

Use Concept Maps for Formative Assessment

According to Nilson (2016), “Concept maps are quite easy to write instructions for and to assess, which is why they make good gradable assignments and formative assessments” (p. 244). As a formative assessment, concept maps can help you monitor student understanding by checking the number of valid concepts they are able to recall and the number and types of connections they make between those concepts.

Before asking students to create a concept map, explain the purpose of a concept map in a video or live session and share an example of an effective map, being careful to point out what makes it successful. Then, as a pre-assessment, ask students to create a concept map of what they know about a topic. This could be as simple as three columns: what I know, what I think I know, what I want to know.

After a unit of study, have students develop a concept map to demonstrate the topics or concepts they believed to be most important, and the key connections. Use the maps as a formative assessment to determine any patterns of students missing key concepts or connections that may be present so you can revisit those ideas if necessary.

Note: Be sure students are prepared with enough knowledge on a topic and on concept mapping before asking them to complete a concept map as part of a summative assessment.

Grading Concept Maps

Nilson (2016) provides five evaluative dimensions for assessing concept maps:

- 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 (p. 244)

You might consider using the following grading system, adapted from Novak and Gowin (1984), to assess students’ concept maps.

	Point Value	Number Included	Points Achieved
Concepts	1 pt.		
Propositions	1 pt.		
Hierarchical Levels	5 pts.		
Valid Cross-Links	10 pts.		
Examples	1 pt.		

You can also evaluate students’ concept maps with a rubric, like this example from the University of Wisconsin–Stout:

<https://www2.uwstout.edu/content/profdev/rubrics/inspirationrubric.html>

Sources

Nilson, L. B. (2016). Teaching at its best: A research-based resource for college instructors (4th ed.). Jossey-Bass.
 Novak, J. D., & Gowin, D. B. (1984). Learning how to learn. Cambridge University.