Graphic Organizers:
Guiding Principles and Effective Practices

This T/TAC W&M *Considerations Packet* focuses on how to make the most out of graphic organizers for instruction. Visual displays and representations of information, commonly called graphic organizers, have become standard practice in most educational settings. But simply using a graphic organizer does not guarantee enhanced student understanding or achievement. Research and best practices have shown that, for graphic organizers to be effective instructional tools, several factors must be addressed. First, the graphic organizers need to very straightforward and coherent. Next, students must be taught how to use the graphic organizer. Finally, teachers should consistently use graphic organizers during all aspects of instruction so that students begin to internalize the organizational skills of the graphic display. This *Considerations Packet* will present strategies and approaches for incorporating these elements, along with outlining the primary categories and uses for graphic organizers.

The Basics of Graphic Organizers

Graphic organizers are visual displays of key content information designed to benefit learners who have difficulty organizing information (Fisher & Schumaker, 1995). Sometimes referred to as <u>concept maps</u>, <u>cognitive maps</u>, or <u>content webs</u>, no matter what name is used, the purpose is the same: Graphic organizers are meant to help students clearly visualize how ideas are organized within a text or surrounding a concept. Through use of graphic organizers, students have a structure for abstract ideas.

Graphic organizers can be categorized in many ways according to the way they arrange information: hierarchical, conceptual, sequential, or cyclical (Bromley, Irwin-DeVitis, & Modlo, 1995). Some graphic organizers focus on one particular content area. For example, a vast number of graphic organizers have been created solely around reading and prereading strategies (Merkley & Jeffries, 2000). Before presenting an overview of different types and uses of graphic organizers, some guiding principles to keep in mind when using them in the classroom are offered below.

Guiding Principles for Using Graphic Organizers

- **Keep Them Simple**

For graphic organizers to be effective instructional tools, they must be clear and straightforward (Boyle & Yeager, 1997; Egan, 1999). The connections and relationships between the ideas depicted in the organizer should be obvious, otherwise the academic benefits will be limited. If an organizer is poorly constructed, includes too much information, or contains distractions, students can easily become confused and even more disorganized than before in their understanding of the target concepts (Robinson, 1998). Therefore, teachers must keep graphic organizers simple. Suggestions for following this principle include:

  ❖ Limit the number of ideas covered in each organizer. Focus on essential concepts that students need to understand and remember.

  ❖ Include clear labels and arrows to identify the relationships between concepts.

❖ Be careful of graphic organizers that accompany teacher resource materials. They often contain many pictures or background visuals that are distracting to students.

- **Teach to and with the Organizer**

As with all instructional tools, students need to be taught how to use graphic organizers effectively and efficiently. Students enter the classroom with varied experiences using graphic organizers. Therefore, teachers must give explicit instructions about how to organize information and when a particular organizer is beneficial. With such guidance and scaffolding, students gain greater independence with graphic organizers.

Once students understand how to use an organizer, teachers need to implement it in creative and engaging ways to enhance effectiveness (Bromley et al., 1995). As organizers have become more common, simply using an organizer is no longer enough to maintain students' attention and focus. The following ideas will help ensure that students are engaged with organizers.

❖ Allow students to add illustrations. As long as the pictures add to a student's understanding of the concepts displayed and do not distract, illustrations can be very engaging.

❖ Implement organizers with cooperative groups or pairs of students. Organizers can be excellent tools for discussion and student engagement with each other.

❖ Allow students to make their own organizers and share them with the class. As students become more comfortable using organizers, they can teach the strategies they use to organize information for the whole group.

- **Use Graphic Organizers Often**

Many students benefit from routine and structure, so using graphic organizers consistently in the classroom will help them internalize the organizing techniques that are being taught (Griffin & Tulbert, 1995). The more students are exposed to organizers, the more familiar and comfortable they will become using them. Here are some things to consider when trying to be consistent:

❖ Establish a routine for using organizers during instruction. For example, always use a web when starting a new unit, no matter what the subject area is. Use the same sequence chart when ordering events or steps in math, reading, writing, science, or social studies.

❖ Incorporate organizers into all phases of instruction. When students see them used as a warm-up, a guided practice, or a homework assignment, they better understand the purpose and the benefits of the organizer.

❖ If students have difficulty using a particular organizer, don't give up. Students will often struggle with new approaches. Stay consistent and keep providing them guidance and practice. When students see the teacher using an organizer consistently, they are more likely to understand it themselves.

Types of Graphic Organizers

With these guiding principles in mind, we will now present some of the most common graphic organizers used by teachers and considerations for using them in the classroom.

- **Concept Map**

A concept map is a general organizer that shows a central idea with its corresponding characteristics. Concept maps can take many different shapes and can be used to show any type of relationship that can be labeled.
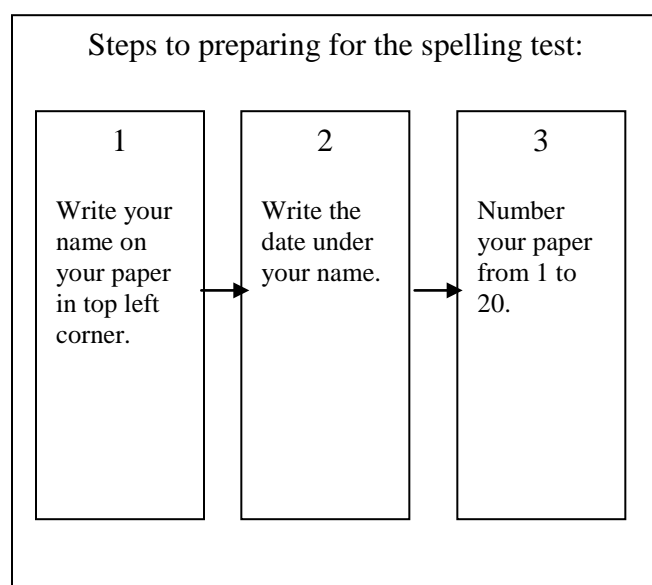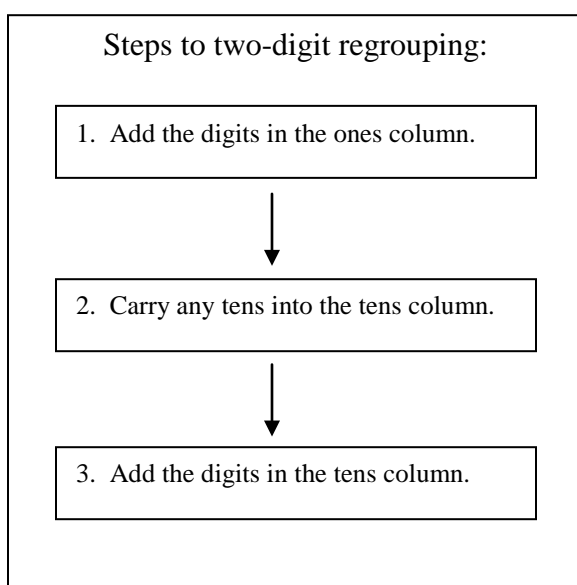
  ❖ Maps are excellent resources for (a) brainstorming at the beginning of a chapter in any content area, (b) activating prior knowledge before reading a story, or (c) coming up with synonyms.

  ❖ Maps can be used to show hierarchical relationships between concepts by the size and manner in which the graphic is created. For example, the most important concept can be placed at the top, in the center, or to the left, with descriptions, examples, or characteristics placed underneath, around, or to the right of the focal idea.
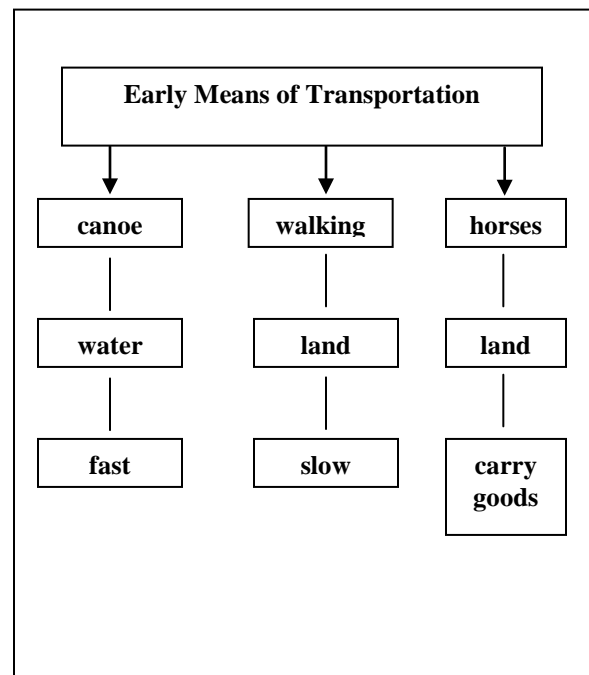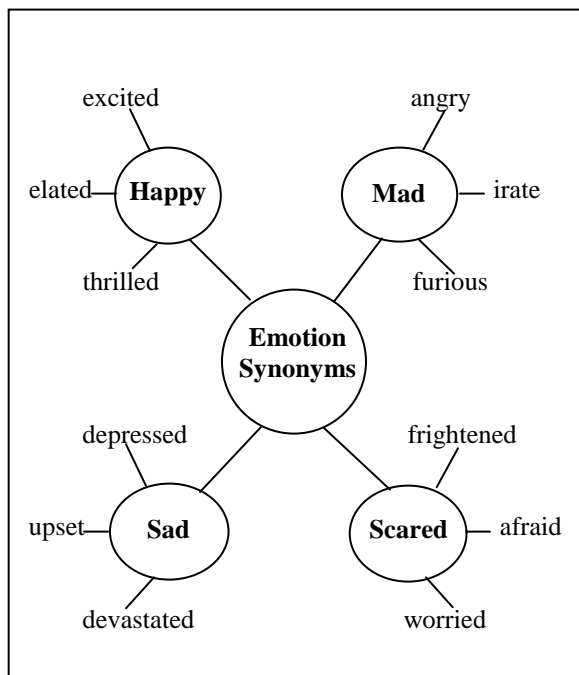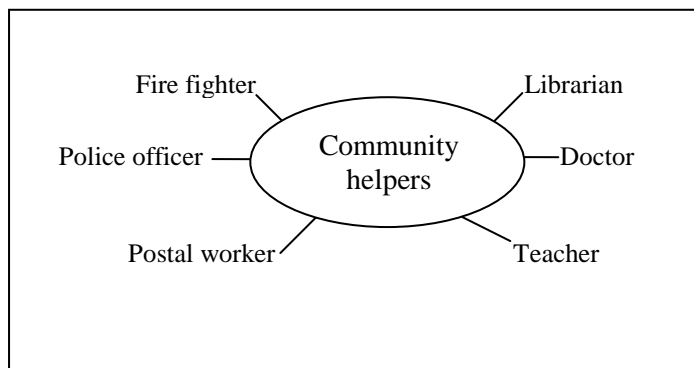
- **Flow Diagram or Sequence Chart**

A flow diagram or sequence chart shows a series of steps or events in the order in which they take place. Any concept that has a distinct order can be displayed in this type of organizer. It is an excellent tool for teaching students the steps necessary to reach a final point, for example.
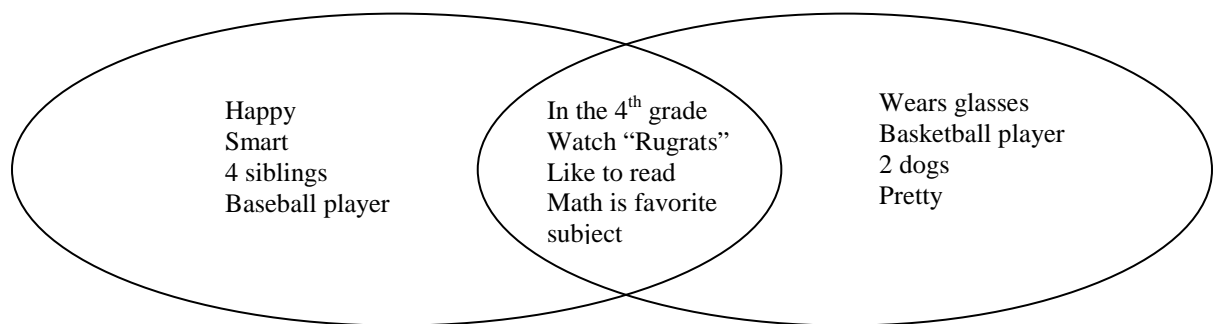
❖ In reading, flow diagrams can be used to outline the key events in a story or chapter. In writing, they can be used as a prewrite for a how-to composition. In science, they can serve as the procedures section in the scientific process. In history, they can be created as a timeline for reviewing the order of events in a time period. In math, they can serve as a visual reminder of how to complete a given operation, such as changing improper fractions to mixed numbers. The graphic can be generated on large chart paper and remain posted in the classroom for students who need a cue, or condensed onto an index card for students to check off each step as they complete problems.

❖ The order of events can be clarified with numbers and distinct arrows. But shifting can be visually confusing to students, even if the diagram is marked with arrows. Therefore, many students benefit from having the information flow in one direction, either top to bottom or left to right, rather than shifting from one row to another.

❖ Diagrams can be used to outline the order of events on a special day when the routine will change, such as when students are going on a field trip or attending an assembly. This can be very beneficial for students who have difficulty with transitions or changes to their schedule. Before the event, teachers can create a chart showing students the order of activities for the day, and after the event, students can create their own chart to review the day.

❖ In cooperative groups, students can fill in one step in a given sequence, then pass their paper to another person to write the next step. Papers continue to go around the group until all the steps are complete, then the whole group checks their charts.

Steps to two-digit regrouping:

1. Add the digits in the ones column.

⬇

2. Carry any tens into the tens column.

⬇

3. Add the digits in the tens column.

Steps to preparing for the spelling test:

1	2	3
Write your name on your paper in top left corner.	Write the date under your name.	Number your paper from 1 to 20.

- **Compare/Contrast or Venn Diagram**

A compare/contrast or Venn diagram is used to look at the similarities and differences between two or more concepts. The most commonly used organizer, this instructional tool is found in textbooks, on standardized tests, and in teacher resource materials.
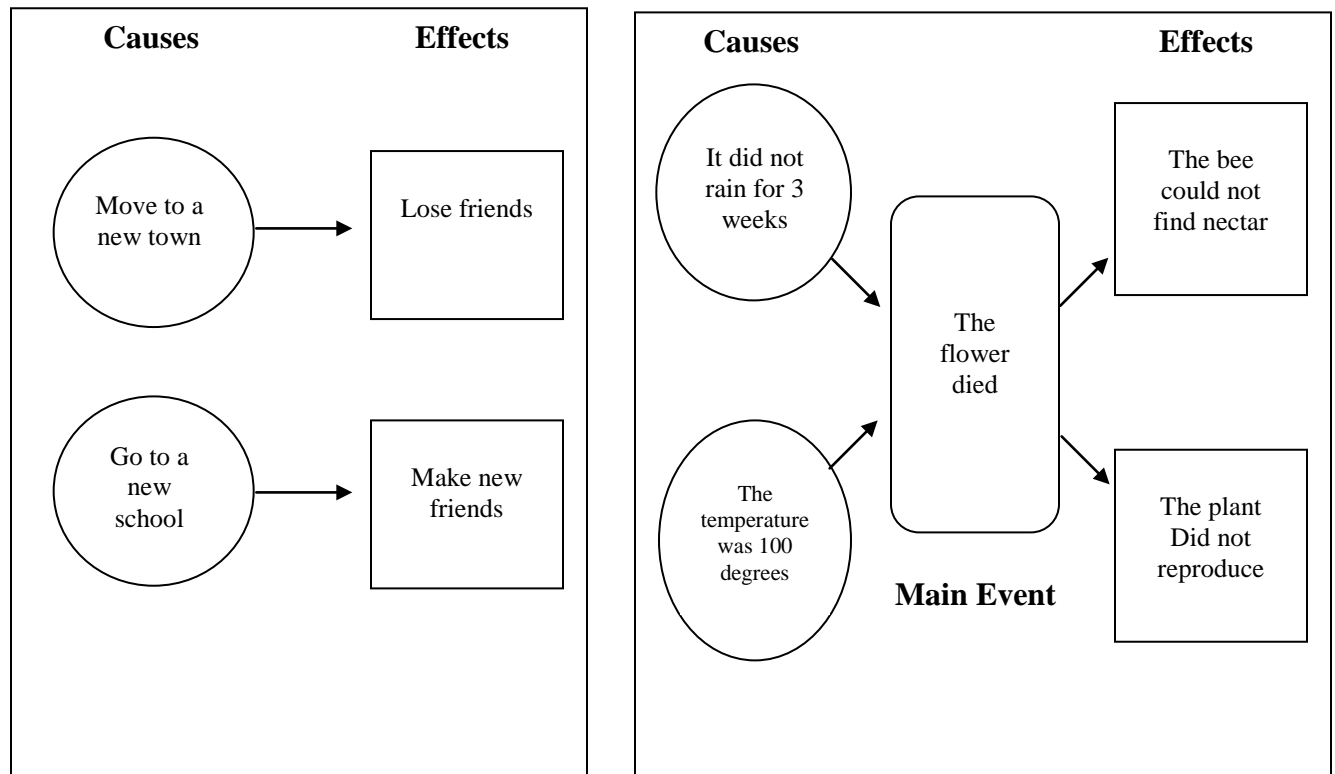
❖ Practical uses of the compare/contrast diagram stretch across the curriculum. In literature, it can be used to compare characters, stories, genres, problems, and solutions. In writing, it can serve as a prewrite for comparison compositions. The diagram is also a tool in math to find common multiples, for example. Science and history applications are endless, from comparing animals, body parts, weather systems, planets, or ecosystems to contrasting historical leaders, geographic regions, cultures, or economic classes.

❖ Adequate room should be left on the diagram for completion. Venn diagrams that do not provide students with enough space in the center to write similarities often stifle student output.

❖ Specific guidelines should be established for acceptable completion. For example, you may require that each section have 3-5 thoughtful ideas written in complete sentences to ensure that students put forth the greatest effort.

❖ Younger students or students who have difficulty writing can use illustrations.

❖ Students can work with partners to complete the diagram. Each person is responsible for supplying the unique features of one of the main topics being compared. Students then work cooperatively to fill in the center with common features. This also works well at the beginning of the year as a "Get to know your classmates" activity.

Happy
Smart
4 siblings
Baseball player

In the 4th grade
Watch "Rugrats"
Like to read
Math is favorite
subject

Wears glasses
Basketball player
2 dogs
Pretty

- **Cause-and-Effect Diagram**

A cause-and-effect diagram highlights the direct relationship between different events or concepts. This tool is one of the most beneficial organizers because of its many applications in all subject areas.

❖ A cause-and-effect diagram can be used to visualize a major event that has multiple causes and effects. The purpose might be to analyze characters and events in reading, to discuss major events in social studies and history, or to study the impact of a science experiment. For example, a teacher might ask students to identify three causes and three effects of Goldilocks coming into the three bears' house, the American Revolution, or the process of photosynthesis.

❖ A simpler version of the diagram can focus on single causes and their corresponding effects. For example, three days of rain had the effect of flooding the street, or the clock striking midnight forced Cinderella to leave the ball.

❖ Pairs of students can work together to match a cause with its effect using this type of diagram.

❖ Cause-and-effect diagrams can also be used with small groups or individual students to discuss the implications of behavioral situations.

Causes	Effects
Move to a new town	Lose friends
Go to a new school	Make new friends

Causes   **Effects**

It did not rain for 3 weeks

The temperature was 100 degrees

The flower died

Main Event

The bee could not find nectar

The plant Did not reproduce

- **Main Idea and Details Chart**

A main idea and details chart shows the hierarchical relationship between major concepts and their subordinate elements. This organizer is extremely beneficial in helping students distinguish central ideas and their corresponding details from less important information.

❖ A main idea and details chart should make a hierarchical relationship obvious. Place the main idea at the top or on the left, with the details flowing from it. Clearly label the main idea and the details as such. Use a different shape or area for the main idea and the details so that students can begin visualizing, and then internalizing, the difference between the two concepts.

❖ When the chart is first used, the teacher or the class as a whole can generate the main idea together, and then students can provide the supporting details.

❖ Charts can be completed during a lecture, after independent reading, in a small-group guided reading lesson, or as homework.

❖ If asked to complete this organizer while reading a textbook, students who have difficulty copying information can be given an organizer that is partially completed but has key words missing. These students can also use highlighters to focus on key information, or they can add illustrations to their chart.
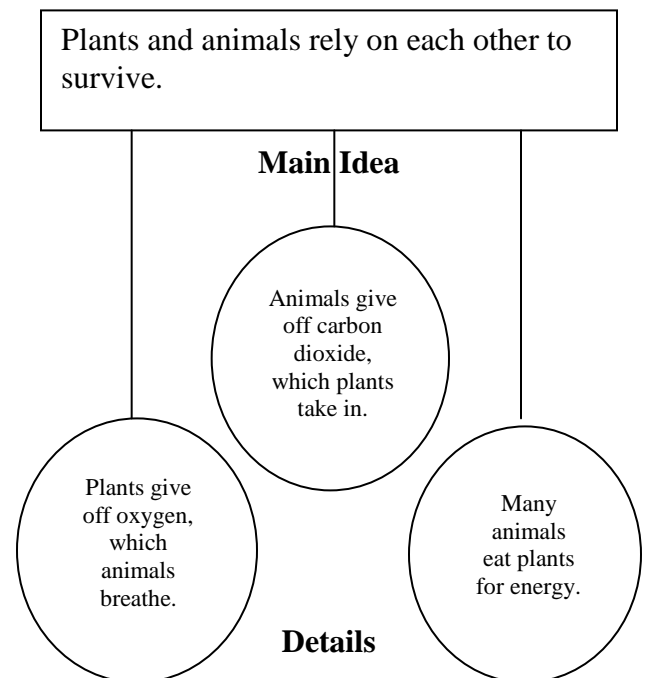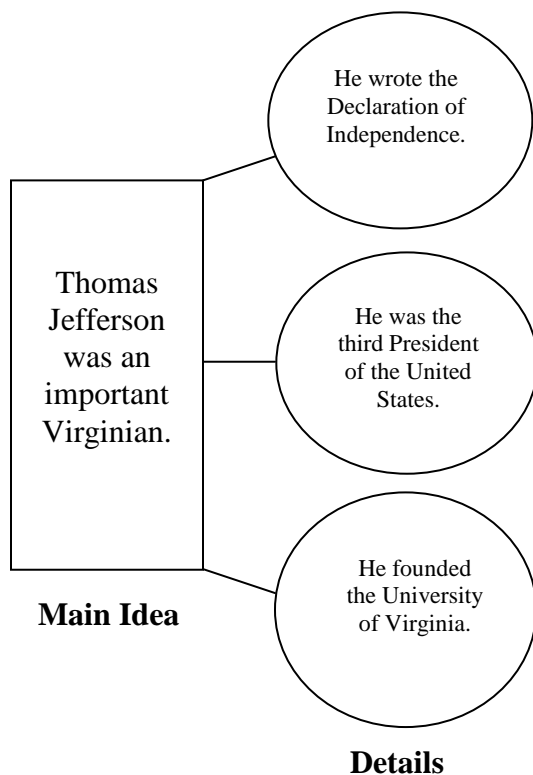
- **Attribute Chart**

An attribute chart displays major concepts that share similar categories of information but include different details. It is an excellent tool for helping students see the characteristics of different main topics.

- ❖ The chart works well as a review and study guide before unit or chapter tests.

- ❖ This tool can be used in science to distinguish between different ecosystems, animal types, states of matter, or planets. In social studies, it serves to differentiate between geographic regions, political leaders, or cultures.

- ❖ Classrooms can create an ongoing chart in literature to show the characteristics of different genres or to compare many stories within the same genre.

- ❖ Too many categories of information may overwhelm students, so categories should be chosen carefully.

- ❖ Space should be included for illustrations to assist in retention of information.
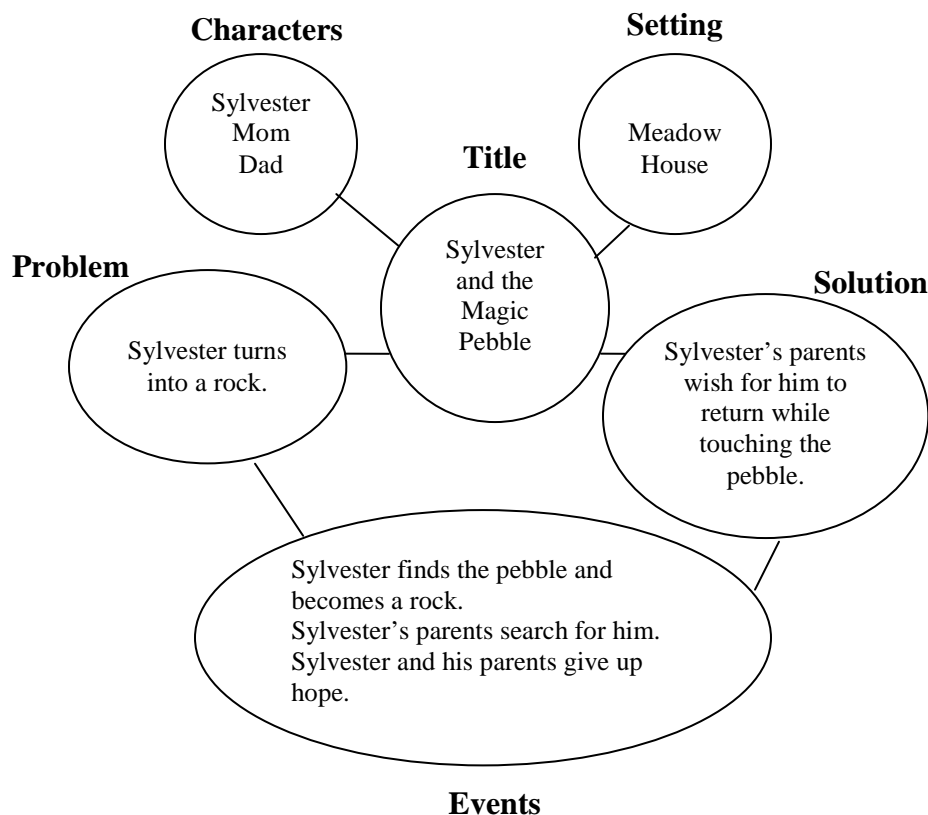
Region	States	Resources	Climate
The South	North Carolina, Georgia, Mississippi	tobacco, cotton, industry	warm and dry
The Midwest	Ohio, Indiana, Iowa	corn, soybeans, cows	cold and wet

- **Story Map**

A story map visually displays the main characteristics and elements of a piece of fiction. It usually includes space to note the characters, setting, problem, events, and solution of a given story. It is a valuable resource for identifying, categorizing, and describing major elements in fiction.

❖ A story map can be introduced in the primary grades using pictures and one-word labels, and then become more complex as students' abilities increase. At various stages, numerous story events, primary and secondary characters, and multiple problems and solutions can be added to the map.

❖ All story maps do not need to be the same. Alter maps to fit the needs of a given story. For example, decrease the setting space for stories in which settings are not fully described or important to the story. Increase the space provided for characters when there are several essential people in the story.

❖ Create a version of the story map to correspond to chapter books. This version might include information about how a character has changed, what new characters have been added, what obstacles developed in the attempts to solve the problem, or how the setting shifted and its new significance.

Characters

Sylvester
Mom
Dad

Setting

Meadow
House

Title

Sylvester
and the
Magic
Pebble

Problem

Sylvester turns
into a rock.

Solution

Sylvester's parents
wish for him to
return while
touching the
pebble.

Sylvester finds the pebble and
becomes a rock.
Sylvester's parents search for him.
Sylvester and his parents give up
hope.

Events

Conclusion

Graphic organizers are an outstanding instructional tool to be used with students of all abilities and grade levels. To increase the effectiveness of graphic organizers, three simple guidelines should be followed: (a) organizers should be clear and straightforward; (b) teachers should teach students how to use organizers and implement them in creative ways; and (c) teachers should integrate them into daily instruction so that students internalize the organizational strategies displayed. Through implementation of these ideas, the many common graphic organizers outlined in this packet can assist students in the understanding, organization, and retention of new ideas.

References

Boyle, J. R., & Yeager, N. (1997). Blueprints for learning: Using cognitive frameworks for understanding. *Teaching Exceptional Children, 29,* 26-31.

Bromley, K., Irwin-DeVitis, L., & Modlo, M. (1995). *Graphic organizers: Visual strategies for active learning.* New York: Scholastic Professional Books.

Egan, M. (1999). Reflections on effective use of graphic organizers. *Journal of Adolescent & Adult Literacy, 42,* 641-645.

Fisher, J. B., & Schumaker, J. B. (1995). Searching for validated inclusive practices: A review of the literature. *Focus on Exceptional Children, 28,* 1-20.

Griffin, C. C., & Tulbert, B. L. (1995). The effect of graphic organizers on students' comprehension and recall of expository texts. *Reading and Writing Quarterly, 11,* 73-89.

Merkley, D. M., & Jeffries, D. (2000). Guidelines for implementing a graphic organizer. *The Reading Teacher, 54,* 350-357.

Robinson, D. H. (1998). Graphic organizers as aids to text learning. *Reading Research and Instruction, 37,* 85-105.

Additional Resources

The following resources are available for loan through the T/TAC W&M library. Visit the website at http://education.wm.edu/centers/ttac/index.php for a complete listing of all materials. Select the "Library" link on the home page and enter **graphic organizers** as the subject of the search.

In addition, the computer software programs *Inspiration* and *Kidspiration* provide excellent tools for creating graphic organizers, as do the drawing and painting programs in common word processing programs.

Title	Author	Call letters
Using Graphic Organizers to Make Sense of the Curriculum	Ellis, E.	TT101
How to Use Graphic Organizers to Promote Student Thinking	ASCD	TT167
The Big Book of Reproducible Graphic Organizers	Jacobson, J., & Raymer, D.	CST59.1
The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom	Bellanca, J.	CL6
The Cooperative Think Tank II: Graphic Organizers to Teach Thinking in the Cooperative Classroom	Bellanca, J.	CL7

This *Considerations Packet* was prepared by Brad Baxendell, July 2003.