

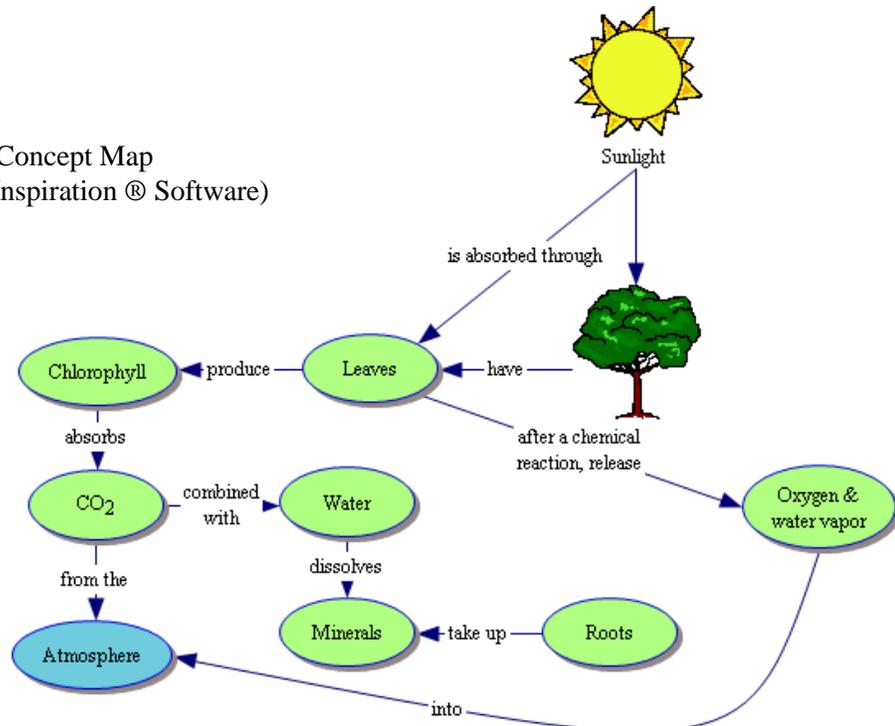
Concept Mapping

By integrating visuals with text, concept maps create a bird's eye view of the subject being presented, constructing a visual approach to communication.

Our brains are wired to take in complex information and make meaning of that information, especially when that information is presented visually. Concept maps can visually represent large amounts of information, provide a holistic representation of a concept, show connections and relationship among data, and enable you to plan and make choices by creating a road map of where you are going and where you have been. By integrating visuals with text, concept maps create a bird's eye view of the subject being presented, constructing a visual approach to communication.

Concept mapping is a technique that represents information visually and is useful in translating complex ideas into easy-to-understand visual diagrams. Boxes, circles, and other shapes (sometimes called nodes) are connected by arrows and lines (connectors) that show connections and relationships of concepts and knowledge. Concept maps can be used to create advanced organizers of information in a visual way to help plan teaching and to help students learn. See the figure below for an example of a simple concept map on the topic of photosynthesis.

Figure 1.
Photosynthesis Concept Map
(Created using Inspiration ® Software)



The design of concept maps ranges in complexity depending on the topic (how it relates to the whole and what aspect of it is to be learned), a person's learning preference, and how much information a person needs to understand the concept. Some people need more information on a map than others to understand the concept, and it is important to understand how one assimilates information and how the creation of concept maps can benefit learning. Therefore, it is useful knowing some basic applications of concept maps in the classroom.

Applications of Using Concept Maps in Teaching and Learning

Consider creating concept maps in lieu of written notes for quick and easy visualization.

- **Efficient way for students to take notes.** Consider requiring students to “map” a designated number of textbook chapters for two points each that would count toward the final points. These points could count toward classroom participation. Anecdotal evidence has found that students are more apt to read assigned material which is to be mapped. Two points per map might be an appropriate number.
- **Prepare lecture or presentation notes.** Consider creating concept maps in lieu of written notes for quick and easy visualization.
- **Quickly record and visualize brainstorming and discussion sessions.** Show students how this could provide necessary practice time for those students learning how to create a concept map.
- **Visualize timelines (for projects and other activities).** Suggest the incorporation of images and symbols in addition to text for a more personalized map.
- **Adding relevant graphics to presentations and written papers.** Encourage use of graphics which can be effective when communicating messages but only if they are relevant to the content. Consider “mapping” content in PowerPoint presentations as an alternative to bullet points.
- **An alternative or addition to using outlines.** Stress to students that concept maps are excellent visual representations of content and can provide effective visual interest to outlined information.

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Creating Concept Maps

Materials:

1. Pencil
2. Eraser or white out
3. Large piece of blank paper (flip chart paper works well)
4. Sticky notes (1.5x2” and 3x3” work well)
5. Colored pencils or markers
6. Source materials (books, journals, Web site URLs, lecture notes, etc.)

Create the Map

1. Consider the hierarchical structure of the map and where to place the question or word on the blank paper.

Draw arrows and / or lines to and from concepts to show their relationships.

2. Begin with a question or key word or term. For example, “*How does photosynthesis work?*”
3. Write the question or word toward the top of the concept map.
4. Write down important related concepts below the central question or topic (these become sub-concepts). Work quickly to get ideas on paper. Draw a circle or rectangle around each sub-concept.
5. Stop and look at the map and begin to categorize the subtopics. Revise and / or remove unnecessary words. Use colored pencils or markers to thematically organize the sub-concepts by coloring in the shapes.
6. Draw arrows and / or lines to and from concepts to show their relationships.
7. Add a label on each arrow or line that describes the relationships between concepts. For example, in the Photosynthesis Concept Map on the previous page, the line between the “sun” icon and the sub-concept “leaf” is labeled “*is absorbed through*” to show the relationship between those two concepts. Labels need not be long and often short words such as those used in the Photosynthesis Concept Map work to connect concepts.
8. Review the completed concept map by asking the question, “Does this make sense to me?” remembering that concept maps can be as unique as the individual who created it.

Summary

Mapping concepts, ideas, class notes and plans is an effective technique to quickly present information in a visual way. Reviewing content on the concept map helps identify missing elements and redundant or unnecessary information to ensure the information presented is a meaningful whole. In addition to using paper and pen, a range of concept mapping software is available to quickly and efficiently visualize concepts. Many of these products are easy to use and available at a reasonable cost. See resources for a list of concept mapping software.

Concept Mapping Software

Inspiration:

www.inspiration.com

MindJet:

www.mindjet.com

SmartDraw:

<http://www.smartdraw.com>

Suggested Resources

Concept mapping resource guide (n.d.).

<http://www.socialresearchmethods.net/mapping/mapping.htm>

Daley, B. J. (2004). *Using concept maps with adult students in higher education*.

Paper presented at the First International Conference on Concept Mapping (Pamploma, Spain). <http://cmc.ihmc.us/papers/cmc2004-059.pdf>

Landsberger, J. (2004). *Basics of mind/concept mapping*. Study Guides & Strategies Web site: <http://www.studygs.net/mapping/>

Novak, J. D., & A. J. Canas (2007). *The theory underlying concept maps and how to construct them.*

<http://cmap.ihmc.us/Publications/ResearchPapers/TheoryCmaps/TheoryUnderlyingConceptMaps.htm>

Zeilik, M. (n.d.). Classroom assessment techniques—Concept mapping. *Field-tested Learning Assessment Guide.*

<http://www.flaguide.org/cat/conmap/conmap7.php>