

CHEM 6C: Building Your Course Concept Map

GOAL: This exercise is intended to give you an opportunity to demonstrate the comprehensive knowledge and understanding you have developed this quarter in General Chemistry 6C. As an assessment format, a concept map promotes independent reflection, allows for creativity, and alleviates the potential stress of a timed exam. Further, it serves as a great study tool. As you review, you remind yourself of connecting concepts by building your map (and you can earn course credit in the process!).

What is a concept map?

A concept map is a visual graphic that represents how an individual thinks about a subject, the hierarchies and interconnections of concepts. It is divided into nodes (boxes/circles for the various concepts) and links (lines) that show the relationships (propositions) between concepts, with linking terms (typically a verb) to explicitly describe the relationship.

proposition = 2 concepts + linking description

How do you create a concept map of an entire course?

1. Start by writing a list of key terms for each main topic of the quarter (aqueous equilibria – acid/base titrations, buffers, solubility equilibria; thermodynamics; electrochemistry; chemical kinetics; nuclear decay; coordination complexes).
2. Arrange concepts (words, images) in a hierarchical format, starting with the most general topic(s) at the top. The map will become more specific as you move downwards/outwards.
3. Connect ideas as you go. That is, draw an arrow or line between related concepts. Alongside the arrow, define the relationship using a verb that links them.
4. Where possible, create cross-links between concepts in different domains of the concept map. (e.g., you can connect thermodynamics and electrochemistry via ΔG and E_{cell}).
5. Check and revise as needed.
 - Have key vocabulary terms been effectively integrated?
 - Have you explained concepts/relationships in your words?
 - Are the connections between ideas logical and accurate?
 - Are the link labels correct and precise?
 - Does the quantity and complexity of the map nodes reflect deep understanding?

For an example, this video is helpful: <https://www.youtube.com/watch?v=8XGQGhli0IQ> (Note: I am not promoting the tool, though you may wish to use it or another free, online concept map maker).

You are welcome to share and receive comments on your concept map with and by your peers, but please remember that this is YOUR study tool. No two concept maps should ever look the same –

because no two people have the same way of seeing and representing the (chemistry) world. [In technical terms, we'd say that everyone has different cognitive structures.]

Deadline: End of Exam Week, Friday, June 12, 11 PM.

Submission Format: Please upload a PDF version of your final document to the Canvas assignment.

Grading Rubric: ___ /15 points (for 5% of overall grade; applied to final exam)

Performance Indicators	Level 1 (1 pt)	Level 2 (2 pts)	Level 3 (3 pts)
Concepts (Use of Nodes)	Insufficient number of concepts relating to each topic included.	Minimal but acceptable number of concepts included.	All significant concepts related to each topic are included.
Hierarchical Structure	Little or no general-intermediate-specific structure used. i.e. map has unclear hierarchies.	Some hierarchical structure is used.	Concepts are connected from general to increasingly specific. i.e. map has multiple, clear hierarchies.
Direct Linkages	Lines connect concepts; linking words are simple and/or repetitive and/or missing	Most (if not all) relationships are indicated by a connecting line; linking words show variety but contain some inaccuracies.	All relationships are indicated by a connecting line; linking words are accurate and varied.
Cross-links	Cross links are not used.	Some cross links are used to represent straightforward connections.	Cross links show complex relationships between two or more distinct segments on the concept map (i.e. major/minor topics in the course).
Overall Layout	Arrangement of concepts does not indicate an understanding of conceptual relationships Map is poorly laid out, confusing to read.	Arrangement of concepts demonstrates a correct but not fully developed understanding of conceptual relationships. Map is fairly well laid out.	Arrangement of concepts indicates a comprehensive understanding of conceptual relationships. Map is well laid-out.

Questions? Please contact Dr. Brydges and/or your Graduate TA.