Developing Higher-Order Thinking in Chemistry Teaching and Learning

Group Work

Task One
Examine these concepts maps on sulphuric acid and compare how they show students’ different levels of understanding (i.e., which one shows the deepest understanding). Suggest how students’ concept maps can be assessed. How would you make use of concept mapping in teaching and assessment to promote students’ higher-order thinking?

Task Two
Using the topic sulphuric acid, design different questions/tasks using Bloom’s Taxonomy to assess and promote students’ understanding. How would you make use of Bloom’s Taxonomy in teaching and assessment to promote students’ higher-order thinking?

Task Three
Using the topic sulphuric acid, design different questions/tasks using Marzano’s scheme of Dimensions of learning to assess and promote students’ understanding. How would you make use of Marzano’s Dimensions of Learning in teaching and assessment to promote students’ higher-order thinking?

Task Four
Examine and discuss the use of ‘learning diaries’ in promoting students’ understanding and thinking using the examples provided (physics and geography). Design some similar guiding questions (prompts) to promote student reflection in learning chemistry. You may select from these guiding questions and combine them or design new questions and prompts. How would you make use of learning diaries in teaching and assessment to promote students’ higher-order thinking?

Task Five
Examine the Knowledge Forum notes and discuss how these notes reflect students’ thinking and understanding. Are students engaged in higher-order thinking and how does KF promote it? How would you make use of web-based discussion such as Knowledge Forum in teaching and assessment to promote students’ higher-order thinking?