

## Want to try Concept Mapping in *your* class?

### What are Concept Maps?

Concept maps are graphic organizers that display relationships among concepts. In drawing a concept map, students actively construct their understanding of a topic.

Concept Maps At-a-glance	
Prep	<ul style="list-style-type: none"> <li>• Gather materials</li> <li>• Expert Skeleton Maps (variation)</li> </ul>
During	<ul style="list-style-type: none"> <li>• Tell students how to make a Concept Map</li> <li>• Mind Maps (variation)</li> </ul>
After	<ul style="list-style-type: none"> <li>• Evaluate the Concept Maps</li> </ul>

#### Prep

- Gather materials:

Materials Needed	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens and Markers</li> </ul>
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- Expert Skeleton Maps (variation)
  - Expert Skeleton Maps are maps that have been partially constructed by an expert in the field. Instead of starting from scratch, students work with the partial map you've given them and fill in the remaining concepts (usually provided for them). If you're using this variation, you will need to construct the skeleton map and create a list of the remaining concepts you'd like students to fill in *ahead of the activity*.

#### During

- Tell students how to make a Concept Map:

<i>Material directly from Nilson (2010)</i>
1. Identify key concepts, perhaps twelve to twenty, from the readings, your last lecture, or another source.
2. Write each concept on a small index card or sticky note.
3. Identify the main topic or concept, and place it at top center. This is called the <i>superordinate</i> concept. It is either the most inclusive, general, broad, or abstract or the first stage in a process or sequence.
4. Rank-order or cluster all the remaining ideas, called <i>subordinate</i> concepts from the most inclusive, general, broad or abstract, placing these higher up and closer to the main concept, to the most exclusive, specific, narrow or concrete, placing these lower down. In the case of a process or sequence, order the concepts chronologically. The object is to structure the concepts and their interrelations correctly.
5. Arrange the concepts in a linkable hierarchy.
6. Draw the entire hierarchy on a piece of paper with enclosures around the concepts and linking lines that are labeled to specify the relationship. The linked concepts together with the labeled link is called a <i>proposition</i> .
7. Check for cross-links (connections going across branches), draw in these links as dotted lines and label

them.

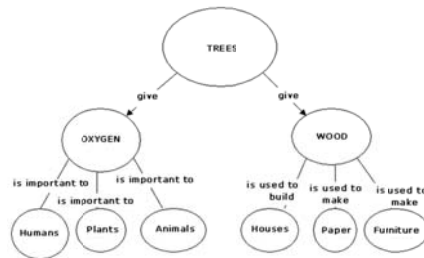
- Mind Maps (variation):
  - Mind maps are like concept maps, but they do not have a hierarchical structure.

Instructions:

*Material directly from Nilson (2010)*

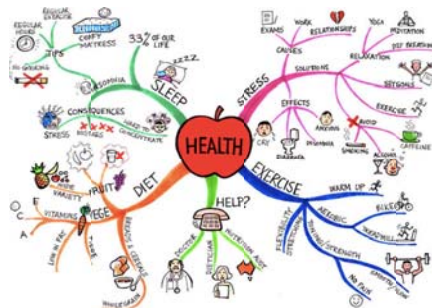
1. Write the central concept, topic, or idea in the center of a large piece of paper, the board, or a landscape-set screen. This is the *primary* idea.
2. Identify up to six or seven closely related concepts, topics, or ideas (for example, subordinate concepts, subtopics, properties or descriptors), and write each of them on the end of a thick line (with arrows) radiating from the center. Use key words only (the briefest and sharpest expression of the idea). These are *secondary* ideas.
3. For each secondary concept, topic, or idea, identify up to six or seven closely related subordinate concepts, subtopics, or ideas (properties, descriptors, examples, or the like), and write each of them on the end of a thinner line (arrows are optional) radiating from the secondary idea. Again, use key words. These are the *tertiary* ideas.
4. Look for cross-relationships, and draw thin lines between related ideas.
5. Add color, suggestive icons, and appropriate symbols. Color-code the lines and key words by secondary-idea branch.

- Sample Concept Map



Sample Concept Map on *Trees* from: <http://ecrp.uiuc.edu/v8n2/birbili.html>

- Sample Mind Map



Sample Mind Map on *Health* from: <http://learningfundamentals.com.au/resources/>

## After

- Evaluate the Concept Maps:
  - Having students make concept maps is a great way to make visible their understanding of a topic.
  - Concept maps can be used as *formative assessments*, as they reveal what students already know about a topic and make plain whatever misconceptions they have. Reviewing what they already know primes students to better understand new information.  
<http://ablconnect.harvard.edu/concept-map-research>
  - Concepts maps can also be used as *summative assessments*. Constructing a concept map is associated with higher retention when it is done at the end of a unit as opposed to the beginning. <http://ablconnect.harvard.edu/concept-map-research>

Evaluation Criteria
• The number of concepts included, unless you provide them
• The number of valid propositions (links between concepts)
• The number of valid levels in the hierarchy
• The number of valid cross-links
• The number of valid examples

*Material directly from Nilson (2010)*

**Concept Map Instructions, Mind Map Instructions, and Evaluation Criteria are taken directly from: Nilson, L. B. (2010). *Teaching at its best: A research-based resource for college instructors*. San Francisco, CA: Jossey-Bass.**