

## A Concept maps

### A.1 What is a concept map?

Mathematical concepts do not exist in isolation to each other. Each concept depends on its relationships to many others for meaning. A concept map is a tool for organising and representing knowledge, showing the hierarchy of ideas and illustrating how they fit together. It consists of concepts that are linked together graphically to represent the relationships between them.

Concept maps are particularly useful when the emphasis is on *understanding* and *applying* abstract, theoretical material, rather than on reproducing memorised material. You are asked to draw a concept map at the end of each chapter in this course.

In designing a concept map the critical question to ask is what is the primary word, concept, phrase or problem on which to build the map? Then identify the other key concepts in the chapter. Write the central idea in the centre of the page and then place related ideas on branches that radiate from the central idea. Draw connecting lines between related ideas on different branches. You may find it useful to add examples to some of your items to help clarify the meaning of the concept.

Constructing the concept map will

- Assist and enhance your learning by
  - clearly defining the central idea of each chapter and the relative importance of subsidiary ideas.
  - helping you to understand the links between the ideas and concepts contained in a chapter.
  - allows you to reflect on the implications of the material, developing your understanding of the chapter.
  - summarising the content of each chapter in one page. This aids memory and encourages high-level critical thinking, which is an important part of learning at university, by asking you to evaluate and synthesise your knowledge of a topic.

- Help you revise
  - by allowing you to see the basic information of each chapter on one page.
  - by quickly showing you the connections between the material in each chapter.
  - When you look at your map again during revision does it still make sense? If not, why not?

- Help you revise
  - When you come to revise you should construct new concept maps for each chapter — your insight and views on how the ideas covered in each chapter interconnect may change as you become more familiar with the material.
  - When revising for the final exam you should try constructing a concept map for the entire course to identify the most important concepts and principles and the ways in which they fit together. Look for ways in which concepts in different parts of the course are related to each other.

## A.2 A concept map of concept maps

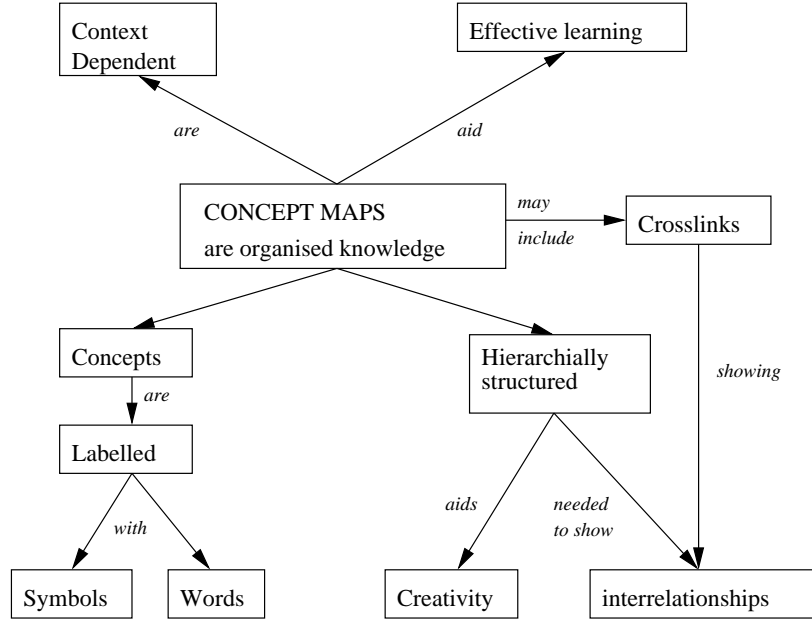


Figure A.1: A concept map of concept maps

Figure A.1 is based on figure 1 at <http://cmap.coginst.uwf.edu/info/>.

## A.3 Further information

There are many web pages on concept maps. One that I find particularly useful is

[http://www.coun.uvic.ca/learn/program/hndouts/map\\_ho.html](http://www.coun.uvic.ca/learn/program/hndouts/map_ho.html)

I have made a link to this site on the course web-page (see under links).