

## Visual Representations

Many teachers appreciate the learning benefits of graphic organizers throughout the learning process. Graphic organizers are visual representations that illustrate the components of a concept or process and their relationships to each other. These visual representations allow students to exercise both their right- and left-brains and to retain information both in linguistic and image form. When they are created by groups, they encourage students verbalize their knowledge and check their understanding with their peers.

There is considerable research to support the use of graphic organizers throughout instruction. Marzano, Pickering, and Pollock (2001) found impressive gains in achievement when students created various types of diagrams and charts that showed their understanding of concepts.

Jay McTighe in his book *Graphic Organizers: Collaborative Links to Better Thinking* (1992) outlined three strategies for using graphic organizers for teaching and assessing and a number of ways that students use them to aid in the learning process.

*Before instruction*, use a graphic organizer to provide structure for the presentation of new material while indicating relations between ideas. Create a graphic organizer and ask students to fill it in, thereby gaining an accurate idea of students' prior knowledge, areas of interest, questions, and misconceptions.

*During instruction*, graphic organizers help students clarify relationships, organize their thoughts, and formulate plans or process steps. They involve students in strategies like sequencing, comparing, classifying, analyzing, and problem solving. When asked to modify an organized structure of information, students can learn from their own mistakes. Graphic organizers allow for the exchange of ideas about why a linkage is valid or invalid, and help students identify links that are missing. The maps help identify misunderstandings about concepts and the connections among ideas. After reviewing, address students' misconceptions and identify areas for new learning.

*After instruction*, students construct their own organizers to isolate and organize key concepts. This summarization technique is a tool for students to depict complex relationships in concise, accurate terms. Post-instruction graphic organizers also encourage elaboration. A student connects prior knowledge with what was learned and identifies relationships between those ideas when creating a graphic organizer. Graphic organizers make abstract ideas more visible and concrete allowing for better assessment of thinking skills. Also, asking students to complete maps at the beginning and the end of a project provides documentation of their growth.