3

Literacy Focus

- Before Reading
- During Reading
- After Reading
- Fluency
- Comprehension
- Vocabulary
- Writing
- Oral Language

Concept Maps

Graphic organizers are visual displays of information, often arranged in bubbles or squares with connecting lines between them that are used to portray conceptual relationships. Graphic organizers help students comprehend texts by allowing them to transfer texts into visual representations. Alvermann and Van Arnam (1984) noted that graphic organizers such as concept maps prompt students to reread text passages in order to clarify their understanding. Graphic organizers also ensure that students are more active readers (Alvermann & Boothby, 1982), facilitate learning for students who struggle with reading (Lovitt & Horton, 1994), and provide a scaffold for independent reading and writing (James, Abbott, & Greenwood, 2001).

Concept maps are a specific type of graphic organizer and there are several common types. You have already read the information about adjunct displays in Strategy 1 and have some types of visual tools at your disposal. Two additional types are the spider and hierarchy concept maps. The "spider" concept map is created by placing the central factor, theme, or idea in the center of the map and then using lines to indicate the subthemes (see Figure 3.1). The "hierarchy" concept map presents information in descending order of importance. The most important information is placed at the top and information branches out according to the hierarchy (see Figure 3.2).

STEP-BY-STEP

The creation of a concept map first begins with instructional and content decisions you will make for your class. If students are novices to constructing concept maps, teacher modeling will be necessary. As well, you will need to make choices about the content itself and how it might be represented to show the complexities of the topic.

1. Begin by gathering research materials, including textbooks and other supplementary materials used either to prepare for class or as teaching tools. The ideas chosen for use in a concept map should represent critical knowledge for the course, and not just a list of facts strung together.
2. Review the types of concept map formats and select one for use in the lesson. The best way to become acquainted with the formats is to construct some. Focus on what students should glean from this lesson. For example, if understanding how the human eye works is the emphasis of the lesson, a systems map is in order. You may notice many concepts can be represented in more than one way. The human eye might also be represented in a spider map that allows for learners to label the parts and their functions.

Figure 3.1 Spider Concept Map

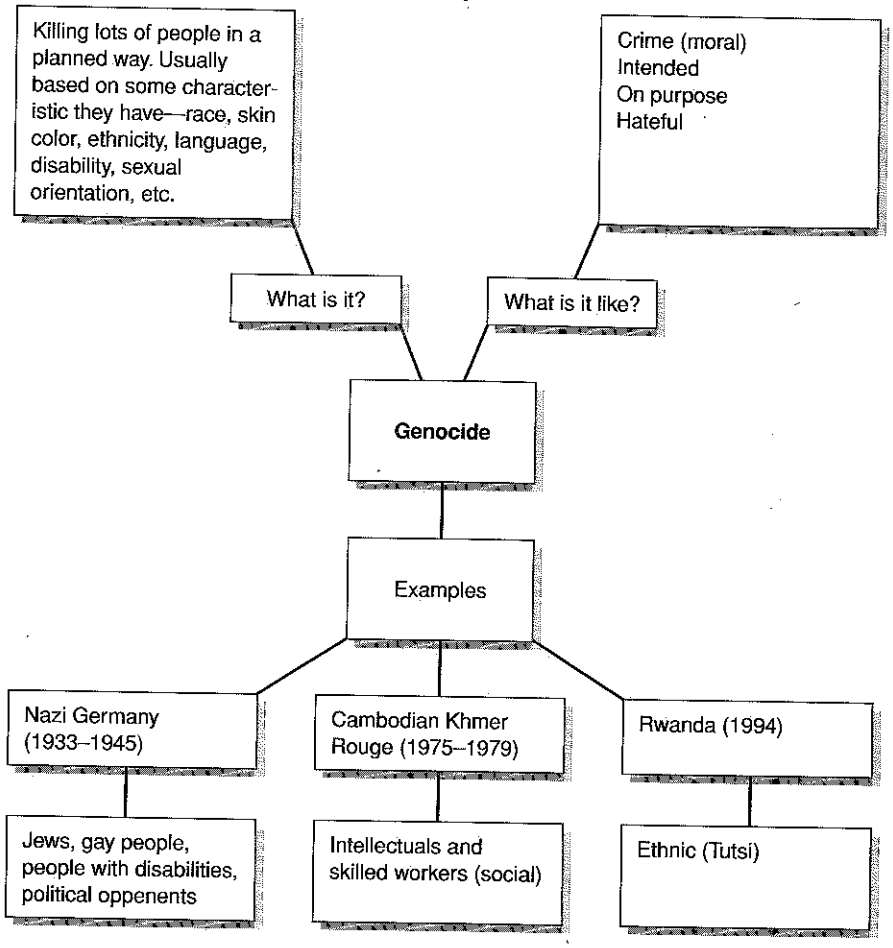
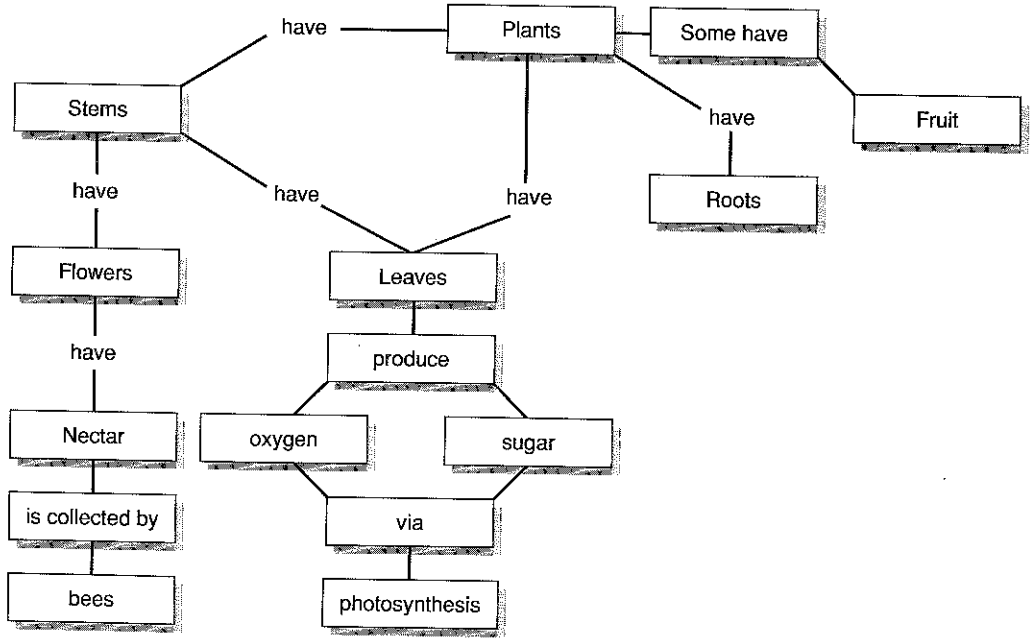


Figure 3.2 Hierarchy Concept Map



3. After drafting a map, analyze it for clarity and content. In particular, look to see whether the information represented accurately and clearly describes the relationships and interactions of the elements listed. Keep in mind that a concept map is useful for novices to the content. As an expert in the field, you may read more into the information than those with less knowledge would be able to do. Consider showing the map to a colleague who does not teach the subject to see whether he or she can accurately describe the information contained in it. This is a great litmus test because the ultimate goal is for students to be able to transform the information into another form—perhaps a discussion, oral presentation, or written product.
4. Decide whether students will receive a skeleton of the map, or will create the map by hand. An advantage of providing novices with a concept map template is that they won't become frustrated with the challenges of planning each of the components on the page. We've met with frustration in our own classes when a student has run out of space on the page and must begin again.
5. The lesson opening is crucial to students' success in developing a concept map. Inform students at the beginning of the lesson that one of the day's outcomes will be the construction of a concept map. This signals students that they will be attending to two aspects of the lesson—the content itself, as well as the development of the concept map.
6. Use an overhead or data projector to make the map development clear to students. As you teach the content of your lesson, pause to add information to the concept map. Explain your thinking in how you have chosen the information you have written in the map. Without these explanations, the concept map is reduced to a fill-in-the-blank worksheet.
7. As students become more comfortable with the concept map, ask them for suggestions about where and how information should be recorded on the concept map. Inviting student input supports their growing metacognitive awareness about the schema you are developing with them.
8. Once the concept map is completed, it shouldn't be filed in a notebook or folder. The true strength of a concept map can be found in the ways it supports students' ability to transform information. Because the concept map is ultimately a scaffolding device for holding information, students should be challenged to use the tool they have created. Their map can be used to:
   - summarize information with a partner.
   - create a study guide with a small group.
   - provide notes for an extemporaneous speech.
   - write a persuasive essay or report of information.
   - serve as a planning document for a more extensive research report.

APPLICATION AND EXAMPLES

In a world history class, students were reading from a collection of books about World War II, including:

- *World War II: Opposing Viewpoints in World History,* edited by Don Nardo (2005)
- *Rosie the Riveter* by Christine Petersen (2005)
- *The United States in World War II, 1941–1945* by Christopher Collier and James Lincoln Collier (2002)
- *Children During Wartime* by Brenda Williams (2005)

Each group was asked to create a graphic organizer based on the information group members gathered from their collection of books. Jesse and his group created the spider concept map about genocide (see Figure 3.1).

In a science class, students used a hierarchy concept map as they took notes on a film about the components of plants. This served as an introduction to the differences between plant and animal cells. One student's notes are shown in Figure 3.2.