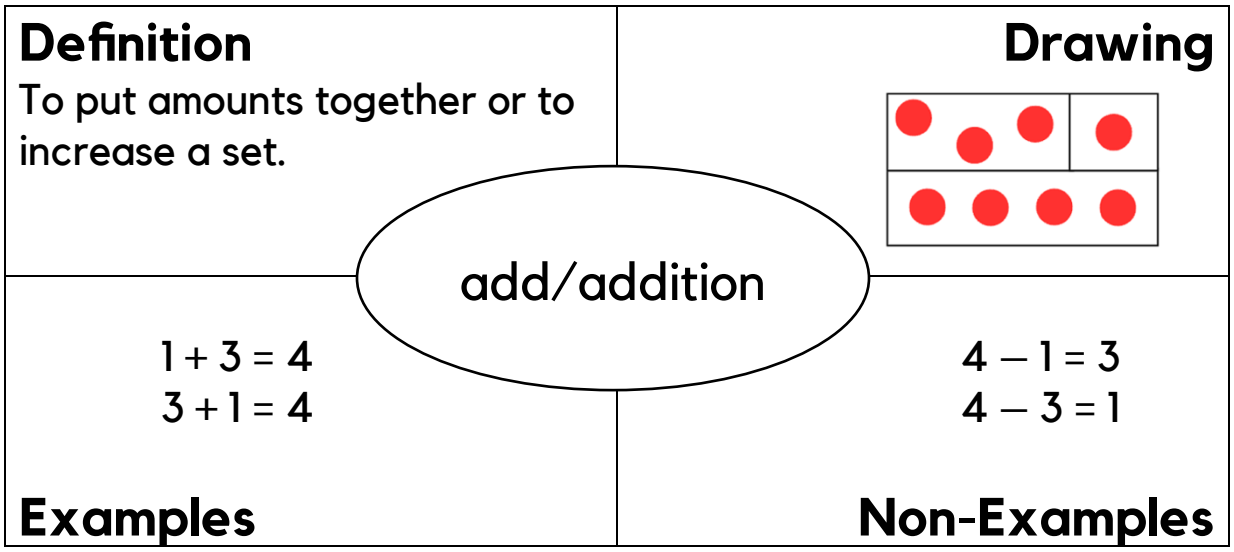
Here is an example of the explicit teaching of mathematics vocabulary.

| | |
|---|---|
| Teacher: | Before we work on our fractions, let's review important vocabulary about fractions. First, what is a *whole?* |
| Students: | All of the parts of a shape. |
| Teacher: | Yes! A *whole* is all of the parts of a shape. If you have a rectangle that you will divide into equal parts, the *whole* is the entire rectangle. What's another example of a *whole?* |
| Students: | A circle that will be divided into equal parts. |
| Teacher: | Nice! A *whole* also can mean all of the parts of a set. If I have a box of markers, and I focus on the fraction of red markers within the box, the box is the *whole*. What's another example of a *whole* with a set? |
| Students: | With a carton of eggs, the carton is the *whole.* |
| Teacher: | Good thinking! In a fraction, the *whole* represents the *denominator*. Let's say that term together. |
| Students: | *Denominator*. |
| Teacher: | What is a *denominator*? |
| Students: | The number of equal parts of the whole. |
| Teacher: | That's right. The *denominator* is the number of equal parts of the whole. What's the *denominator* in the fraction two-thirds? |
| Students: | Three. |
| Teacher: | Yes, in the fraction two-thirds, the *denominator* is 3. |

## 2. Use graphic organizers, like Frayer models

For vocabulary terms that students will use often or for terms that are difficult for students, use a graphic organizer to explore the properties of a term. One example of a graphic organizer is the Frayer model. With the Frayer model, the term is written in the middle of the organizer, and then students write a student-friendly definition, draw the term, list examples, and list non-examples. Students should develop their own Frayer models instead of looking at already-prepared models.

Here is an example of the Frayer model for the term *add/addition*.



### 3. Create math vocabulary cards

For vocabulary terms that students will use often or for terms that are difficult for students, ask students to create their own set of vocabulary cards. Vocabulary cards should feature (a) the term, (b) a student-friendly definition, and (c) a visual that represents the term.

Here are examples of vocabulary cards from the Inclusion in Texas Math Modules (www.inclusionintexas.org).

| |
|---|
| **addend**<br><br>**Any numbers that are added together.**<br><br>**6 + 2 = 8**<br><br>**6 and 2 are addends** |
| **add/addition**<br><br>**To put amounts together to find the sum or to increase a set.**<br><br>**To put amounts together**<br>**3 + 2 = 5**<br>1, 2, 3... ...4, 5<br><br>**To increase a set**<br>**3 + 2 = 5**<br>3... ...4, 5 |
| **equal sign**<br><br>**The symbol that tells you that two sides of an equation are the same, balanced, or equal.**<br><br>**12 + 8 = 20**<br><br>**= is the equal sign** |

## 4. Create vocabulary glossaries

Ask students to create their own mathematics vocabulary glossary. One idea is to create a notebook with one letter (A through Z) on each page. When students learn new vocabulary, they can add terms, definitions, and examples to their glossary.

Here is an example of the T page of a glossary.

# T

### total problem

An additive word problem where two or more amounts are combined for a total.

***Timmy has 4 puppies. Gracie has 3 puppies.***
***How many puppies do Timmy and Gracie have?***

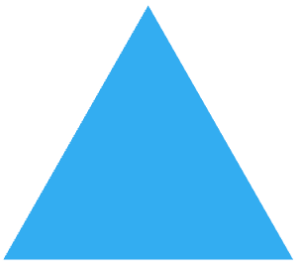
| | |
|---|---|
| 4 | 3 |
| 7 | |

### trapezoid

A quadrilateral with one pair of parallel sides.

### triangle

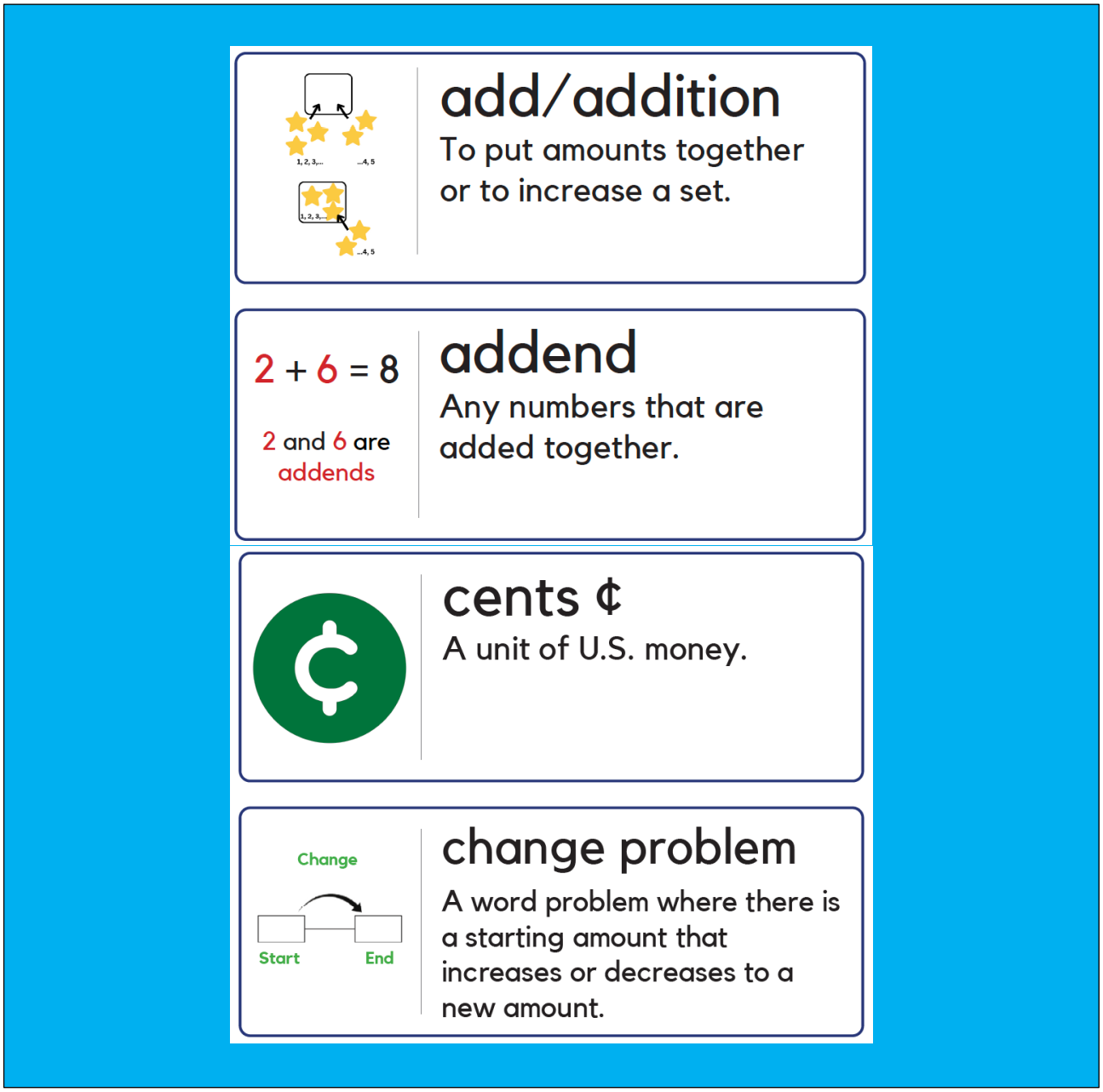
A polygon with three sides.



## 5. Create word walls

For vocabulary terms that students will use often or for terms that are difficult for students, create a word wall to hang on the classroom wall. There are word walls available for purchase, but a better idea is to create a word wall with the students. Each card on a word wall should feature (a) the term, (b) a student-friendly definition, and (c) a visual that represents the term.

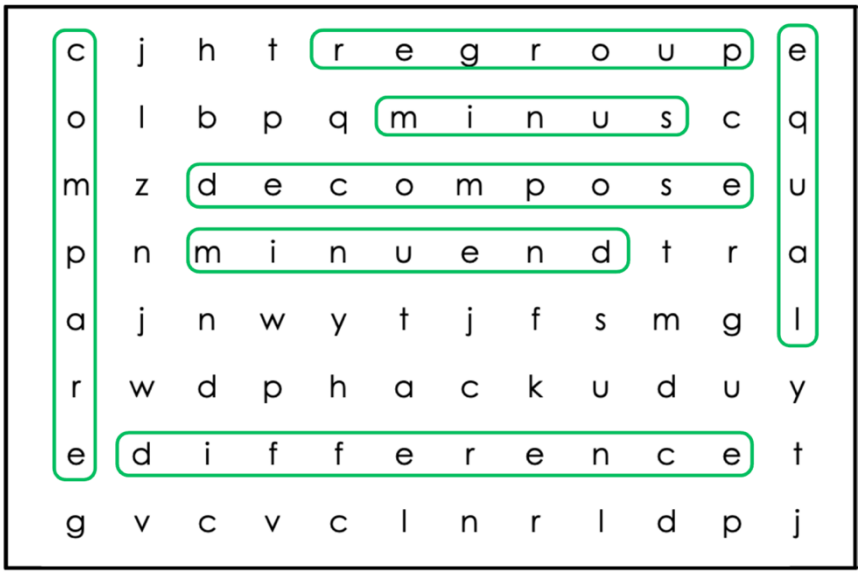
Here is a sample word wall with a few cards.

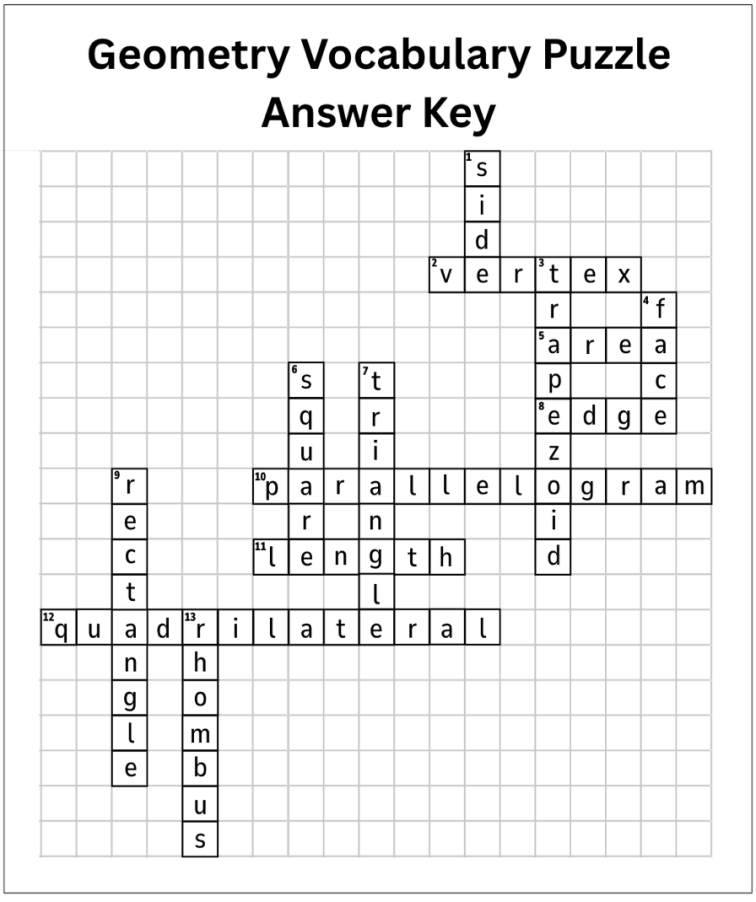


## 6. Do crosswords or seek-and-finds

Create crossword puzzles or seek-and-finds for students to practice mathematics vocabulary.

Here are some examples.



## 7. Play memory with vocabulary terms and definitions

For vocabulary terms that need to be used with precision, develop a memory game in which students match the term with its definition.

Here is an example of memory for 6 terms related to addition and subtraction.

| | | |
|---|---|---|
| addend | sum | minus sign |
| minuend | subtrahend | difference |
| any numbers that are added together | the result of adding | the symbol that tells you to subtract |
| the number from which another number is subtracted | the number to be subtracted | the result of subtracting |

## 8. Create an oral vocabulary routine

Display an image that can be described using a list of vocabulary terms and provide a word bank. Explicitly model describing the image using some of the terms. Give your students a turn. Have them share out or work with a partner.

Here are some examples of oral vocabulary routines for place value and geometry.

| **Image** | **Word Bank** |
|---|---|
| 452 | Digit<br>Hundred<br>Ones place<br>Tens place<br>Value |

Students might say...

*In this number, the **digit** 4 has a **value** of four **hundred**.*

*In this number, there is a 5 in the **tens place** that has a **value** of fifty.*

*In this number, there is a 2 in the **ones place**.*

| **Image** | **Word Bank** |
|---|---|
|  | Angle<br>Parallelogram<br>Quadrilateral<br>Rectangle<br>Rhombus<br>Side<br>Square<br>Trapezoid |

Students might say...

*The **trapezoid**, **square**, **rhombus**, **parallelogram**, and **rectangle** are **quadrilaterals** with four **sides** and four **angles**.*

*The **trapezoid** is not a **parallelogram** because only one pair of its **sides** are parallel.*

## 9. Incorporate mathematics writing

Any topic in mathematics can be written about, and mathematics writing helps students explore their mathematical ideas and vocabulary. Provide sentence stems and word banks to support students' use of formal vocabulary. When students write about a topic in mathematics for the first time, make sure to model an example first. Highlight strong examples of students' writing to encourage students' best work.

Here is an example of a sentence stem and word bank with a student's mathematics writing sample.

Solve this addition problem. Then, use the words from the word bank below to explain how you solved the problem.

$$32 + 15 = ?$$

**Word bank:** add/addition, addend, ones, sum, tens, total

In this addition problem, I added 32 and 15. 32 means there are 3 tens and 2 ones and 15 means that there is 1 ten and there are 5 ones. When I combine the 3 tens and 1 ten, I get 4 tens. When I combine the 2 ones and 5 ones, I get 7 ones. When I add the 4 tens and 7 ones, I get a sum of 47.

## 10. Play the Hot Seat game

This whole-group game is similar to Taboo. Place a chair in front of the class. Students take turns being in the "hot seat." Display a mathematics vocabulary term behind the student in the hot seat so that the rest of the class can read it. The student in the hot seat will call on students when they raise their hands. Students take turns describing the term until the student in the hot seat guesses the term correctly! Provide a word bank to support.