

Graphic Organizers

Activate

For volunteer tutors who have little formal teacher training, the term graphic organizer may seem a bit intimidating. It needn't be. If you've ever jotted a note on a calendar, read a bus schedule, or consulted a staff chart for your company, then you've used a graphic organizer.

These two-dimensional tools help people put ideas, information, and processes into visual form. The calendar, for example, lets people see at a glance where they have free time and where they are overscheduled. They can use this information to make plans with friends or decisions about how to shift some of their work. Other examples of graphic organizers include graphs, diagrams, tables, flowcharts, and the site maps found on many Web sites.

Graphic organizers can be useful tools for students as they learn to read, write, and do math. Think back to your own grade school experience, and you may recall times when your teachers used them. Drawing simple pictures can help students visually organize their thoughts and ideas, which is the first step toward communicating effectively.

Teachers and tutors can use graphic organizers to help students gain confidence in their ability to write and solve math problems. Graphic organizers provide a visual representation of how the student processes information and applies the information to different situations. Tutors can use this to inform and target instruction and document progress.

If you are an experienced tutor, you probably already have used graphic organizers. If so, here are two more examples to add to your repertoire. If you are new to tutoring, these examples will get you started.

The Comparison/Contrast Matrix

The comparison/contrast matrix pictured below is a versatile graphic organizer that can be used in reading, writing, and decision making. Students use the comparison/contrast matrix to describe and compare characteristics of two or more people, places, or things.

The following are three examples of situations in which students can use the comparison/contrast matrix. Note that the student is doing the writing in these examples. If the student is not able to write, the tutor can do it for him while he dictates the information.

Comparison/Contrast

Characteristics Places	Size	Weather	Water	Baseball
St. Louis	about 2.5 million people	20" of snow in the winter	Mississippi River	Major League Baseball: St. Louis Cardinals
Syracuse	about 730,000 people	108" of snow in the winter	Onondaga Lake	Minor League Baseball: Syracuse SkyChiefs
Memphis	about 1.1 million people	5" of snow in the winter	Mississippi River	Minor League Baseball: Memphis Redbirds

Example 1: Preparation for Writing

1. Begin by asking the student what he wants to compare, such as the last three cities he lived in.
2. The student writes the names of the cities in the first column.
3. Ask the student what characteristics he'd like to write about for these cities. These might include the size, weather, geography, or entertainment the city is known for.
4. The student writes these characteristics in the first row of the matrix.
5. The student completes the matrix with information for each city. (See example.)
6. The student then uses the completed matrix to write an essay about the three cities. He can write (or dictate) a paragraph about each characteristic to compare and contrast the three cities.

Example 2: Organizing Information Learned While Reading

The comparison/contrast matrix also can be used in reading to organize and compare information about two or more subjects.

1. The student chooses two historical figures to read about and writes their names in the first column.
2. The student writes the things he wants to compare across the first row. He might compare where they were born, how long they went to school, if they were rich or poor, or what they were famous for.
3. The student then reads about the first historical figure and enters information into the matrix. The student might want to add additional characteristics across the top based on what he has read.
4. The student then reads about the second historical figure and enters the information into the matrix. He then can use the matrix to summarize what he has learned.

Example 3: Decision Making

The comparison/contrast matrix also can be used for decision making.

1. The student identifies the decision he needs to make. For example, he may need to choose which of two jobs to apply for, whether to repair his car or buy a new one, or whether to take a trip or save the money.
2. The student lists his possible choices down the first column.
3. The student identifies factors that are important to think about in making the decision and lists these across the first row. These factors might include costs, who is involved in the decision, or how long it will take.
4. The student then enters the relevant information for each factor into the matrix.
5. The student compares the options and chooses the best one.

The Adding Mixed Numbers Table

Adding mixed numbers can be difficult for a student. There are a lot of steps, and it is easy for a student to forget one or lose her place in the process. Once you have taught the process for adding mixed numbers, you can create a table like the one at the right to help the student remember each step, keep track of where she is in the process, make decisions about how to solve the problem, and work the problem without the help of the tutor or teacher.

Example

1. Prepare your own table. Write one mixed number problem at the top of each of the three columns. (See example on next page.)
2. Make two copies of the table. Give one to the student, and use the other yourself.
3. Ask the student to watch while you demonstrate on your copy how to follow the steps in the left-hand column to work the first problem.



Drawing a diagram can often help a student organize ideas.

Visual Learning

By Todd Evans, Applied Technology Coordinator



Many tutors enjoy using simple charts and graphs with their students.

4. Model your thinking process aloud. Explain to the student what each step is asking you to do, paying special attention to what happens if you answer yes or no during a step. The following is an example of the kind of think-aloud process you might use for the problem in the first column of the mixed numbers table on this page:

The problem at the top of the first column is $3\frac{1}{2}$ plus $1\frac{1}{3}$.

The first question is: Do the fractions have the same denominator? No, the denominator in the first fraction is 2. In the other one, it's 3. They aren't the same, so I'll circle no.

In Step 1a, I need to rewrite the fractions so they DO have the same denominator. I know that one way to do that is to multiply the two denominators. So 2 times 3 equals 6. If I use 6 as the new denominator, I need to change the fractions. In the fraction $\frac{1}{2}$, I have to multiply the denominator by 3 to get 6. So I need to multiply the top number by 3 also. Then that fraction becomes $\frac{3}{6}$. I know that $\frac{3}{6}$ is the same as $\frac{1}{2}$. In the next fraction, I have to multiply the denominator by 3. If I do the same to the top number, I get $\frac{2}{6}$.

In Step 2, I have to find the sum of the fractions. I can do that now since the denominators are the same. So, $\frac{3}{6}$ plus $\frac{2}{6}$ equals $\frac{5}{6}$. Can I simplify the sum of the fractions? I know that there is no number that I can divide evenly into both 5 and 6, so the numbers are as low as they can go. I can't simplify $\frac{5}{6}$ any further, so I'll circle no. That means I can skip Step 2b.

In Step 3, it asks if the sum of the fractions is greater than or equal to 1. I know that $\frac{6}{6}$ equals 1. $\frac{5}{6}$ is less than that, so I'll circle no.

In Step 3a, I have to find the sum of all the whole numbers. The whole numbers in the original problem are 3 and 1, so I'll write those here. In Step 3, I said the fraction was less than 1, so I don't have any other whole numbers there. I only have to add 3 and 1. The sum is 4.

Step 4 is the last step. I have to combine the sum of the whole numbers with the remaining fraction to find the sum of the original mixed numbers. I just figured that the sum of the whole numbers is 4, and I know from Step 2 that the remaining fraction is $\frac{5}{6}$. So the answer to the problem is $4\frac{5}{6}$, and I'll write that here.

5. After you have demonstrated how to use the table to work the first problem, let the student try the second problem on her own. Provide help as needed until she seems confident with the process.

Adding Mixed Numbers			
	$3\frac{1}{2} + 1\frac{1}{3}$	$2\frac{2}{3} + 3\frac{1}{5}$	
1. Do the fractions have the same denominator?	Yes No	Yes No	Yes No
1a. If no, find a common denominator and rewrite the numerators.	$\frac{1}{2} = \frac{3}{6}$ $\frac{1}{3} = \frac{2}{6}$		
2. Find the sum of the fractions.	$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$		
2a. Can you simplify the sum of the fractions?	Yes No	Yes No	Yes No
2b. If yes, write the fraction in the lowest terms.			
3. Is the sum of the fractions greater than or equal to 1?	Yes No	Yes No	Yes No
3a. Find the sum of all the whole numbers and write it here.	$3 + 1 = 4$		
4. Combine the sum of the whole numbers with the remaining fraction to find the sum of the original mixed numbers.	$4\frac{5}{6}$		

Additional Resources

In Print

- **English—No Problem!, Math Sense, and Voyager: Reading and Writing for Today's Adults**

Graphic organizers are an important feature in these resources published by New Readers Press, the publishing division of ProLiteracy Worldwide. For more information about this series, request a free catalog by calling (800) 448-8878, or visit the NRP Web site at www.newreaderspress.org.

Visual Literacy

Three workbooks in this series help adults and young adults learn to read and interpret the wide variety of graphic information that is part of their everyday lives. Aimed at reading levels seven and eight, these books are ideal for pre-GED students. For more information, contact New Readers Press at the number above.

Web Sites

• "Graphic Organizers"

This is a free online course developed by ProLiteracy America for Verizon Literacy Campus. To register, go to www.literacycampus.org. Todd Evans is the author.

- 4 Blocks Literacy Framework: Graphic Organizers
www.k111.k12.il.us/lafayette/fourblocks/graphic_organizers.htm
- ERIC Clearinghouse on Disabilities and Gifted Education: Graphic Organizers
www.ericec.org/minibibs/eb21.html
- Learning Resources: Graphic Organizers
www.eduscapes.com/tap/topic73.htm

The following two sites provide the option of downloading graphic organizers in Spanish or English:

- Education Place: Graphic Organizers
www.eduplace.com/graphicorganizer/
- Region 15 Graphic Organizers
www.region15.org/curriculum/graphicorg.html