

## THE FUTURE SHAPE OF CHEMISTRY EDUCATION

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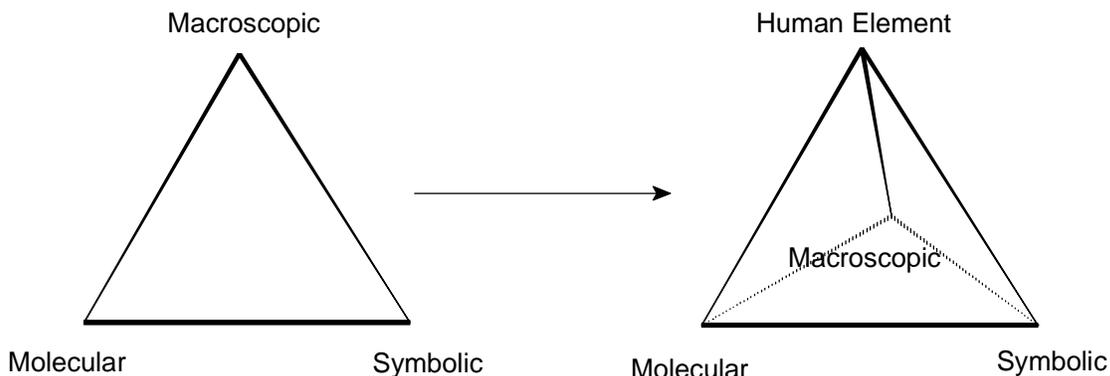
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Diverse forces shape the teaching and learning of chemistry at the beginning of the 21<sup>st</sup> Century. These include fundamental changes in the contours of chemistry as defined by new interfaces and research areas; changes in our understanding of how students learn, and how that applies to chemistry education; the wide-spread implementation of computer and information technologies to visualize complex scientific phenomena; and external forces, such as global concerns about energy and water resources and the environment, and the level of chemical literacy and public understanding of science. In responding to those forces, new dimensions to learning chemistry must be emphasized. It may be helpful to think of tetrahedral chemistry education (Figure 1) as a new metaphor that emphasizes these dimensions, stressing the importance both of the human learner and the web of human connections for chemical reactions and processes.



**Figure 1. Tetrahedral chemistry education: A new emphasis on the human element**

The paper illustrates what tetrahedral chemistry education might look like, using five examples drawn from my own research and "practice" in the classroom and laboratory:

- Chemistry Fuelling Modern Life
- Chemistry of our Planetary Support System
- Chemist-Creators
- Seeing and Understanding the Chemical World

- Chemistry of Life