

article:2055**The Rainbow Wheel and Rainbow Matrix: Two Effective Tools for Learning Ionic Nomenclature**

The majority of students about to complete a first year chemistry course have a poor working knowledge of inorganic chemical nomenclature (average quiz scores are less than 60% correct). Usually, the chemical nomenclature topic is not emphasized in a first year chemistry class, and a minimum amount of time is devoted to it. The traditional assignment for chemical nomenclature involves having students work practice problems at the end of the chapter. Students are not very receptive to this approach. The minimal exposure to chemical nomenclature in class along with the ineffective approach of a traditional assignment results in students having a poor working knowledge of chemical nomenclature. Studies have claimed that students are more receptive to learning when game playing is combined with the learning activity. Therefore two educational games were created to help students develop a working knowledge of inorganic chemical nomenclature: the Rainbow Wheel and Rainbow Matrix. (Go to www.chemgames.com to get details on the Rainbow Matrix and Rainbow Wheel Chemical Nomenclature Games). This study compared the learning of inorganic chemical nomenclature by three different methods; one was the traditional method where students worked problems at the end of a chapter, and the other two methods used a game format to learn chemical nomenclature.

The purpose of this research was to compare three methods of practicing nomenclature based on the comparison of mean student achievement on pretest and post-test nomenclature quizzes. The traditional group practiced nomenclature by naming compounds and writing formulas as outlined by homework problems. The Rainbow Wheel group played the Rainbow Wheel game and completed a grid sheet. The Rainbow Matrix group completed the Rainbow Matrix game. All three groups completed approximately 100 problems. The results were analyzed with the Prism3c statistical analysis software, (Graphpad Software Inc., Los Angeles, CA) which performed the ANOVA and t-test statistical analysis.

The statistical analysis of student performance was evaluated with analysis of variance (ANOVA) and t-tests. The analysis revealed that the game format methods were far more effective in helping students develop a working knowledge of chemical nomenclature. The ANOVA test indicate that both the Rainbow Wheel and Rainbow Matrix post-assignment mean scores differ significantly from the traditional group's post-assignment mean scores (p

The results of this study indicate that students will learn chemical nomenclature far more effectively when the subject is presented in a game format. Additional plans are underway to develop more game format methods for teaching other chemical concepts. In fact, a chemical nomenclature game format has been developed for the organic chemistry course.

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