This material is available at: http://classes.aces.uiuc.edu/ACES100/Mind/CMap.html

Concept Maps

Introduction to Concept Maps

Definition: Concept maps offer a method to represent information visually. There are a variety of such maps.

Purpose: Concept maps harness the power of our vision to understand complex information "at-a-glance." The primary function of the brain is to interpret incoming information to make meaning. It is easier for the brain to make meaning when information is presented in visual formats. This is why a picture is worth a thousand words. It is essential to your studies and career that you can handle complex information; concept maps offer one method to do this.

Practical applications in your courses:

- Handy way to take notes during lecture.
- Excellent aids to group brainstorming.
- Planning your studies and career.
- Providing graphics for your presentations and term papers
- A way to outline your term papers and presentations.
- Refine your creative and critical thinking.

Tips on Making Your Own Concept Maps

Gather Your Writing and Drawing Materials
Having to get up to find a tool or notebook is more than an inconvenience, it can completely break your concentration. Have plenty of paper on hand, colored markers, a ruler, and even a shape template. You may wish to dedicate a notebook just to making and refining visuals for your classes.

Gather Your Research Materials
These materials can include: books, class notes, related newspaper and magazine articles, notes of independent observations, data / statistics, and visual materials, such as photos and diagrams. This is your "database" for making concept maps. You scan such materials to keep relevant information in mind as you are making maps.

Select One of the Concept Map Formats
Get to know the different formats. Try them out when you have an opportunity. See how different formats are appropriate for different kinds of information. For example, if you want to depict the organizational structure of the College of Agricultural, Consumer and Environmental Sciences, a hierarchy map is best (the Dean goes in the top box!).

Making Your First Map
For example, for the question "Should there be logging in old growth forests?", make a spider map to represent the pro's and con's of this issue. On one side of this issue, there are topics like biodiversity and spotted owls that should be depicted on the map. On the other side of the issue, there are topics related to the towns and families that rely on logging income that should be on the map. There are also issues of logging and foreign trade, logging and recreation, and so on. Try to come up with a map that represents the whole issue.

Revising Maps
Revise your maps to refine them: Are they clear? Logical? Attractive? Good maps are like good writing; they are usually the product of several drafts. Show a map to your teacher and friends to get feedback.

Using Maps as Preparation for Discussion Section
After lecture and before your discussion section, make a map to represent the information presented in lecture. They provide a convenient overview of some very complex information.

Creative Tips for Making Maps

1. Review available visual materials such as photos, sketches, graphs, etc.
2. Focus upon a visual language approach to communication.
3. Consider possible formats for visual structuring.
4. Relax, close your eyes and allow your mind to "free associate".
5. Draw informal, thumbnail sketches of your visual impressions.
6. Experiment with a variety of visual layout formats.
7. Color shapes, arrows or words for emphasis.
8. Imagine a bird's eye overview of the subject matter to be presented.
9. Look with fresh eyes, is the visual presentation attractive?
10. Ask yourself, are these visuals compelling? Do they help convince the viewer that the subject matter is important and inviting?
11. Integrate the visuals with the text. Does it work to the best advantage?
12. Keep a record of the maps you do (Perhaps in your "Visual Notebook").

Kinds of Concept Maps

There are four major categories of concept maps. These are distinguished by their different format for representing information. Examples of the various types of concept maps are presented on the following pages.

Four Major Categories of Concept Maps:

SPIDER CONCEPT MAP

The"spider" concept map is organized by placing the central theme or unifying factor in the center of the map. Outwardly radiating sub-themes surround the center of the map.

HIERARCHY CONCEPT MAP

The hierarchy concept map presents information in a descending order of importance. The most important information is placed on the top. Distinguishing factors determine the placement of the information.

FLOWCHART CONCEPT MAP

The flowchart concept map organizes information in a linear format.

SYSTEMS CONCEPT MAP

The systems concept map organizes information in a format which is similar to a flowchart with the addition of 'INPUTS' and 'OUTPUTS'.

Special Concept Maps include the following format types:

PICTURE LANDSCAPE CONCEPT MAP
These maps present information in a landscape format.

MULTIDIMENSIONAL / 3-D CONCEPT MAP
These describe the flow or state of information or resources which are too complicated for a simple two-dimensional map.

MANDALA / MANDALA CONCEPT MAP
Information is presented within a format of interlocking geometric shapes. A "telescoping" factor creates compelling visual effects which focus the attention and thought processes of the viewer.

Examples of actual concept maps

System maps:

THE FOOD TRAIL
{where does your food come from?}
FARM PRODUCTION
LARGE FARMS
AGRIBUSINESS
SMALL FARMS
Ranching Livestock
HARVESTING
TRANSPORT
STORAGE
PROCESSING PLANT
SUPERMARKET
RESEARCH PROMOTION + ADVERTISING
TRANSPORT
FARMERS MARKET

SO_2gas
VOLCANOS
oxidation
$2H^+$ SO_4^{2-}
COAL AND GASOLINE USE
HUMANS
absorption
precipitation
ANIMALS
H_2Sgas
Runoff
PLANTS
FERTILIZER
VOLATILIZATION
ORGANIC SULFUR
uptake
decay
oxidation decay
Polysulfides Thiosulfates Bisulfites
oxidation
reduction
$S^=$
SULFIDES
SO_4^{2-}
SULFATES
Clay
red.
oxd.
oxidation
S
SULFUR
Leaching
Minerals

Spider maps:

Water Garden
Animals
Benches
Walking Trail
Bike Path
Statues
Sunken Garden
Picnic Area
Enjoyment
Selections Gardens
Herb Garden
Savannah Habitat
Prairie Habitat
Woodland Habitat
Research
ARBORETUM
Public Education
Open-air Theater
Home Demonstration Gardens
Ground Covers
Shelter Cooler
Flower Arranging Workshops
Workshops on Pesticides
Workshops on To Feed or Not To Feed Wild Animals
Conservation
Pond
Lawns
Ground Covers
Maintenance
Woodland Habitat
Savannah Habitat
Prairie Habitat

Recreation
Historical
Uses
Wood
Rangeland
Present
Society
Wildlife
Climate
Temp
Wind
Aspect
Soil
You
Policy
Watershed
Forest Management
Protection
Federal
State
private
Forest Resource
Abiotic factors
Fire
Insects
Disease
Ecosystem
community
Forest Regions
Forest Types
Biotic factors
population
Silviculture
Competition
tree species
Genetics
Succession
tree physiology

Landscape map:

Hierarchy map: