Concept Mapping

(*Based on [Best tools and practices for concept mapping](), which contains additional details and resources*)

A concept map is a way to visualize knowledge or graphically represent an idea. It's similar to a mind map, but there are some generally accepted differences.

Concept Map
- Formal attempt to represent knowledge
- Connects multiple ideas
- Geometric shapes, straight lines
- Expands downward from the top

Mind Map
- Creative way to represent an idea
- Focuses on a central idea
- Colors, wavy lines, pictures
- Builds outward from the center

Some uses of the term "mind map" are trademarked, so it may be simpler to use "concept map" for everything. Don't worry, though, the vocabulary police aren't out there looking for you!

Concept maps are grounded in constructivism, which states that we create meaning from the interaction between our experiences and our ideas. The following list of strategies was gleaned from the literature. It gives a sense of the many ways people use concept maps.

- Assess prior knowledge – students create a visual representation of what they know
- Show how experts organize knowledge – build a map that tells students how *you* think
- Summarize reading – ideas in an article, main points of a chapter, or the theme of a novel
- Plan a task – visualize a project or lab assignment, to get a handle on what is involved
- Conduct an assessment – following a unit or course, students map what they have learned

Practices to consider:
1. Provide a focus question that clearly specifies what is to be mapped.
2. Have students create a short list of key terms before beginning.
3. Provide a partially constructed map as a starting point.
4. Create several maps over time, allowing students to see how their understanding changes.

There are many ways to divide a class when working with concept maps. Students can work entirely as individuals or you can start with individual maps and then form into groups. Small groups can map or the entire class can collaborate.

Students can create maps on paper with pencils, pens, crayons, or markers. Working on whiteboards allows for easy revisions. There is also a variety of popular software for this task; some even allow for collaborative work. Recommended titles include:

- CmapTools – a free tool provided by Florida IHMC,
- VUE – an open source tool provided by Tufts,
- Inspiration – commercial software that has been popular for over twenty years.

Additional Resources:

Creating Concept Maps: Integrating Constructivism Principles into Online Classes (Muirhead)

How Learning Works (Ambrose, et al.) – includes several references to use of concept maps

The Theory Underlying Concept Maps and How to Construct and Use Them (Novak and Cañas)

Using concept maps in the science classroom (Vanides, *et al*.)

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