

Modelling Chemical Equilibrium

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Abstract

The Chemical Equilibrium topic is considered difficult for both teachers and students. However, using a software for dynamic modelling can help students expand their knowledge of chemical equilibrium and remove misconceptions (Heck, 2010). For this purpose, we designed a work sheet for the Chemical Equilibrium topic in the Coach 7 software (<https://cma-science.nl>). This work sheet models ammonia synthesis and allows students to observe the changes in the concentration of reactants and products as well as the rate of forward and reverse reactions over time. Based on the concentration values, the equilibrium constant can be calculated and the factors affecting its value can be discussed. This work sheet was given to 23 1st year Master students of Chemistry Teaching during their Chemistry Didactics I course. Before completing the work sheet, students read a text about chemical equilibrium from a textbook for the 1st year of grammar schools. Subsequently, they completed a pre-test with 10 multiple choice questions. The post-test comprised the same questions. The comparison of students' performance in the pre-test (50%) and the post-test (71.3%) indicates that modelling chemical equilibrium improved their knowledge. All students agreed that the modelling method was useful for explaining this topic. 19 students stated they would use this method in their own teaching practice at a high school.

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References

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Keywords

Coach 7 software, modelling, chemical equilibrium