Reasons Why Models Are Critical for Studying Chemistry

Chemistry can often be a difficult subject primarily because it is hard to visualize complicated molecules in 3D space. We have designed molecular model kits in order to aid you in visually creating common functional groups such as ketones, aldehydes, alcohols, thiols, amines, aromatics and most other families of organic compounds. However, did you know that using models and learning by physical interaction has benefits other than allowing you to "see" what a compound looks like?

Education researchers agree that when you work with your hands in the construction of models, you are able to perform better on tests (1-3). Building models activates interactive engagement, which is process that is essential to learning quickly and deeply (4). Hands-on learning activates both sensory and motor skills in addition to your brain, and this has been shown to increase learning and memory retention (5).

Students which engage in hands-on learning techniques' have been shown to score up to a full letter grade higher on tests when compared to traditional methods (2, 6, 7). Believe it or not, hands-on learning can even affect how much you enjoy learning about a subject!

In an article which examined how students perceived the topic they were studying, students which participated in hands-on learning felt more positively toward the topic than those that studied using traditional methods (3, 6). This means that when you learn with your hands, you not only learn more, but also tend to enjoy what you are learning.

In light of this information, you probably won't be surprised to learn that students which constructed physical models while learning a new concept demonstrated up to 12% higher test scores when compared to traditional methods (7)!

Have you ever had problems learning from a specific teacher? Well the research suggests that the use of science kits can overcome the shortcomings of inexperienced or simply poor quality teachers. Students taught with science-kits were equally able to increase their test scores over students that were not taught with science kits, regardless of teacher training (8, 9).

We recommend that our kits be used at least once per week, as research has shown that this is the minimum effective frequency for hands-on learning to be effective (10). When used properly, this kit will quantifiably improve your performance and enjoyment when learning chemistry.

Visit DuluthLabs.com for ideas on how to incorporate our molecular sets into your studying routine or to order for your courses. Please contact us at contact@duluthlabs.com if you have any questions regarding these kits or the cutting edge educational research which has driven their design.

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